



## **Vehicle approval – Industry Cost Considerations**

A guide to preparing the business case

This guide provides an overview of topics that vehicle manufacturers/importers, body builders and converters need to consider when developing their business case and plans for implementing type or individual vehicle approval for their products.

Companies may find it useful to read this document before seeking external support, e.g. from a trade association, to assist them with their detailed costings and implementation plans.

Any company, irrespective of size, will be affected by the impending vehicle approval requirements. This includes those involved in building or importing cars, chassis cab, light or heavy goods vehicles, minibuses, buses, coaches, vehicle conversions, trailers, caravans or any form of commercial vehicle to be used on the roads.

Body builders, and similar companies involved in multi-stage build, will need to consider approval requirements for their products and any related commercial arrangements with their suppliers and customers.



## Vehicle Approval – Industry Cost Considerations

### 1. Introduction

Legislation known as the Re-cast Framework Directive (RFD) on European Community Whole Vehicle Type Approval (ECWVTA) was published in the Official Journal of the European Union on the 9 October 2007 as Directive 2007/46/EC. A copy of this Directive can be found at

<http://www.dft.gov.uk/pgr/roads/vehicles/sectionecwholevehicletype> This will see the start of a timetable which will extend the scope of European approval rules from cars to all commercial vehicles and trailers. If such a vehicle is to be used on the road, it will require some form of prior approval. Commercial vehicle companies will be required to obtain approval on all types of vehicle, vehicle systems and separate components in a similar way that passenger cars do today and which has been in force since January 1998. The UK Government is also developing a National Small Series Type Approval (NSSTA) and Individual Vehicle Approval (IVA) processes for low volume production sold only in the UK.

Commercial vehicle manufacturers need to determine their business case **now** on whether to use the ECWVTA, NSSTA or IVA route to approval to enable their vehicles to be sold, registered or enter into service. This document provides information on topics that manufacturers need to consider when developing such a business case and planning to implement vehicle approval. It would be useful to consider this in conjunction with DfT's 'Estimated approval fees' information sheet, which has a schedule of indicative fees for approval services and a diagram of the approval process, and DfT's ECWVTA information pack at

<http://www.dft.gov.uk/pgr/roads/vehicles/sectionecwholevehicletype>

In order to meet approval requirements, a company may need to develop and install certain systems and processes that are not in place today and to consider changes to their vehicle design and manufacturing.

The following is information on some of the areas that a company will need to consider regarding the costing of a Type Approval programme. It is not a planning or DIY guide but sets out considerations and sources of further information.

## 2. Planning a Type Approval Programme

When considering bringing a new vehicle to the market the following general principles should be considered:-

### 2.1 *When do you want to first have the vehicle approved?*

- Work back from the date by when the vehicle must have approval in order to see if the programme is feasible from the design, production and approval timing requirements.
- Ensure that you will have the organisational structure in place to support the Type Approval Process and supporting resources in terms of manpower, documentation and quality procedures.
- If you sell vehicles for others to complete, you may need to take this into account in your planning
- Obtain agreement with the Type Approval Authority to the content, timing and cost of the programme.
- Obtain agreement from owners of Approvals from previous stage builds as to the timing of the supply of information of those Approvals. (If any of the Approval information is missing at the time of Type Approval then your Vehicle Type Approval will not be granted and the vehicle will not be able to be approved)

The following sections contain more detailed information

## 3. Vehicle Markets

### 3.1 *Determine your market*

Determine the vehicle market(s) in terms of annual production and the countries into which they are sold. This will help a company to determine if it should take ECWVTA, NSSTA or IVA approval routes and associated technical requirements.

The following provides a guideline

- If annual sales for a product exceed the national small series type approval (NSSTA), then the route should be ECWVTA. (See Annex XII of the RFD)
- If you sell the same product to more than one country it may be more economic to use ECWVTA
- If the numbers for a given product do not exceed NSSTA limit and sold only in the UK, then national type approval may be the route
- If the numbers are very low, then individual vehicle approval (IVA) may be the route

Although the approval requirements are similar, ECWVTA, NSSTA and IVA each has their own quality management systems and detailed technical requirements.

If exporting from the UK into Europe and using NSSTA or IVA you will need to check the Country National requirements and you may be able to use some of the Approvals obtained in the UK to comply with that National scheme.

## 4. Vehicle categories

### 4.1 Determine the vehicle categories

Determine the vehicle categories the company makes. This will enable the company to then identify the specific approval requirements for each category made. The categories are M1, M2, M3, N1, N2, N3, O1, O2, O3, and O4, with special purpose, incomplete, complete or completed within each category.

### 4.2 Vehicle categories

Vehicle Description	RFD Category	Vehicle Definition
Goods Vehicle	<b>N1</b>	gross weight not exceeding 3.5 tonnes
Goods Vehicle	<b>N2</b>	gross weight exceeding 3.5 tonnes but not exceeding 12 tonnes
Goods Vehicle	<b>N3</b>	gross weight exceeding 12 tonnes
Passenger vehicle	<b>M1</b>	Vehicles designed and constructed for the carriage of passengers and comprising no more than eight seats in addition to the driver's seat.
Minibus	<b>M2</b>	more than eight seats, gross weight not over 5 tonnes
Bus / Coach	<b>M3</b>	more than eight seats, gross weight exceeding 5 tonnes
Trailer	<b>O1</b>	gross weight not exceeding 0.75 tonnes
Trailer	<b>O2</b>	gross weight exceeding 0.75 tonnes but not exceeding 3.5 tonnes
Trailer	<b>O3</b>	gross weight exceeding 3.5 tonnes but not exceeding 10 tonnes
Trailer	<b>O4</b>	gross weight exceeding 10 tonnes

### 4.3 Definitions

An *'incomplete vehicle'* is one that must undergo at least one further stage of completion in order to meet the relevant technical requirements for the whole vehicle. For example a cab-chassis is an incomplete vehicle. It is usually not possible to register an incomplete vehicle.

A *'completed vehicle'* is a vehicle resulting from the process of a multi-stage approval, which meets the relevant technical requirements. For example a concrete mixer where a company has added the additional components to a cab-chassis and the vehicle requires no further work before registration.

A *'complete vehicle'* means any vehicle which need not be completed in order to meet the technical requirements. It has been built in one stage, for example a panel van.

A *'special purpose vehicle'* means a vehicle intended to perform a function which requires special body arrangements and/or equipment, such as an ambulance

## **5. Manufacturer, Business Strategy and Multi-stage build**

### *5.1 Manufacturer*

Some companies manufacture their own chassis and put bodies on some of them (complete vehicles) and also supply chassis (incomplete vehicles) to bodybuilders. This means that for type approval, a company could be the manufacturer or in other cases part of a multi-stage build process.

### *5.2 Multi-stage build*

The type approval documentation for the incomplete vehicle will need to be passed to the company in the next stage of the chain. The latter will only need to acquire approval for the work they undertake, unless they make modifications that affect the prior approval. This would invalidate the original approval and the modifier would have to seek a fresh approval for the previous stage(s).

Multi-stage build, in terms of approvals, just takes the approval from the previous stage(s) and adds to it unless changes are made that affect the prior approval

### *5.3 Business strategy and planning*

When planning a vehicle build these points will need to be taken into consideration and the suppliers involved consulted in order to obtain agreement to the plan.

Based upon the above information on vehicle types, markets and annual volumes, the vehicles could be considered for the three available approval options.

- European Community Whole Vehicle Type Approval (ECWVTA),
- National Small Series Type Approval (NSSTA) or
- Individual Approval (IVA)

Each of these approval regimes has different requirements and cost implications so each vehicle build and its volumes, vehicle type and approval process will have to be determined on a case by case basis to identify the best approval route for each product set.

The approval requirements, conformity of production and technical requirements for ECWVTA are known. Estimated ECWVTA, NSSTA and IVA approval fees are set out in DfT's 'Estimated approval fees' information sheet. The draft technical requirements for NSSTA and IVA, which will be UK National Schemes, will be available shortly.

The Republic of Ireland is a separate Member State. It is believed they plan to introduce national schemes in addition to ECWVTA

## **6. Vehicle Type**

### *6.1 Determine the vehicle type(s)*

The vehicle type(s) need to be determined. A full definition of vehicle categories, vehicle types and variants is given in Annex II of the RFD and varies between categories. As a general principle a vehicle type is one where the vehicles do not differ in essential aspects such as construction and design, chassis/floor pan or power plant.

In order to reduce type approval costs, the number of types should be kept to a minimum by having variants within a type. Variants within a type differ but not in essential aspects such as body style, power plant, powered or steered axles. When seeking approval for a type, ensure the variants are included in the type approval.

## **7. Worst casing**

### *7.1 Establish a worst case scenario*

It is recognised by Type Approval Authorities that it is not practical or cost effective to test and inspect every vehicle where a vehicle type requiring approval has various options (variants) and versions. (See Annex II of the RFD for definitions and details). A worst case scenario for vehicle build would be a matrix that covers testing on components, systems and vehicles. So if the worst case option is tested then the other options would meet the requirements, because they would be a sub-set of the matrix. It may be that for worst casing Approval testing purposes that vehicle/systems would be built which would never be offered as a vehicle specification. It is advisable that the vehicle manufacturer proposes the worst case matrix to the Type Approval Authority.

## **8. Applicable Proposed Legislation and Timing**

Directive 2007/46/EC. The timetable for enforcement of the Directive in respect of optional and mandatory dates for type approval of each category of vehicle is set out in Annex XIX of the RFD.

It is expected that the DfT timetable will follow closely the timetable in the Directive. However, in principle, enforcement of 'New Types' dates will only take place for vehicles of categories where a mandatory national approval scheme already exists today, such as GB Goods Vehicle national type approval for chassis-cabs. Where there are no existing mandatory **national** approval schemes, such as for Trailers, Buses and Special Purpose Vehicles, enforcement would take place from the 'Existing Types' date for such vehicles.

## **9. Sources of Present & Future Legislation**

In order to keep up to date with proposals to amend Automotive Legislation, and to be able to plan ahead, it is recommended a regular review needs to be made of the information that is available. Manpower will be required for this activity. Membership of your trade association, such as the SMMT, VBRA or BIMTA, and attendance at their meetings is recommended as a source of such information.

Subscriptions to companies who supply Vehicle Legislation information updates may be required. The following Websites are useful sources of information:-

<http://www.dft.gov.uk/roads/vehicles/typeapproval> - for the RFD and latest information from DfT

<http://www.vca.gov.uk> – for Type Approval, Conformity of Production and Information Notices

<http://www.transportoffice.gov.uk> – for fees and approval details

<http://ec.europa.eu/enterprise/automotive/directives/vehicles/index.htm> - provides list of European Automotive Directives and other automotive information

The UNECE Automotive Regulations are considered to be more up to date than the Directives and these should also be considered at the time of Type Approval. These can be found at <http://www.unece.org/trans/main/wp29/wp29regs.html>

## **10. Type Approval Documentation – Information Documents**

### *10.1 Managing the paperwork*

The whole Type Approval process will need to be supported with the relevant documentation. Systems and manpower will need to be in place to do this. The information documents for each category of vehicle requiring Approval is under discussion with the DfT.

## **11. Type Approval Testing & Development**

### *11.1 Type Approval Authority involvement*

A Type Approval Test should never be conducted without a confidence level that the vehicle will meet the requirements and the management systems will meet conformity of production requirements. Conformity of production assessments and Type Approval pre-tests should be built into a Vehicle Test & Development Plan. The logistics and movement of vehicles to test sites and manpower needed will have to be considered. This can be the most expensive part of the Approval process and needs very careful consideration, especially the Timing Plan and content which can greatly escalate costs if not strictly controlled

As the ECWVTA can be done in any Member state, companies may wish to discuss their programme with several different Approval Authorities to find the most cost effective plan. However, this discussion and documentation exercise will be further cost.

### *11.2 Type approval and technical requirements*

The ECWVTA technical requirements for vehicles can be found in Annex IV of the RFD; Annex XI contains the requirements for special purpose vehicles.

Draft DfT technical requirements and evidence of compliance for NSSTA and most categories of IVA continue to be refined with industry. They may be subject to minor modification and are not yet finalised.

## **12. Dealing with Type Approval Authorities**

### *12.1 Early involvement*

A series of meetings will be required with the Type Approval Authority. This should be agreed as early as possible. Other vehicle manufacturers will be trying to meet the same implementation dates and also test facilities in the UK are limited, so a company may have to go further a field to find test facilities available when required.

### *12.2 Approval Authority involvement*

Don't leave this to the last minute.

- Contact the type approval authority for initial advice. These are the Vehicle Certification Authority (VCA) for NSSTA and the Vehicle and Operators Standards Agency (VOSA) for IVA.
- For NSSTA, obtain agreement with VCA on what you need to do and by when in order to gain type approval for the vehicle and to meet the conformity of production requirements

Undertake the work and then apply for and obtain the required approvals.

### *12.3 Conformity of Production and Control Plans*

Type Approval will require a quality control procedure. These are covered by what is called Conformity of Production (CoP) and Control Plans. These need to be agreed with Type Approval Authority. The details of these are set out in Annex VI of the RFD; the requirements for ECWTA are in the individual Approvals.

The detailed requirements for NSSTA are still in discussion with industry and the DfT.

There will be no CoP requirements for an IVA.

## **13. Extensions to Existing Approvals**

When an Approval is granted the vehicle design and production content is effectively "frozen in time". It is mandatory for a manufacturer who holds an Approval to inform the Type Approval Authority of any changes to the vehicle build which could affect the validity of the Type Approval.

This does not preclude updates and new components or any system being supplied after the original type approval was granted; such changes can be made without obtaining a completely new approval. This is called an extension to an existing Approval. This is by agreement with the Type Approval Authority who issued the Approval, who may require a partial test or a letter of notification of the change is sent to the Type Approval Authority. This is called a Letter of no Concern. Extensions are not applicable to all of the Directives.

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April 2008 Rev 2