



Driver & Vehicle
Standards
Agency

AGED TYRE GUIDANCE DOCUMENT

Version 1.b February 2021



Helping you **stay safe** on **Britain's roads**



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Section 1 General Tyre information

1. Foreword

This guidance has been produced to support:

- Testing staff during statutory inspections.
- Enforcement examiners at roadside checks and during maintenance investigations.
- Changes in regulations and policy for a tyre aged more than 10 years of age and the marking of a tyre with a manufacture date code.

2. The Tyre Ageing Process

Tyre ageing is not a function of the passage of time alone but rather the cumulative exposure to adverse environmental and operational factors. Prolonged exposure to ozone or ultraviolet light can lead to degradation of the natural and synthetic rubbers used in tyres. Tyre manufacturers incorporate additives to reduce this phenomenon.

The flexing of the tyre in normal use helps the diffusion of these additives to the surface of the tyre where they act against the adverse effects of exposure to ozone and ultraviolet light. This diffusion process is greatly reduced in tyres fitted to vehicles that are used infrequently. Consequently, such tyres are more susceptible to degradation caused by adverse environmental factors than tyres on vehicles that are frequently used. Spare wheels are a case in this point.

Ageing type damage causes localised hardening of the rubber leading to surface crazing. Similar damage can be caused by overheating resulting from under inflation or overloading. In severe cases, this stiffening can lead to delamination of the inner components of the tyre.

3. Aged Tyre Research

HM Coroners have found that the incidents of catastrophic tyre failure that resulted in the loss of eight lives, were as a result of the age of the tyres involved. Evidence from expert accident investigation has indicated that the nature of the failures was such that a maintenance inspection immediately before the fateful journeys would not have identified the imminent internal failure of the tyres. This suggests that this area of tyre safety cannot be upheld using conventional maintenance metrics.

Department for Transport research into the effect of age on the internal construction of a tyre found increasing levels of corrosion in the steel cords in the older tyres. This corrosion was present in the upper layers of the steel, compromising the bonding to the tread layer. The research also identified hardening of the rubber that could affect the compliance of the tyre as it rolls across the road surface which could add further stress to the bonding.

Ultimately, this can lead to the type of tyre delamination seen in the fatal incidents. Clearly these internal changes are invisible to routine inspection and so the policy, implemented by the change to regulation, is to use age as a substitute for condition.

It has been demonstrated that catastrophic tyre failure on a steering axle leads to the loss of driver control.

The twin wheel arrangement on the rear axles of heavy vehicles can provide a level of stability in the event of a single tyre failure and there is no evidence that such a failure poses the same risk to road safety.

However, smaller minibuses may be equipped with single wheels on all axles and any tyre failure could present a risk of loss of control. The inclusion of tyre age to all axles on a minibus when using single wheels mitigates this risk.

[Link to DfT Aged Tyre Research Document](#)

4. Application

The Road Vehicles Construction and Use (Amendment) Regulations 2020 (2020 No. 1178) will introduce a ban from the 01st of February 2021 on the use of a tyre aged more than 10-years on the front (steering) axle(s) of goods vehicles over 3500kg DGVW, minibuses, large buses, and coaches. The ban also extends to the rear axle(s) of a minibus if it employs a single wheel fitment. In addition, there is a new requirement that the date of manufacture code remains legible, this applies to tyres on any axle including trailers more than 3500kg DGVW, however legislation only requires the date of manufacture code to be marked on one sidewall of the tyre.

The definitions below are for the purpose of the paragraph above:

Minibus – A motor vehicle which is constructed or adapted to carry more than 8, but not more than 16 seated passengers in addition to the driver.

Large Bus – A vehicle constructed or adapted to carry more than 16 passengers in addition to the driver.

Coaches – A large bus with a maximum gross weight of more than 7500kg and a maximum speed exceeding 60mph.

Note. Following alignment between domestic regulations with Directive 2014/45/EU a vehicle test class is defined by its EU categorisation. M1 vehicles for example are to be considered a class 4 test.

A small number of vehicles that would appear to meet the description for living vans have been type approved as M1 category vehicles. The vehicle category may be confirmed via Search or the vehicle chassis plate may provide this information, alternatively the presenter may be able to provide the V5C with the EU category.

Note. The term 'goods vehicle' includes trailer, for the purpose of tyre age, tyres in excess of 10 years of age will not apply to trailers; however, the legibility of the manufacture date code is part of the examination on any axle.

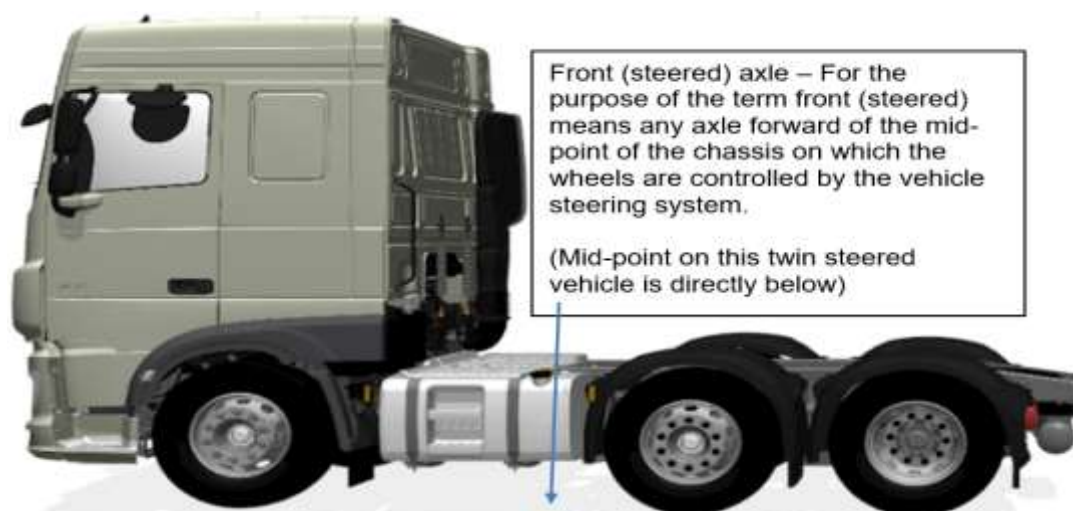
Note. The term minibuses, large buses and coaches includes being used privately (Class 4 or 5) and for PSV use.

Note. The regulation only applies to tyres fitted in the relevant axle positions, in the case of spare wheels/tyres, if an examiner notes the tyre age or date code are not in accordance with these requirements, an Advisory or Inspection Notice will be issued.

When conducting annual tests or enforcement roadworthiness inspections, examiners should check tyre age and tyre age markings, except the following exemptions:

- Category 'T' tractors:
- Goods vehicles and trailers below 3501kgs DGVW and:
- Vehicles which are manufactured or first used (registered) 40 years or more previously, historically preserved or maintained in its original state and has not undergone substantial changes in the technical characteristics of its main components and are not used commercially.

Note. Front (steered) axles definition:





Section 2 Tyre age date codes

5. Tyre manufacture date code (marking)

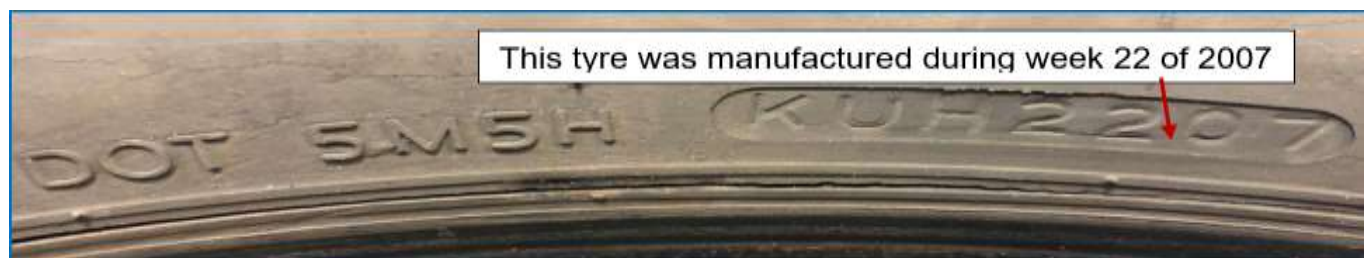
Tyre age can be determined from the manufacture date code marked on the tyre sidewall. This will be a three or four-digit age code normally at the end of the DOT marking. The 'DOT' stands for 'Department of Transportation' (North American safety standard).

Note: Tyres generally have a DOT marking on both sidewalls, but the date code may only be visible at the end of one these DOT markings.

The date code is usually located in a 'window' on the sidewall (follow example 1).



Example 1



Example 2

The first two digits of four-digit date code represent the week of manufacture (week is allocated via the epoch calendar) of the tyre and the second two digits represent the year of manufacture. In example 1, the tyre was manufactured in week 12 of 2018.

Tyres with a three-digit code would have been manufactured before the year 2000, the first and second digits indicating the week and third digit indicating the year, for example, a date code reading 195 would be manufactured in week 19 of 1985, whilst a date code reading 195 could also be possibly manufactured in week 19 of 1995.

Note. Legislation only requires the date codes to be marked on one sidewall, so it may not always be possible to see the date code on some twin wheel fitments. In these circumstances this will not result in a deficiency or prohibition action, the operator will receive an Advisory during annual test or an Inspection Notice during enforcement activities.

Note. A tyre may be fitted on a wheel in such a way that the tyre manufacture date code is displayed on either the inner or outer sidewall positions.

6. Tyre manufacture date code for remoulds (often referred to as tyre retreads/recaps)

The two main types of tyre remould manufacturing processes are:

6.1 Hot Cure Manufacturing Method

With hot cure remoulds otherwise known as hot retreads, tyres undergo a similar manufacturing process to those in new tyre production.

In this process a layer of new uncured rubber compound is applied to the prepared casing, this will cover the tread and complete sidewall areas. With this process only the retread date code will only be present on the tyre, this is again only required to be marked on one sidewall.

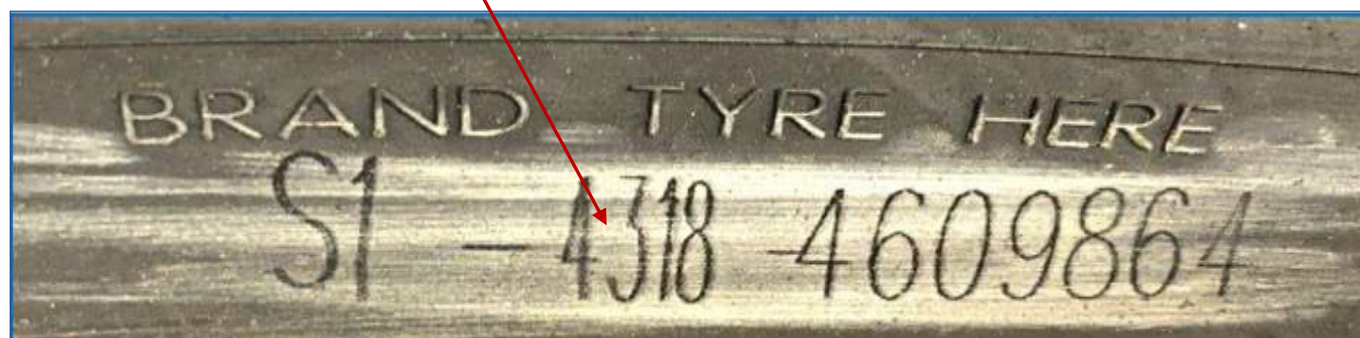
Examples 3, 4, 5 & 6 show typical markings on hot cured retreads.

Following example 3, the retread manufacture date code is week 49 of year 2019.



Example 3

The appearance of the date code on retreaded tyres may be different from the original casing date code and may be branded rather than moulded. In example 4 below, the tyre was subject to the retread process in week 43 of year 2018.



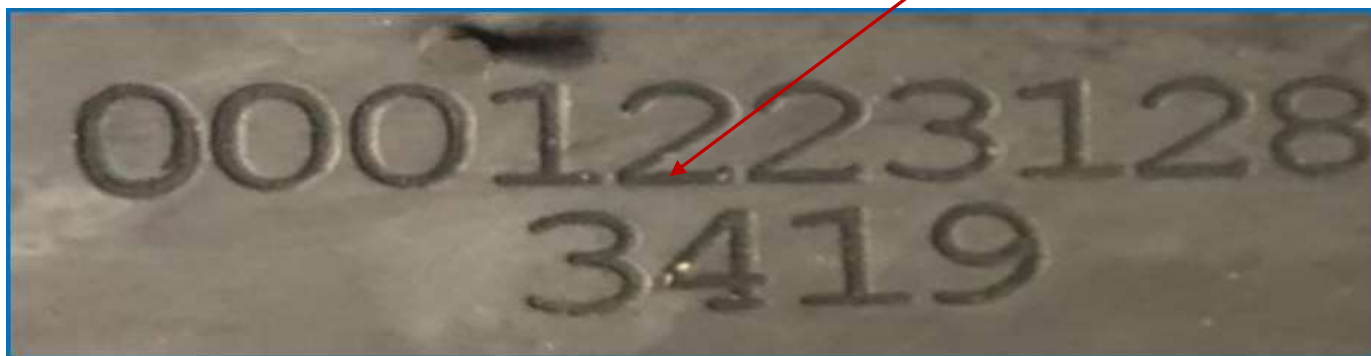
Example 4

Looking at example 5 the date branding is at the end of the code week 06 of year 2016 rather than in the middle as in example 4.



Example 5

In Example 6 below the tyre retread manufacture date code is week 34 of 2019.



Example 6

6.2 Cold Cure Manufacturing Method

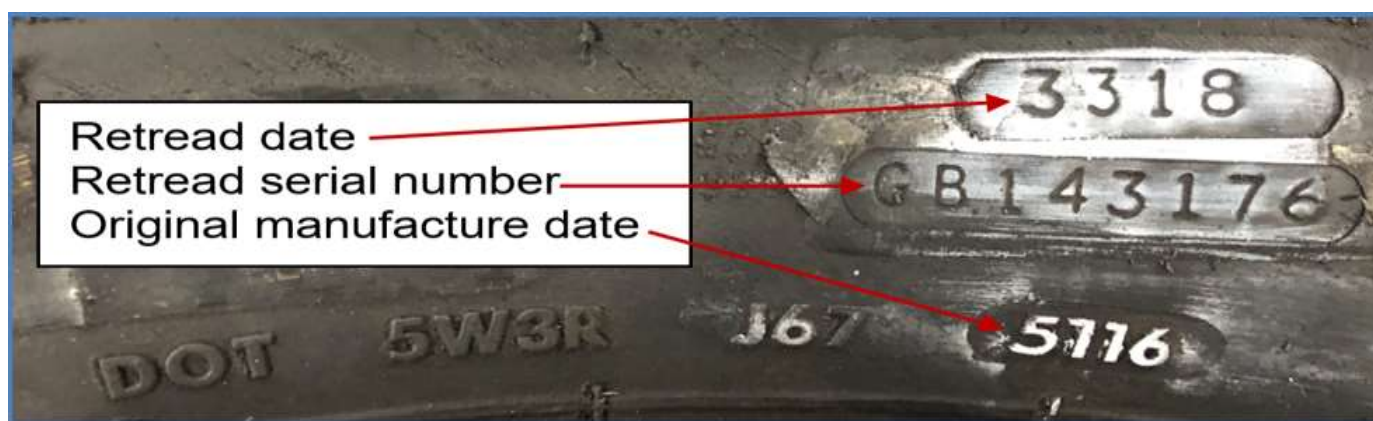
Retread tyres can also be produced using a 'Cold cured manufacturing method' these are often termed recapped tyres, in this process a pre-cured tread strip moulded with the new tread pattern is bonded onto the prepared casing using a thin veneer of rubber compound normally bonded up to the shoulder of the existing casing.

Due to the process these tyres will normally have two date code markings, the casing manufacture date code and the retread date code, (although regulations do not specify, they must both be on the same sidewall), in this case the most recent date code (the retread date) must be applied for the purpose of the examination of tyre age, follow example 7, where manufacture code 3318 must be applied.

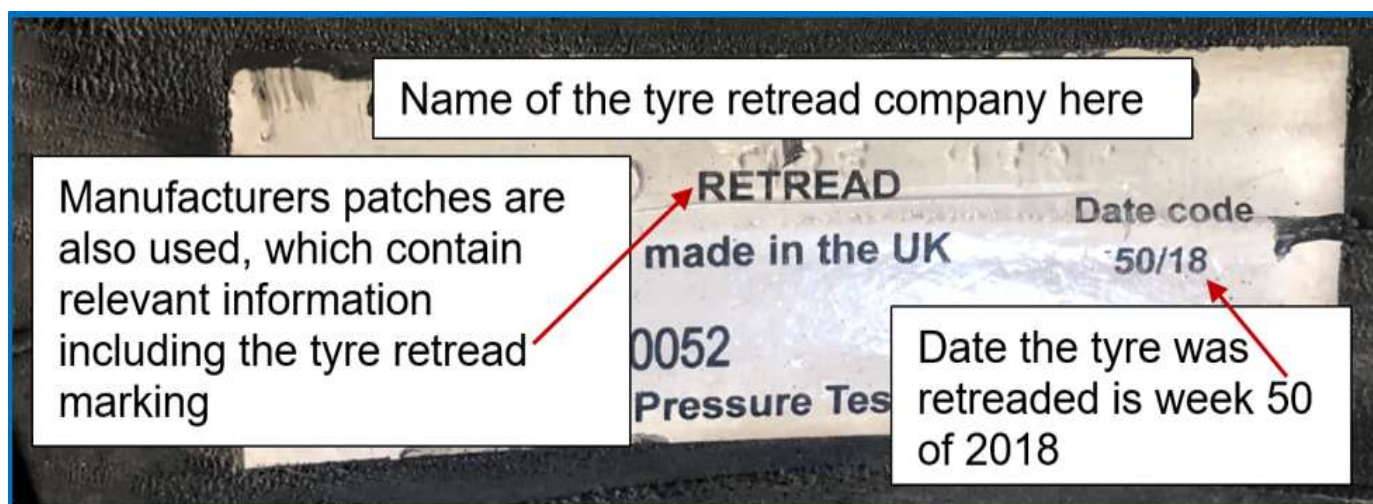
Tyres are only required to be marked on one sidewall with a date code, the regulations do not state the position on the sidewall. This can pose problems in identifying a tyre's age, this means not all cold cured retread dates are near to the original manufacture date code as the one in example 7.

Note. This process can leave unbonded surplus rubber at the tyre shoulder which may give the appearance of tread separation, please be aware this is not to be classed as a deficiency.

Note. In some cases, the retread date code may be marked on the shoulder of the cap, which is bonded to the casing.



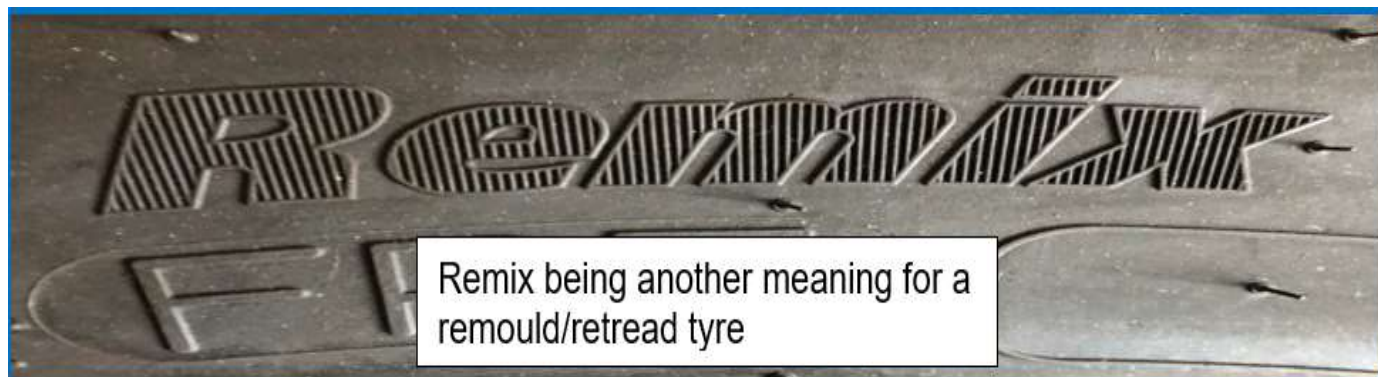
Example 7



Example 8 above shows a cold cured retread identified using a patch.

The term 'Retread' will normally be marked on both sidewalls indicating the tyre has gone through the retread process, except in the case of an asymmetrical tyre which is only required to be marked on one sidewall.

The term 'Retread' can also be marked in other languages depending which country the re-manufacturing process has taken place, follow examples 9 to 14.



Example 9



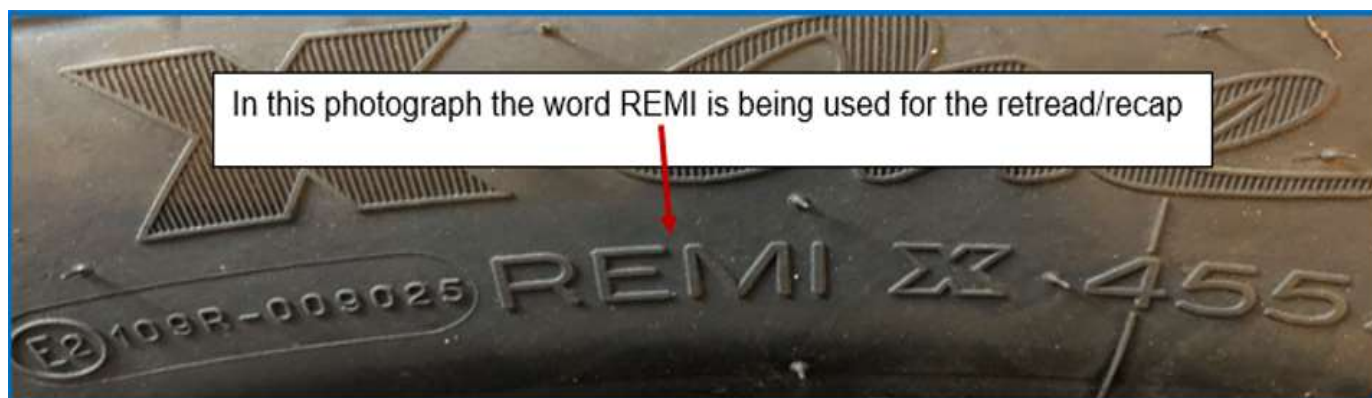
Example 10



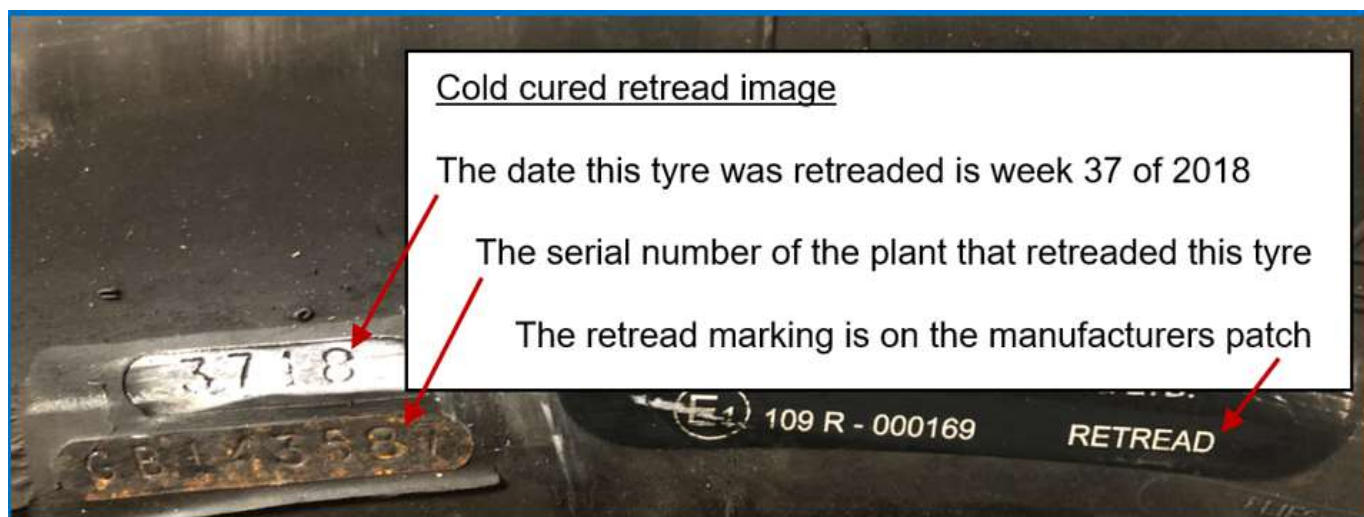
Example 11



Example 12



Example 13



Example 14



Section 3 Testing information

7. At Annual Test

Implementation date

From 01st February 2021.

The HGV and PSV inspection manuals include actions which can be taken in the case of a tyre manufacture date code and tyre age as described in section 4 of this document.

Tyres with a manufacture date code between 9 and 10 years of age

If a tyre on any axle is found during examinations with a tyre manufacture date code between 9 and 10 years of age an Advisory will be issued.

Tyres with a manufacture date code more than 10 years of age

Tyre with a manufacture date code more than 10 years of age in use on any front (steering) axle(s) of a goods vehicles over 3500kg DGVW, minibuses, large buses and coaches will result in a Dangerous deficiency. An Immediate Prohibition will be issued, and the Prohibition will be 'S' marked.

Dangerous deficiency action for a tyre date code more than 10 years of age also extends to any rear axle of a minibus if fitted with single wheels.

Ensure the tyre location and details are captured within Mobile Compliance (MC), for example record the tyre make, model, size, serial number, and the manufacture date code. The serial number and date code should be entered in the serial number box on MC, where this is not possible, record in the comments on MC.

Below are 4 examples of tyre serial numbers highlighted in white (the location of serial numbers will differ on tyre brands).





Note. For tyres in use more than 10 years of age other than the positions in the paragraph above, an Advisory will be issued and the relevant test documentation.

For the purpose of moving the vehicle from the ATF, where it is not possible to replace the tyre at the site, an exemption notice maybe considered providing the risk can be mitigated to allow the vehicle to be driven to a close place for repair. For example, reduced weight and speed.

Tyre Manufacture Date Code

In cases where a tyre date code is not legible or not displayed on any front (steering) axle(s) or any single wheel fitment on a minibus,

- Major deficiency action will be taken.

The tyre location and details will be captured on the test documentation

Note. Not legible will mean cannot be read which includes evidence where it has been deliberately removed, not displayed is where the date code cannot be found.

Note. For a manufacture date code which is not visible due to the position on a twin wheel fitment, Advisory action will be taken.

Note. For tyres in use with a manufacture date code not displayed or not legible other than front (steering) axle(s) or any single wheel fitment on a minibuss, this is an offence, so Minor Deficiency action will be taken with the expectation the tyre will be replaced at the earliest opportunity.

'S' Marking the Prohibition

Where a Dangerous Deficiency and an Immediate prohibition has been issued for a tyre more than 10 years old, the prohibition will be 'S' marked. The reason for the 'S' mark will be in relation to the operator because their maintenance regime must have a robust tyre management system in place as outlined in section 5.2 of the guide to maintaining roadworthiness (GTMRW), please follow the link in section 9.

Examples of 'S' marking reason:

- The nature of the defect(s) observed at annual test where such that should have been found before the vehicle was presented for test.

The 'S' marked endorsement on the prohibition will automatically generate a follow up with the operator.

Twin Wheel Fitment

As the tyre date code is only required to be marked on one sidewall, in cases where tyre age cannot be established due to a twin wheel fitment or limited visual access to the inside of the tyre (e.g., low vehicle with no underside inspection facility) and no evidence can be found that the tyre age markings have been deliberately removed, this will not result in Deficiency action. The operator will receive an Advisory which will be recorded on the relevant test documentation stating for example the 'Tyre manufacture date code is not visible during the inspection', as a result the operator will need to check the date of manufacture of the tyre.

Retread Tyre's

In the case of cold cured retread tyres the tyre manufacture date code will be taken from the retread date code, which will be the most recent.

The background is a solid red color. In the upper right quadrant, there are several white, curved, and straight lines that create a sense of motion or a stylized graphic element, possibly representing a wing or a set of rays.

Section 4 Enforcement information

1. Roadside Enforcement

Implementation date

From 01st February 2021.

The categorisation of defects (Part 1 and 2) has been updated to include actions which can be taken in the case of a tyre manufacture date code and tyre age as described in section 4 of this document.

Tyres with a manufacture date code between 9 and 10 years of age

If a tyre on any axle is found during roadside inspection with a tyre manufacture date code between 9 and 10 years of age, an Inspection Notice (PG35EC) will be issued.

Tyres with a manufacture date code more than 10 years of age

For the purpose of Immediate prohibition action in respect of tyre age, this applies to a tyre with a manufacture date code more than 10 years of age in use on any front (steering) axle(s) of a goods vehicles over 3500kg DGVW, minibuses, large buses and coaches.

Immediate prohibition action for a tyre date code more than 10 years of age also extends to the rear axle of a minibus if it employs a single wheel fitment.

Ensure the tyre location and details are captured within Mobile Compliance (MC), for example record the tyre make, model, size, serial number and the manufacture date code. The serial number and date code should be entered in the serial number box on MC, where this is not possible, record in the comments on MC.

Note. For tyres in use more than 10 years of age other than the positions in the paragraph above, an Inspection Notice will be issued.

For the purpose of moving the vehicle from the check site, where it is not possible to replace the tyre at the site, an exemption notice maybe considered providing the risk can be mitigated to allow the vehicle to be driven to a close place for repair. For example, reduced weight and speed.

Tyre Manufacture Date Code

In cases where a tyre date code is not legible or not displayed on any front (steering) axle(s) or any single wheel fitment on a minibus, the examiner will need to assess the condition of the tyre for signs of deterioration e.g., cracking, splitting, and perishing etc.

- In cases where no evidence of deterioration, 'Delayed' prohibition action will be taken.
- In cases where there is evidence of deterioration. 'Immediate' prohibition action will be taken in line with the categorisation of defects.

The tyre location and details will be captured; for example, tyre make model and size.

Note. Not legible will mean cannot be read which includes evidence where it has been deliberately removed, not displayed is where the date code cannot be found.

Note. For a manufacture date code which is not visible due to the position on a twin wheel fitment, Inspection Notice action will be taken.

Note. For tyres in use with a manufacture date code not displayed or not legible other than front (steering) axle(s) or any single wheel fitment on a minibus, this is an offence, so Inspection Notice action will be taken with the expectation the tyre will be replaced at the earliest opportunity.

'S' Marking and Fixed Penalty

Where an Immediate prohibition has been issued for a tyre more than 10 years old or Immediate/Delayed in the case of a date marking which is not legible or displayed, the prohibition will be 'S' marked, the reason for the 'S' mark will be in relation to the operator, as the maintenance system must have a robust tyre management system in place as outlined in section 5.2 of the guide to maintaining roadworthiness (GTMRW), please follow the link in section 9.

Examples of 'S' marking reason:

- Long standing defect should have been detected and repaired at the last safety check.
- Poor workmanship should have been apparent to repairer.

The 'S' marking endorsement on the prohibition will automatically generate a follow up with the operator.

Driver culpability – fixed penalty action

- In addition to the age or illegibility of the date code, consideration will be given to the visible deterioration of the tyre to decide whether the driver is culpable.
- We would expect the driver to identify obvious visible tyre deterioration, damage, wear, etc, but not necessarily check the date code of the tyres during a walkaround check.
- Owner-driver will normally be considered culpable of tyre age or date marking offence regardless of visible deterioration due to the responsibilities of the operator.

In cases where you have a tyre on a front steered axle with illegal tread depth and more than 10 years old, record both defects on the prohibition notice, for the purpose of fixed penalty action use the most serious offence, which in this case is the tread depth.

In the case where you have more than one offence, a court referral/court deposit will be required.

Twin Wheel Fitment

As the tyre date code is only required to be marked on one sidewall, in cases where tyre age cannot be established due to a twin wheel fitment or limited visual access to the inside of the tyre (e.g., low vehicle with no underside inspection facility) and no evidence can be found that the tyre age markings have been deliberately removed, this will not result in prohibition action.

The operator will receive an Inspection Notice stating the 'Tyre manufacture date code is not visible during the inspection', as a result the operator will need to check the date of manufacture of the tyre, any other identified tyre defects should be actioned in-line with the categorisation of defects.

The tyre location and details will be recorded, for example tyre make, model, size, and the manufacture date code.

Retread Tyre's

In the case of cold cured retread tyres the tyre manufacture date code will be taken from the retread date code, which will be the most recent.

9. Enforcement Follow-up Investigation

The 'S' marked follow up process will be carried out on a risk-based approach. Where examiners are required to complete a follow up visit, this will be a full maintenance investigation. As part of the investigation, the examiner will need to check if the operator has an adequate tyre management system in place.

Reference should be made to tyre management information published in the guide to maintaining roadworthiness, which also links to the BTMA tyre management guidance.

[LINK to GTMRW December 2020](#)

[LINK to Guide to Tyre Management and Maintenance on Heavy Vehicles](#)

10. Tyre Management System Examples

A robust tyre management system is essential for any professional vehicle operator and should ensure:

- that tyres in service are appropriate to the vehicle and operating conditions.
- that tyre age is recorded and monitored for the entire fleet on the tyre management system and that tyres aged more than 10 years old must not be used on the front steered axle(s) of HGV, bus or coach or any single wheels fitted to a minibuses (9 to 16 passenger seats).
- where tyres more than 10 years old are legally used, their age should be recorded and a specific risk assessment completed that considers the distance, speed and loading conditions that the vehicle will operate under (for example, operating only in urban areas).
- the tyre manufacture date code must be legible on all tyres fitted to a HGV, bus, coach or trailers over 3500kg DGVW and minibuses (9 to 16 passenger seats).
- where a date code cannot be seen due to the position on the inside of a twin wheel fitment, this should be advised on the safety inspection. The operator should ensure that the date code is present on the tyre.
- safety inspections must report all tyre defects, for example where a manufacturers date code is illegible or whether a tyre is unserviceable and record the rectification action that has been taken.
- where a tyre is 9 years old, this should be advised on the safety inspection. When over 10 years old and cannot be legally used, these must be reported as a defect.
- tyre pressures are monitored, recorded on the safety inspection report, and maintained to the correct pressure. Where a tyre is found to be under inflated this should be investigated and any rectification action recorded on the safety inspection report.
- that vehicle tyres are regularly and closely examined for damage and wear with mechanisms in place to address any identified issues.
- that processes exist to distribute best practice in tyre management throughout the fleet.
- that staff dealing with tyre management are properly trained and empowered to act with sufficient authority.
- that any technician dealing with tyre inspections or repairs is properly trained and qualified.
- that any on-site tyres are properly stored.
- that drivers are properly trained and equipped to recognise and report tyre issues.

Guidance of Risk Assessments Control Measures using tyres legally, aged more than 10 years old

- Tyre used only on the rear as part of a twin wheel fitment.
- Tyre not used fully laden in-line with tyre load rating.
- Historic vehicles use (vehicles of historical interest are exempt from requirements) Unless used for commercial purposes.
- Only, with low maximum speed vehicle i.e., 30mph.
- Vehicle not used commercially (show vehicle), not driven or short/slow journeys.
- Tyre is used at low road speeds in-line with use.
- Tyre continuously monitored while in service in addition to first use inspection.
- Tyre inspected by qualified tyre technician.
- Tyre contract in place to monitor tyre condition.
- Risk assessment produced.
- Note. The bullet points above are not exhaustive lists.

11. General Guidance for Tyre Repairs BS AU 159g:2013

The British Standards BS AU 159g:2013 specifies the requirements for the repair of cross ply and radial ply pneumatic tyres for motorcycles, scooters, cars, commercial and agricultural vehicles used on the public highway, this includes examination, repair materials and marking for tubeless and tubed tyres.

The standard does not include T-type temporary use spare tyres, temporary seals e.g., string repairs (external plugging) for limited driving until a permanent repair can be made and specialist repairs carried out by the original tyre manufacturer.

‘T-type temporary use spare tyres’ are designed for use in one position only at a time, with inflation pressures higher than those for standard or reinforced tyres.

Note. Tyres repaired in accordance with BS AU 159g:2013 will be able to operate to their original speed load and inflation pressure.

It is vital that any repair is undertaken by a trained operative. All tyre repairs should follow the recommendations contained within BS AU 159g:2013.

Heavy vehicle tyres with major repairs conforming to the British Standard must be marked by the repair agent, radially in line with each repair at a point just above the area covered by the rim flange (this maybe inside or outside of the tyre).

The marking must be permanently legible with the number of the British Standard, i.e., BS AU 159g:2013, and with the repairer's name or identification mark.



Example 1 of a Tyre Marking after a Major Repair



Example 2 of a Tyre Marking after a Major Repair

For further information follow the BTMA tyre management guidance link below:

[LINK to Guide to Tyre Management and Maintenance on Heavy Vehicles](#)



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