



MOT JUICE

2018 - 2019 ANNUAL TESTER CURRICULUM TRAINING

Following on from 2016-17 and 2017-18, the proposals for this year's annual training is to include the following:

Classes 4 & 7

1. Updates to testing procedures brought about by the implementation of Directive 2014/45.
2. Guidelines for the safe testing of alternatively fuelled vehicles, including; hybrid, electric and Hydrogen Fuel Cell powered vehicles.
3. Test Quality Information (TQI) and Data Protection.
4. Additionally, the MOT Annual Assessment should include elements taken from previous years' Annual Training syllabi and MOT General Standards/procedures.

Classes 1 & 2

1. Updates to testing procedures brought about by the implementation of Directive 2014/45.
2. Floating Discs and Radial Brakes, Suspension Types & Alignment.
3. Test Quality Information (TQI) and Data Protection.
4. Additionally, the MOT Annual Assessment should include elements taken from previous years' Annual Training syllabi and MOT General Standards/procedures.

In detail, Classes 3, 4, 5 & 7:

1. Directive EC.2014/45

An understanding of why this European Directive is being implemented in view of 'Brexit':

Great Britain is still a full member of the European Union and will be until 2019. Until such time, all previously agreed legislation implementation programmes must proceed. Additionally, there are good reasons for ensuring harmonisation of roadworthiness standards across Europe.

Suggested Topics:

New defect categorisations;



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- Dangerous
- Major
- Minor

The manual specifies which category applies. NB. Minor failures are issued with a VT20 pass certificate.

New vehicle categories;

eg. M1, N1

Changes to standards;

Training should focus on the changes between the old and the new manual. The list, which is not exhaustive is quite long. It is not expected that Annual Training and Assessment cover the entire scope but more encourages learners to be aware of changes and be able to locate them.

- Brake fluid
- Additional braking device performance
- Daytime running lamps
- Front fog lamps
- Reversing lamps
- Bumpers
- Prop shafts
- All rear drive shafts
- Cab security
- Cab steps
- Floors
- Passenger hand grips (quads and heavy trikes only)
- Noise suppression material
- Under tray security
- Emission control equipment
 - ★ Oxygen sensor
 - ★ NOx sensor
 - ★ Exhaust gas recirculation valve
 - ★ Other emission control equipment
- Engine malfunction indicator lamp
- Fluid leaks - engine, transmission etc

Introduction

- Introduction of EU Type Approval categories
- Clarification of Dual purpose vehicle definition
- American and Canadian pick-up trucks up to 6500kg added to Class 4
- Information about Vehicles of Historic Interest added



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- Reason to refuse to test for presence of a load added
- Reasons for Rejection changed to Deficiencies
- Minor, Major and Dangerous deficiency categorisation
- Definition of insecure added
- Definition of unsafe modification added
- Changes to 'extensively modified vehicle to include modifications for disabled use
- Removal of non-component advisory items on MTS

Brakes

- New failure for brake lining or pad wear indicator illuminated
- New failure for brake lining or pad incorrectly mounted
- New failure for a brake disc or drum missing
- New failure for incorrectly installed brake slack adjuster
- New failure for additional braking device insecure or inoperative
- New failures for other braking system components damaged or corroded g. air dryer, antifreeze pump
- ABS system cannot be removed on a post 2010 vehicle
- New failure for brake fluid contaminated
- New failures for air brake reserver drain device

Steering

- New failures for sector shaft condition
- New failure for steering gear fixing holes elongated
- New failures for electronic power steering wiring damaged or corroded
- New failure relating to 'fly by wire; steering systems

Visibility

- Driver's field of vision definition updated
- View of exterior mirrors added
- New failure for excessively tinted glass

Lamps, Reflectors and Electrical Equipment

- New failure for light source and lamp not compatible
- Headlamp washers tested on vehicles first used on or after 1st September 2009
- Information added about the interaction between position lamps and other lamps
- Inspection of end-outline marker lamps now apply to Class 4, 5 and 7
- New failures for daytime running lamps
- New failures for front fog lamps
- New failures for reversing lamps

Axles, Wheels, Tyres and Suspension

- Failures previously only applicable to large vehicles now apply to any vehicle
- Checks for tyre structure between axles removed
- Improved information about assessing tyre damage



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- Reference to stretched tyres included
- New failure for tyre obviously under-inflated
- New failure for a spring missing
- Tyre tables now in Appendix B

Chassis frame and Attachments

- Vehicle structure now fails if its rigidity is significantly reduced
- New checks for strengthening plates and fastening
- Exhaust fumes entering cabin failure extended to all vehicles
- Information about fuel tanks holed above the fuel line added
- New failures for fuel tank and exhaust shields missing
- New failure for any part of a gas fuel system defective
- New failures for bumper security
- New failure for spare wheel carrier condition
- New failures for tower safety devices and coupling indicators
- Inspection of drive shafts extended to all transmission shafts, including prop shafts
- Inspection now includes drive belts and chains
- Inspection of body condition now includes unsafe modifications, component security, including under trays as well as body pillars on goods vehicles
- New failures for cab security
- New failures for floor condition
- New failures for seat structure condition
- New failures for cab steps
- New failures for footrests and handgrips where fitted

Other Equipment

- Seat belt fitment information moved to Appendix C
- Seat belt installation checks moved to Section 10
- New failure for seat belt not functioning as intended

Nuisance

This new Section includes noise, emissions and fluid leaks

- New failures for noise suppression material
- New failures for exhaust emission control equipment
- New failures for induction leaks
- New failure for engine malfunction indicator lamp
- New failure for evidence that a diesel particulate filter (DPF) has been tampered with
- Metered smoke test date changed to 1st January 1980 - Manufacturer's plate value where present to be used if lower than default values
- New smoke limit of 0.7m⁻¹ introduced for vehicles first used on or after 1st January 2014
- Smoke test limits on vehicles post 1st July 2008 will be carried out to either the default standard or the limit on the manufacturer's plate where one is displayed
- Option to abort the smoke test if levels are significantly in excess of the specified limit values after one acceleration



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- Fast pass no longer exists
- Test is passed if specific limit achieved after one acceleration, otherwise after three accelerations, otherwise after up to a maximum of 6 accelerations
- New failure for any visible smoke from a vehicle fitted with a DPF
- New failures for fluid leaks - engine coolant and Adblue not included

Appendix A - Structural Integrity and Corrosion

- Change to failure criteria for defects not within a prescribed area
- Clarification on acceptable repairs in the case of spot welded panels

Other changes

- Inappropriate repair dropped other than for prescribed areas
- Inappropriate modification changed to unsafe modification
- Where only 'Minor' deficiencies exist, a test certificate (VT20) will still be issued. Some of these items currently fail the test include:
 - ★ Brake fluid levels below minimum mark
 - ★ Master cylinder cap missing
 - ★ Brake fluid warning lamp illuminated or inoperative
 - ★ Power steering fluid below minimum mark
 - ★ Trailer electrical socket insecure
 - ★ Direction indicator flashing rate
 - ★ One of two registration plate lamps missing or inoperative
 - ★ Several audible warning defects
 - ★ Many items 'insecure'; but not likely to become detached

2. Alternative propulsion systems

This primarily includes:

- Hybrids
- Electric Vehicle (EVs) and potentially -
- Hydrogen Fuel Cells (HFCs)

Currently, there are only a very few HFCs in the UK. If a tester counters an HFC for an MOT, he/she should contact **0300 123 9000** (contact centre) for advice on how to proceed.

The focus should be on the first two with an awareness session on HFCs.

Suggested topics

Common misconceptions:

- These vehicles are exempt from MOT Testing



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These vehicles are not exempt from MOT Testing other than they are not subject to an emissions test. However, electric goods vehicles up to and including 3500kg first used before 31st December 2015 are exempt. (NB: This is subject to change in legislation that is proceeding.)

- Special equipment is required to test three vehicles

No special equipment other than the usual MOT equipment is required

- These vehicles can only be tested by personnel that have completed model specific training

A refusal to test one of these vehicles on the grounds that it was either a hybrid or an electric vehicle (EV) would not be a valid reason to refuse to test. Any MOT Tester is permitted to carry out an MOT on these vehicles but certain precautions should be taken.

- There is an inherent risk of electric shock when inspecting these vehicles

This is not true, these vehicles are designed with safety in mind and a normal inspection carries no risk of electric shock.

- These vehicles can start up without warning and can drive off the vehicle hoist

This is true; hybrids may start up when the battery level drops and could if not correctly 'powered down'* in 'drive' move off on their own if simple precautions are not taken. This carries a similar risk to 'start/stop' equipped vehicles. The main concern is where the vehicle has so called 'smart keys'.

*Powered Down: This is a general term and manufacturers may use different terms but it is taken to mean the state in which the vehicle cannot start up or move off. This is not the term that is used to describe the condition the vehicle must be in prior to carrying out repairs on the High Voltage system.

What is a hybrid?

Hybrids have two different sources of energy available to propel the vehicle. Carbon Dioxide emissions are usually reduced because the applications can use smaller than normal engines and can operate for most of the time in the 'sweet spot' (the rev range where the engine runs most efficiently).

Braking energy that would normally be wasted can to some extent be harvested through regenerative braking - that is, using a wheel driven generator to charge up the batteries, providing retardation.

There are different types of hybrid; series, parallel & series parallel (of 'full hybrid'). Most manufacturers produce at least one hybrid model.



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Additionally, there are 'plug in hybrids' and 'range extenders'. Eg. Mitsubishi PHEV and Vauxhall Ampera.

Electric Vehicle (EVs)

These are pure electric and have no internal combustion engine, Nissan Leaf, Renault Zoe and the Tesla range being examples.

All of these vehicles will have an electric propulsion system that runs on very high voltage, typically 350 Volts Direct Current stored in the batteries. There is a convention amongst all manufacturers worldwide that the cables to and from these batteries and any high voltage components (this could include air conditioning) are coloured orange. Under no circumstances should these be disconnected or otherwise interfered with unless manufacturer's specific training has been completed.

However, during an MOT, **this will not impede the test**. If the vehicle is correctly 'powered down' - see above, the high voltage system is isolated. In the highly unlikely situation that any of these cables are found to be in a dangerous condition (eg badly chaffed etc.), the vehicle should fail under Section 4.11. The test should also be abandoned.

Carrying out tests that would normally require the engine to be running - eg power steering or brake servo/full power hydraulic systems checks. For these parts of the test, the vehicle will need to be in the mode that simulates 'engine running mode' or 'ready' and special care should be taken.

Precautions to take

These are not exhaustive and are intentionally intended to be generic. Training Providers should avoid getting into manufacturer specific detail because they are numerous and likely to vary and this is also likely to encourage methods of inspection that are not recognised in the inspection Manual.

- Familiarise yourself with the controls before driving or placing the vehicle in the MOT bay or hoist - particularly how to 'power down' the vehicle. You may need to speak to the owner and/or consult the driver's handbook. It might also be a good idea to ask the owner to ensure that the handbook is in the car when taking the booking.
- Assume high voltage battery and associated components are energised and fully charged.
- Ensure that the parking brake, which may be electronic, is applied for all parts of the test that it is not required to be released.
- Never touch the accelerator pedal unnecessarily when the vehicle is stationary - some vehicle, if not correct 'powered down' could move off on battery power without the engine starting.
- Ensure that the assistant is aware of this.



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- The use of an assistant is strongly recommended even on one person test lanes or one man testing facilities.
- Do not touch or move orange cables or orange coloured components.
- Ensure that the vehicle is 'powered down' for all parts of the test that do not require the 'engine' to be running or the 'ignition' on.
- Beware when carrying out under bonnet checks that the engine could start at any time if not correctly 'powered down'.

Powering down

This is not an exhaustive list;

If the vehicle has a simple key operated system, removing the key from the 'ignition' makes the vehicle safe. Ensure the vehicle is in 'park' and the parking brake is applied (electronic or manually operated).

Where the vehicle has a smart or 'keyless' key, ensure that the 'ready' or any other dash warning lamps are not lit, the vehicle is in 'park', the parking brake is applied (electronic or manually operated) and the key is kept at least ten feet from the vehicle.

Where there is a push button system, it is usually possible to scroll through the modes, which are similar to a conventional key system but there is one big difference; there is no 'engine start' mode, the vehicle is ready to drive when in 'ready' mode, which is usually a green symbol (often a car icon) on the dashboard.

3. Test Quality Information and Data Protection

The following 6th Edition guide references can be used as the basis for a training element that covers the above subjects. The objective is for a tester to be more aware of the information that is available to them and of their responsibilities for ensuring that data is managed legally.

E3 Ongoing Requirements

5. Testers should access their Test Quality Information (TQI) Reports via the MOT Testing Service, to compare their personal performance with the national averages. Testers should note that there may be valid reasons as to why their own personal performance may differ from the national average, eg. average age of vehicle tester. Comparison where a difference is found should lead to the Tester to question why the difference exists.

This is relevant to the tester as it is an ongoing requirement of authorisation.

Authorised Examiners

B6 Quality Management Managing Quality



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9. Procedures

You need to ensure that your staff know how MOTs operate in your VTS(s) - what documents to use, how bookings are operated including the requirements for those vehicles without a current MOT, how to access information such as manuals, guides and reports for example TQI, test logs, slot usage and transactions etc.

This is under the AE section of the guide but it is important that the Tester knows that the AE is responsible to ensure the Tester knows how to access and use TQI and the benefits that can be gained.

B7 Use of Data and Data Protection

1. All persons connected with the MOT Service must comply with all relevant statutory and regulatory requirements, including the Data Protection Act, 1998. It is a requirement of this Act that personal data, which relates to a living individual who can be identified, is kept secure.

This can be used to add further context to the access and appropriate use of TQI data.

6. In order to safeguard the data, each system user should follow these simple rules:

- a. Do not give another person information that they would not otherwise have access to, this includes test result information.
- b. Do not supply any information to a third party or member of the public unless you are told otherwise in the current MOT Guide, Inspection Manuals or SNs (eg. providing documents to vehicle presenters). Any requests for information should be made in writing and sent to DVSA's Information Access Team at DVSA Headquarters. See Appendix 9.
- c. Do not access personal information when there is a danger that unauthorised persons may view the information.

Also this can be used to add further context to the access and appropriate use of TQI data.



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In detail, Classes 1 & 2:

1. Updates to testing procedures brought about by the implementation of Directive 2014/45.

The Directive changes to the test for motorcycles do not technically come into force until 2022. However, it would be very confusing having two manuals that are formatted differently, and have different categorisations or failures. Therefore, the intention is to have the motorcycle manual in the same format by 20th May 2018. This requirement is therefore the same as for Classes 3, 4, 5 and 7.

2. Floating discs and radial brakes, suspension types and alignment

Testers have previously had a tendency to fail floating discs that were not justified failures. This includes failing the disc for slight side movement at the disc bell bobbins, or comparing the movement on one side with the movement on the other disc in twin disc fitment instead of applying the failing criteria. Not using the assistant correctly to ascertain the amount of wear in the components.

Get the assistant to sit on the machine and rock the machine back and forward applying the brake whilst the tester can view the amount of wear in the disc bell bobbins.

Radial brake components Pay particular attention to bosses cast into the fork stanchions and the calliper mounting bolts.

Brake controls, span adjusters and aftermarket components. Modified levers (no ball end etc) thumb control and disabled controls.

Suspension types with the many different types of suspension (telelever, paralever, multilink, telescopic forks, girder forks, rotary dampers, twinshock and mono shock) used on a variety of machines testers have to be aware that they have to check them differently for example a machine with a rear Mono-shock type suspension should have the rear wheel raised the rear brake applied and the rear wheel moved to check for play in the suspension bushes or bearings. however if the machine is fitted with only a side stand and the stand used by the test station supports the rear wheel or swing arm there is a risk of this wear being missed.

Front suspension systems on machines fitted with twin wheels (eg Piaggio MPS) have more components that are moving and therefore more components that can wear. The tester again faces challenges in raising the front of the machine and the test station equipment may not be the most suitable. The tester may have to adapt procedures to suit and make more use of their assistant and in some cases; they may even have to decline to test the machine if their equipment is not suitable.

Wheel alignment



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Be aware that the use of cords to check wheel alignment may not be the easiest method of inspection on machines that already have parallel misalignment as part of their design. For example, some machines fitted with shaft drive and those adapted for use with a sidecar.

When using straight edges of the type that can clamp through the wheel ensure that, the wheel is protected from damage.

What would the effect be of excessive misalignment whilst riding the machine?

3. Test Quality Information and Data Protection.

This requirement is the same as Classes 3, 4, 5 & 7.

4. Annual Assessment

Additionally, the MOT Annual Assessment should include elements taken from previous years' MOT Annual Training syllabi and MOT General Standards/Procedures.