



JCB Fastrac in Heavy Goods Vehicle Applications

Agricultural or General Haulage ?

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Introduction

The JCB Fastrac is an instantly recognisable modern agricultural tractor. It is fully type approved for sale in all European Member States as a Category T1 tractor with a maximum speed of 40 km/h and is also sold with a higher maximum speed where high-speed tractors are permitted. Fastrac is offered with a range of engines that have a power out-put between 160 to 260 hp. It has a cab that provides all the comforts of a modern workplace suitable for an 8-hour day and offers maximum safety in the event of an unfortunate accident. All models are equipped with full four wheel suspension and a braking system that provides heavy goods vehicle (HGV) performance including an anti-lock facility for added safety. As well as having suspension and brakes that meet the requirements for an HGV, the Fastrac meets all the other primary safety requirements for a road vehicle i.e. lights and tyres.

Differences between Agricultural and Road Use

As an agricultural vehicle conventional tractors are granted many exemptions from the requirements of the Road Vehicle (Construction and Use) Regulations provided that they are not driven at speeds in excess of 20 mph. They can be designed and manufactured without suspension, they can have a basic hydraulic steering system and are permitted to be braked on only the rear axle. These vehicles are authorised to tow trailers, including unbalanced (semi) trailers, which may impose a three tonne load on the rear axle of the tractor. Depending upon axle configuration an agricultural tractor can legally tow a trailer with a maximum weight of 18290 kg within a maximum combination weight of 24390 kg.

Various other UK legislation introduced by HMRC, VOSA and DVLA control the distance that an agricultural tractor can be used on the road. The Goods Vehicles (Licensing of Operators) Regulations 1995 includes an exemption for agricultural tractors to be listed on an Operators "O" licence. These Regulations permit crops to be hauled over any distance from the field to a store or up to 15 miles as produce. If produce is moved a distance greater than 15 miles then at least a Restricted "O" Licence may be required.



Fig.1 JCB Fastrac with a typical agricultural semi-trailer

By comparison the Heavy Goods Vehicle has to comply with many regulations to ensure safe and robust design and construction standards. Prior to entering service all HGVs, motor vehicles and trailers, have to pass an inspection where these design and construction standards are verified and recorded. All HGV operators are required to have an “O” licence to record all the motor vehicles and trailers that they are permitted to use. An additional requirement of the “O” licence is that an accurate record of vehicle repairs and maintenance is kept, including a six weekly examination and a 12 monthly roadworthiness test.

Where road speed is not restricted by national legislation, HGVs are limited to a European wide maximum speed of 90 km/h. This is enforced by a tested and approved speed governor fitted to the motor vehicle. In view of this HGVs are not restricted to distance travelled but the driver is limited within the constraints imposed by the Driver’s Hours Regulation.

Heavy Goods Vehicles may operate at a maximum weight limit of 44 tonnes provided the vehicle has the appropriate number of axles of the correct load capacity and the correct road excise duty has been paid.

All agricultural tractor manufacturers currently produce tractors with a maximum design speed in excess of 40 km/h (25 mph). As it is not possible to plough fields or operate agricultural equipment at this higher speed, it is there purely to permit faster travel between the farm and fields or between the farm and point of sale or process. Thus maximising the use of the tractor.

Customer Expectation

JCB Customers expect the Fastrac to fulfil all the rolls of a conventional tractor and to perform on the road just like an HGV to permit fast, safe movement of the vehicle and equipment between the farms and fields. They also want to be able to move product between the farms and the point of sale or process as permitted within the rules laid down by HMRC, DVLA and the DfT. Although as an HGV the Fastrac in theory could operate at a maximum combination weight of 40000 kg there is no expectation to do this. Fastrac owners want to diversify from the normal agricultural work they carry out into off-road haulage. This work generally includes transporting sewage and distributing it on farmland operating at a maximum combination weight of around 23000 kg. Typically a JCB Fastrac will weigh 7000 kg the tanker trailer will weigh around 4 tonnes unladen, leaving a load capacity of 12000 kg or approximately 10000 litres of sewage.



Fig.2 JCB Fastrac in an HGV role will typically be towing a tanker semi-trailer

Due to the terrain expected to be encountered the vehicle needs very good off-road ability, far beyond that achieved by an off-road 6x4 HGV. This clearly identifies that there is a need for a JCB Fastrac with national approved as an HGV.

However, what is not under consideration is a JCB Fastrac fitted with a fifth wheel coupling attached to a convention tri-axle trailer.



Fig.3 The JCB Fastrac will not be towing conventional tri-axle trailers

Technical Specification

To operate as an HGV the Fastrac must meet all the primary safety legislative requirement.

To meet the requirements of the Road Vehicle Lighting Regulation the Fastrac is equipped with lights in all the appropriate places to make the vehicle visible in the dark and allow the driver to see where he is going whether in the field or on the public highway. Indicators and brake lamps are fitted to warn other road users of the intention of the driver.

To comply with the requirements of the Road Vehicle (Construction and Use) Regulation a horn is fitted for use when needed. There is a braking system that provides the same performance regarding stopping distance and deceleration as required by an HGV including an antilock facility.

The Fastrac has full four wheel suspension and it has a power assisted mechanical steering system (3000 and 8000 series vehicles) which may in due course be replaced with an approved hydraulic system that has a secondary back-up feature.

Fastrac comes with a tachograph which is an integrated system and not an after market adaptation.

Vehicle In Use Requirements

When it comes to using the Fastrac as an HGV, owners and operators will not receive any of the financial benefits which, are applied to agricultural vehicles. The vehicles will have to use white diesel, even if the primary occupation of the owners or operators is agricultural work. All HGVs are subject to the HGV Plating and Testing requirements and it will be no different for the Fastrac. The vehicles will have to undergo an annual roadworthiness examination at a VOSA HGV test station. However, due to the Fastrac having permanent four wheel drive the brake test would be carried out on the road or test station grounds using a decelerometer rather than the brake rollers. As with any HGV a six weekly examination would have to be performed as part of the “O” licence requirements. The owner will have to pay HGV levels of Road Excise duty dependant upon its maximum operational weight.

Driver Requirements

The driver of an agricultural tractor is required to hold a DVLA Category “F” licence. Most drivers obtained this when they passed their original car-driving test. However, in an HGV roll the driver would be required to possess a valid Category C+E licence.

Age is also an issue. A 16 year old, who has passed a suitable test, may drive a tractor with a fully laden trailer provided that the width of neither the tractor nor trailer exceeds 2.45 metres. From the age of 17 the holder of a Category F licence is permitted to drive a tractor towing a fully laden trailer without the width limitation. However, the law requires that in order to hold a Category C+E licence the driver must be at least 21 years of age. Unlike the agricultural user of a Fastrac who can work all day and all night, the HGV user would be subject to the “Driver’s Hours” regulations.

Legal Operation

The JCB Fastrac currently does not have national approval as an HGV. It was eligible for this in the late 1990s until the emission and noise requirements for an HGV became more stringent. The current JCB Fastrac has a state of the art agricultural engine that meets all the requirements for an agricultural vehicle but does not meet the requirements for an HGV.

The absence of national type approval does not prohibit the Fastrac from performing haulage work. This can be done legally by registering the Fastrac as a “Locomotive” in the DVLA category for general haulage. As with any HGV it would have to use white diesel, it would require a tachograph to be fitted and the vehicle must be recorded on the operator’s “O” licence. The driver would require a Category C+E licence.

As a locomotive the Fastrac would be restricted to a maximum speed of 40 mph on motorways and 30 mph on other roads unless there is a lower maximum speed limit in force. It is worth noting that other conventional agricultural tractors registered as “locomotives” would be restricted to 20 mph because they are not equipped with full four-wheel suspension.

However, registered as a locomotive means that the Fastrac can only tow “full” or “balanced” trailers, it is not permitted tow a semi-trailer. By definition a locomotive cannot carry any load other than equipment for its own use i.e. water, oil etc but as a semi-trailer imposes a vertical load on the towing hitch of the motor vehicle a locomotive is not allowed tow them. This causes a big problem because the operators who want to perform these off-road duties typically have tanker type semi-trailers purpose made for distributing liquid waste product onto the land. See picture under Customer Expectations.



Fig.4 JCB Fastrac operating as a “Locomotive” towing a “Full Trailer”

The Way Forward

One way forward is for owners or operators to modify their existing fleet of semi-trailers into full or centre axle trailers. A more acceptable solution is to approve the JCB Fastrac as an HGV under forthcoming European Union legislation that will require all new goods vehicles and large passenger carrying vehicles to undergo Whole Vehicle Type Approval (WVTA). As part of WVTA there will be facilities for individual vehicles or for small number of vehicles to be accepted under an Individual Vehicle Approval Scheme (IVA). The requirement for IVA should be appropriate and well balanced.

For IVA the technical requirements should not be over burdensome and should have a realistic cost to the manufacturer to provide a vehicle that contributes to the safety of the operator and the public and does not have an adverse effect on the environment. The example used is that the manufacturer of an individual car does not have to undergo a frontal crash test as it would destroy the vehicle. Likewise emission and noise testing that only becomes cost effective when the manufacturer can spread the cost over 100s of vehicles should not be mandatory for vehicles produced singly or in very small numbers.

JCB are not looking for a loop hole in the regulations to get the Fastrac into the HGV market but truly desire to provide a suitable vehicle that can legally perform a task that needs to be done, a task that the haulage industry does not want to do and a task that a conventional HGV cannot undertake. JCB are confident that the Fastrac would comply with any appropriate and balanced measures applied for IVA.

Advantages of an HGV Fastrac

With an Individual Vehicle Approval the JCB Fastrac could be recognised as an HGV and legally tow a semi-trailer allowing the owners and operators to diversify into off-road haulage work. The vehicles would be able to operate under the most arduous conditions. As with all HGVs a Fastrac working in this role would be obliged to obey the standard European maximum speed limit of 90 km/h, unless a lower limit is in force. With a maximum speed of 80 km/h, or in some cases 85 km/h, this would not present a problem.

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The owners and operators of these vehicles would not be encroaching upon the work of the conventional haulage operator because this type of work would only be carried out by specialist operators. Most farmers who transfer their produce or livestock to market or point of sale will continue using their own agricultural tractors within the terms set out in current legislation as it is more cost effective for them to do so. Where product or livestock needs to be moved over a greater distance then farmers will, or should, contract the work to a haulage contractor, unless they have their own transport vehicles.

<p>The threat to the normal haulage operator is not from the legitimate JCB owners but farmers or hauliers operating conventional tractors illegally.</p>

JCB would encourage the Institution of Agricultural Engineers and its individual members to respond to the consultation document on Whole Vehicle Type Approval which will shortly to be issued by the Department for Transport. JCB would suggest that this response should recommend that WVTA should be introduced without delay and that the requirements for IVA should be appropriate and well balanced to reflect the nature of the specialist work individual vehicles are likely to perform.

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Annex 1 – Definitions of Trailers

Extract from Annex 7 of the UNECE Consolidated Resolution on the Construction of Vehicles (RE3)

4.5.1. Semi trailer

A towed vehicle, in which the axle(s) is(are) positioned behind the centre of gravity of the vehicle (when uniformly loaded), and which is equipped with a connecting device permitting horizontal and vertical forces to be transmitted to the towing vehicle. One or more of the axles may be driven by the towing vehicle.



4.5.2. Full trailer

A towed vehicle having at least two axles, and equipped with a towing device which can move vertically (in relation to the trailer) and controls the direction of the front axle(s), but which transmits no significant static load to the towing vehicle. One or more of the axles may be driven by the towing vehicle.



4.5.3. Centre-axle trailer

A towed vehicle, equipped with a device which cannot move vertically (in relation to the trailer) and in which the axle(s) is(are) positioned close to the centre of gravity of the vehicle (when uniformly loaded) such that only a small static vertical load, not exceeding 10 per cent of that corresponding to the maximum mass of the trailer or a load of 1000 kg. (whichever is the lesser) is transmitted to the towing vehicle. One or more of the axles may be driven by the towing vehicle.

