



Vehicle & Operator Services Agency

# **MoT Compliance Survey (MCS) 2011/12**

Re-examination of recently  
tested vehicles, April 2011 to  
March 2012

**In House Analytical  
Consultancy**

**June 2012**

*Department for*  
**Transport**



GOVERNMENT OPERATIONAL RESEARCH SERVICE

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## Chapter 1: Introduction

The MOT Compliance Survey (MCS) is an exercise conducted throughout the year involving the re-examination of a vehicle (class 4 only) that has been recently tested at a randomly selected Vehicle Testing Station (VTS). A VOSA Vehicle Examiner (VE) uses the MOT facilities, at the site where the vehicle was tested, to establish if the correct test standards have been applied and correct test outcome achieved.

The purpose of the survey is to provide VOSA and others with data, which can be used to evaluate the baseline level of compliance with MOT Scheme standards.

In order to produce statistically robust results, the MCS aims for an annual sample size of 1,800 re-examinations. The VTS at which the re-examinations were conducted were randomly selected taking into account site location postcode, historical test volumes and month conducted based on the previous 12 months test data taken from MOT Computerisation. The sample list contains a Primary and Secondary site for each MCS check and is divided into VOSA areas by month of year (April to March). VOSA areas are requested to make every effort to conduct an MCS check at all the primary sites within the month specified. However, if a test at the primary site is not available, the VE may decide to either return to the primary site at a later date within that month or visit the secondary site.

### MoT Compliance Survey (MCS)

- Estimates the baseline level of MoT compliance with published test standards
- 1,800 Vehicle Testing Stations (VTS) are randomly selected for the survey
- One recently tested vehicle (class 4 only) is re-examined at each of the selected VTS

### IHAC

The In House Analytical Consultancy (IHAC) within DfT provides an analytical project-based consultancy service to DfT and its Agencies, using Operational Research (OR) techniques to find practical solutions to strategic, policy and operational problems.

IHAC have worked with the VOSA MOT Scheme Management on the sampling methodology and construction of the MOT Compliance Survey (MCS) for the past five years. To ensure impartiality within the analysis, VOSA asked IHAC to conduct the majority of the analysis for this year end report.

## Chapter 2: Results

This chapter contains the results of the analysis of the re-examinations conducted in the 2011 -12 MCS reporting year. The accompanying data tables can be found in Chapter 3:

Firstly the re-examinations conducted are considered, then the test error and the test outcomes.

The results are expressed in terms of test outcome, disciplinary outcome, defects disagreed, component area of defects and prohibitions. This enables VOSA to interpret the results in terms of the potential affect on road safety.

This chapter also includes the results from analysis comparing test error and test outcomes with VTS risk score (red / amber / green).

Wherever a difference in results (for example, between years or risk ratings) is said to be "statistically significant" it means that we would expect to see a similar difference in 95% of similar samples, i.e. 5% of the results may be erroneous, which is an inevitable factor of the statistical analysis.

### Key findings

- 1,788 surveys were completed and analysed
- MCS error rate was 14.60%, not significantly different from the 2010-11 MCS error rate (12.39%)
- Of the vehicles that the VTS failed, 8.0% should have passed – significantly higher than the 2010/11 rate (3.7%)
- The proportion of re-examinations resulting in disciplinary action recorded and advisory warning letters was similar to 2010/11
- The proportion of re-examinations that found at least one defect disagreed by VE was similar to 2010/11
- Headlamp aim was the component area with the highest proportion of defects disagreed
- The prohibition rate was significantly higher than 2010/11
- There was no significant relationship between risk rating and test error

## 2.1 Re-examinations conducted

Of the 1,800 VTS randomly selected for the MCS sample in the 2011/12 reporting year: 1,788 (99.6%) surveys were completed.

## 2.2 Failure rate

The initial failure rate (which measures the condition of vehicles as presented for test) at the VTS was 41.4%; not statistically different from the rate in 2010/11.

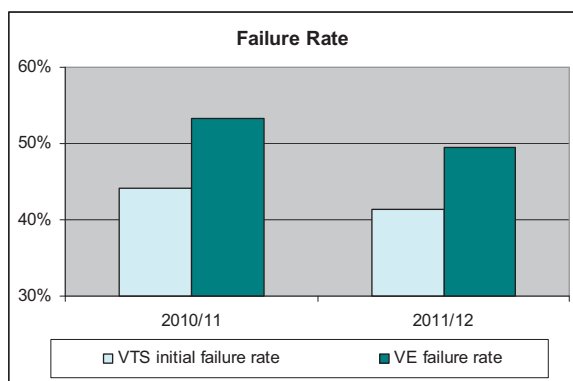


Figure 1

## 2.3 Test error

The MCS error rate was 14.60% with a 95% confidence interval of +/- 1.64% i.e. in 95% of samples the error rate would fall between 12.96% and 16.24%.

The 2011/12 error rate was not significantly different from the rate in 2010/11 (12.39%).

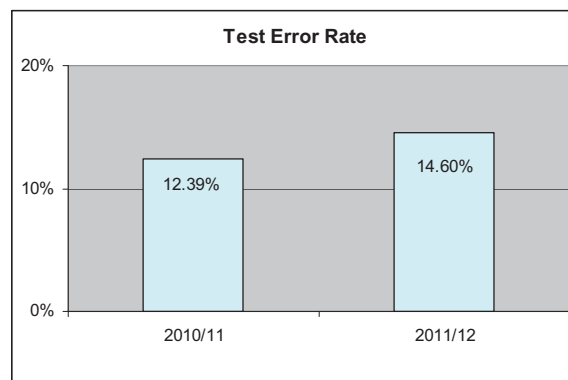


Figure 2

Of the vehicles that the VTS failed, 8.0% should have passed – significantly higher than the proportion last year (3.7%). Of the vehicles that the VTS passed, 19.3% should have failed – the same proportion as last year. See table under section 3.2.

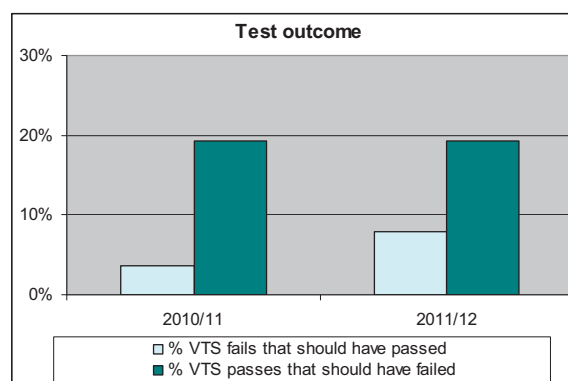


Figure 3

## 2.4 Disciplinary outcome

In order to understand the severity of the test errors, the indicative disciplinary outcome of the re-examination was captured. There are three possible outcomes from the MCS activity (in order of severity); disciplinary action recorded (DAR), advisory warning letter (AWL) or no further action (NFA).

Where defects were missed or incorrect decisions made by the VTS, the volume and severity of the shortcoming determines the disciplinary outcome.

There were 232 disciplinary outcomes recorded (see tables under section 3.3).

The proportion of re-examinations resulting in disciplinary action recorded and advisory warning letters was similar to 2010/11.

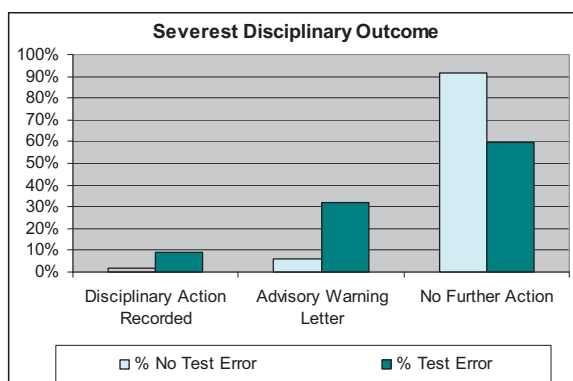


Figure 4

Not all test errors result in formal disciplinary action (DAR). In cases where, in the opinion of the Vehicle Examiner (VE), the error is marginal the benefit of the doubt is usually given.

**MCS with test error**

Of the 261 MCS activities that resulted in an error between the test & the re-examination outcome, disciplinary action was required in 8.81% - similar to last year.

**2.5 Defects**

**2.5.1 Number of defects**

Of the 1,788 vehicles re-examined, 26.2% (468) had at least one defect disagreed by the VE – not significantly different to 2010/11 (27.7%).

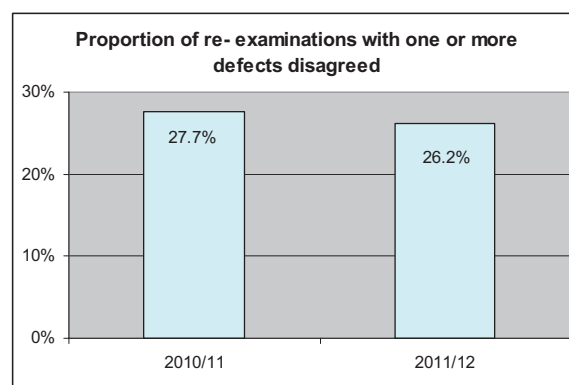


Figure 5

Of the vehicles where defects were disagreed: 56.6% (265) had one defect disagreed, 28.4% (133) had two defects disagreed and 15.0% (70) had three or more defects disagreed – a similar distribution to the 2010/11 vehicles. See table and chart under section 3.4.

Of those 468 vehicles with disagreed defects, 46.2% (216) had a test error – not significantly different to last year (44.8% vehicles).

The average number of defects missed per vehicle, on vehicles with at least one defect missed, was 1.7 - the same as in 2010/11.

**2.5.2 Component area**

To help understand where Nominated Testers are not applying the correct standards, the defects have been categorised by their component area.

Headlamp aim was the component area with the highest proportion of defects disagreed – 23.4% of all defects found. The table and chart at section 3.5 contains MCS with defects disagreed grouped by component areas.

In order to improve clarity around the specific defect category some component groups have changed from those used in the 2010/11 MCS. Where

yearly comparison was possible<sup>1</sup>, one component area had a significant change in the proportion of vehicles with defects disagreed from 2010/11 to 2011/12 – tyres and road wheel<sup>2</sup> defects decreased from 4.1% to 2.1%.

Vehicles were significantly more likely to have their test outcome overturned if the following defects were disagreed (in order of importance):

1. Headlamp aim
2. Drivers view of the road
3. Lighting and signalling equipment
4. Brakes
5. Body structure and general items.

Of the 468 vehicles with disagreed defects, 342 vehicles had all their defects disagreed (one or more) within one component area. The table below details those 342 vehicles by component area as a proportion of the total number of re-examinations.

Vehicles with all defects disagreed in one component area (% of total re-examinations)			
Component Area	No test error	Test error	Total
Lighting and Signalling Equipment	1.6%	1.6%	3.2%
Headlamp Aim	1.3%	3.2%	4.5%
Steering	0.5%	0.3%	0.8%
Suspension	1.5%	1.0%	2.4%
Brakes	1.4%	1.2%	2.6%
Tyres and	0.8%	0.5%	1.3%
Seat Belts	0.1%	0.0%	0.1%
Body, Structure and General Items	0.3%	0.2%	0.6%
Exhaust, Fuel and Emissions	0.4%	0.3%	0.7%
Drivers View of the Road	1.2%	1.7%	2.9%

Figure 6

<sup>1</sup> Four component areas were comparable between 2010/11 and 2011/12. See tables in section 3.5

<sup>2</sup> Tyre depth/condition component area in the 2010/11 MCS

There were 57 re-examinations that resulted in a test error solely due to disagreed headlamp aim defects. If there were no headlamp aim defects disagreed, the overall test error rate would decrease from the reported 14.6% to 8.9%.

### 2.5.3 Prohibitions

The seriousness of the defects missed by the Nominated Tester can be considered in terms of the type of prohibition that would have been issued, (with reference to the Categorisation of Defects) had the vehicle been encountered at the roadside in the same condition. See table under section 3.6.

If the vehicles re-examined in this years MCS were encountered on the road, 6.2% would have been issued with immediate prohibitions and 2.9% with delayed prohibitions. Therefore the combined prohibition rate was 9.1%, significantly higher than the rate in 2010/11 (7.1%).

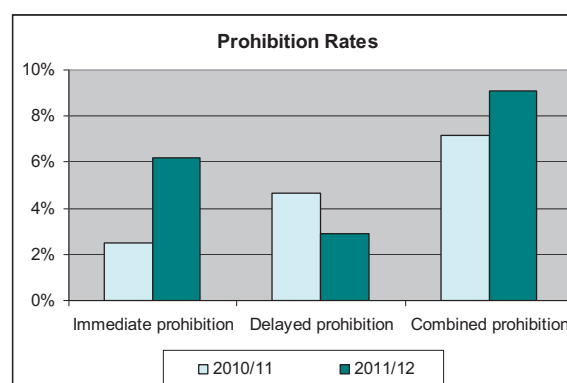


Figure 7

## 2.6 VTS risk rating

VOSA score Vehicle Testing Stations (VTS) on their risk of non-compliance with MOT Scheme rules based on site assessments, disciplinary history & MOT data. VTS are scored either as red, amber or green (high, medium or low risk).

The proportion of VTS classified as red, amber and green risk at the time of the MCS activity was different to the national profile – red VTS were over-sampled and green VTS under-sampled.

Risk rating	MCS sample	National profile
Red	17.4%	10.0%
Amber	30.9%	28.0%
Green	51.7%	62.0%

**Figure 8**

There was no significant difference between the risk ratings and test error i.e. a red VTS was not significantly more likely to have a test error than an amber or green VTS. Therefore the over/under sampling has not effected the overall test error rate.

Risk rating was not a significant factor associated with defects disagreed – there was no significance difference between a red, amber or green VTS and the likelihood of having at least one defect disagreed or the number of defects disagreed.

When the risk ratings of the VTS in the 2011/12 MCS were considered the following significant results were found.

In comparison with other VTS, a **red VTS** was:

- significantly more likely to have a DAR
- significantly more likely to have a VTS test fail
- significantly more likely to have a VE test fail.

In comparison with other VTS, a **green VTS** was:

- significantly less likely to have a DAR
- significantly more likely to have a VTS test pass

- significantly more likely to have a VE test pass
- significantly less likely to have a suspension defect disagreed.

Where analysis by defect component group was possible<sup>3</sup>, there were no significant difference between the risk ratings for any other defect component.

<sup>3</sup> Analysis could not be conducted for some defect component groups due to small numbers of defects within those groups.



## Chapter 3: Annex A

### 3.1 MCS responses

Figure 9

	2010 - 11	2011 - 12
Sample size	1800	1800
Total completed	1792	1788
% completed	99.6%	99.3%

### 3.2 Test fail and error rate

Figure 10

	2010 - 11	2011 - 12
Vehicle testing station initial failure rate	44.1%	41.4%
Vehicle examiner failure rate	53.2%	49.4%
% of VTS passes that should have failed	19.3%	19.3%
% of VTS fails that should have passed	3.7%	8.0%
<b>Error Rate</b>	<b>12.4%</b>	<b>14.6%</b>

### 3.3 Disciplinary outcome

Figure 11 – Disciplinary outcome as a percentage of re-examinations

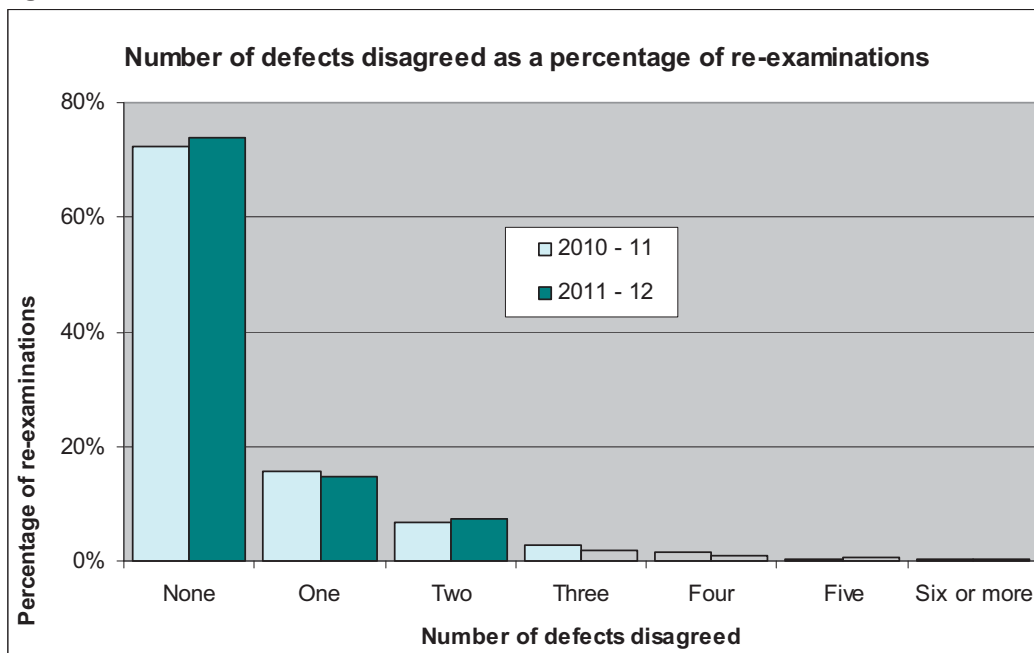
Disciplinary Outcome	2010 - 11	2011 - 12
Disciplinary Action Recorded	3.2%	3.1%
Advisory Warning Letter	8.1%	9.9%
No Further Action	88.7%	87.0%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>

### 3.4 Number of defects disagreed

Figure 12 – Number of defects disagreed as a percentage of re-examinations

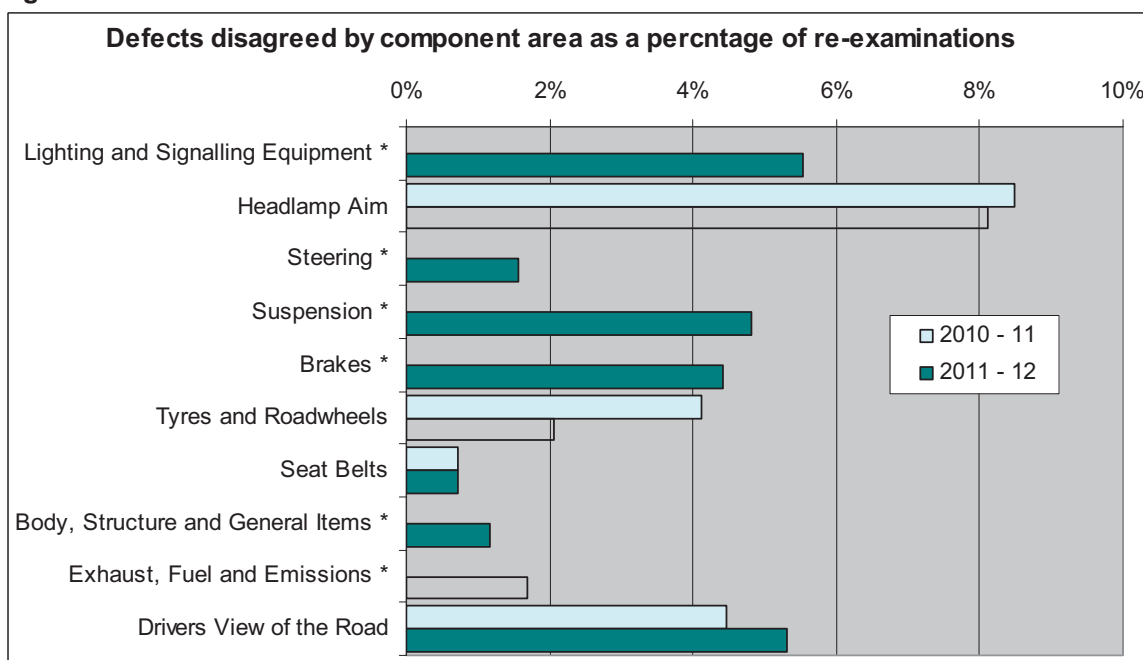
Defects disagreed	2010 - 11	2011 - 12
None	72.3%	73.8%
One	15.7%	14.8%
Two	6.9%	7.4%
Three	2.8%	2.0%
Four	1.6%	0.8%
Five	0.4%	0.7%
Six or more	0.3%	0.4%
<b>Total re-examinations</b>	<b>100.0%</b>	<b>100.0%</b>
<b>One or more</b>	<b>27.7%</b>	<b>26.2%</b>

Figure 13



### 3.5 Defects disagreed by component area

Figure 14



\* No comparable component area from 2010/11 MCS.

**Figure 15 - Defects disagreed by component area as a proportion of re-examinations**

Defect Component Area	2010 - 11	2011 - 12
Lighting and Signalling Equipment *		5.5%
Headlamp Aim	8.5%	8.1%
Steering *		1.6%
Suspension *		4.8%
Brakes *		4.4%
Tyres and Roadwheels	4.1%	2.1%
Seat Belts	0.7%	0.7%
Body, Structure and General Items *		1.2%
Exhaust, Fuel and Emissions *		1.7%
Drivers View of the Road	4.5%	5.3%

\* No comparable component area from 2010/11 MCS

### 3.6 Prohibitions

**Figure 16**

	2010 - 11	2011 - 12
Immediate prohibition rate	2.5%	6.2%
Delayed prohibition rate	4.6%	2.9%
Combined prohibition rate	7.1%	9.1%

### 3.7 Risk rating

**Figure 17 - Risk profile in population and sample**

	National profile	Sample
Red	10.0%	17.4%
Amber	28.0%	30.9%
Green	62.0%	51.7%
Total	100.0%	100.0%

**Figure 18 –Defects disagreed as a percentage of re-examinations for each risk segment**

Defects disagreed	Red	Amber	Green
None	72.3%	72.9%	75.3%
One	16.0%	15.8%	14.0%
Two	6.0%	7.7%	7.4%
Three	2.7%	1.7%	1.8%
Four	1.0%	0.8%	0.9%
Five	1.0%	0.9%	0.3%
Six or more	1.0%	0.2%	0.2%
Total re-examinations	100.0%	100.0%	100.0%
One or more	27.7%	27.1%	24.7%

### 3.8 Test error rate by month

Figure 19 – Test error rate by month MCS requested

Month	Test error rate
Apr-11	11.3%
May-11	20.0%
Jun-11	19.9%
Jul-11	13.5%
Aug-11	12.3%
Sep-11	14.8%
Oct-11	14.0%
Nov-11	14.8%
Dec-11	9.7%
Jan-12	19.4%
Feb-12	16.3%
Mar-12	9.6%
Total	14.6%