6

The Road Haulage Role in Intermodalism

Road haulage is a vital constituent in virtually all intermodal movements. In fact, very little cargo moves intermodally without, at sometime being carried on the back of a lorry, either before being transferred onto a rail wagon, a waterway barge or a coastal ship, or after shipment by one of these alternative modes; the so-called 'initial' and 'final' legs of an intermodal journey. It is by far the most predominant modal choice for freight movements, accounting, across the whole of Europe, for some 75 per cent of the total freight moved – on a weight basis alone it accounts for about 82 per cent of freight lifted; the difference in the figures is that when travel distance is brought into the equation, freight on rail, while less in total weight, tends to travel greater distances, apart from coal and other quarried and bulk materials which invariably travel a very short distance.

Road haulage is also a complex business, being burdened with a large number of restrictive governmental directives and regulations. Nevertheless, in terms of its role in intermodalism it offers, on the plus side, a degree of convenience and flexibility unmatched by any other mode. The principal tools of its trade, (heavy lorries), can go virtually anywhere, by comparison with other modes, to load or deliver goods. Lorries can be de spatched at very short notice to destinations either near or far, being reasonably assured that these will inevitably be served by a road, even if not by rail or waterway. Also, the operator or the customer, or both, can give precise instruction about their delivery requirements directly to the lorry driver in the reasonable belief that he will carry them out to the best of his ability. In many instances, this is seen as a considerable plus point in favour of lorry transport.

But there is also a downside. Generally, for a start, people do not like heavy lorries – 'juggernauts', they are often disparagingly called – and bemoan their presence in congested town centres, on narrow urban roads and on motorways. This is despite a recent study by Professor Alan McKinnon of the Heriot-Watt University, Edinburgh, *Bigger is better when it comes to road freight* reported in *The Scotsman*, 10 January 2005, which shows that the introduction of the heaviest, 44-tonne, lorries in 2001 has actually helped in the quest to reduce traffic congestion and air pollution. According to the report, this legislative measure has resulted in 34 per cent fewer lorry journeys and 36 per cent fewer carbon dioxide emissions than had been expected (i.e. 134 million vehicle-kilometres against 100 million projected kilometre savings and 136 000 tonnes of carbon dioxide emissions saved against 100 000 tonnes projected). The study also predicted that such benefits might further increase by some 27 per cent by 2006/2007. The influential Freight Transport Association agreed wholeheartedly with McKinnon's conclusions. Spokesman Geoff Dossetter was reported as saying; 'we are moving more goods in fewer vehicles … but no-one has noticed.'

People (i.e. the general public) also question why more goods (all goods even) do not go by rail and, in the extreme, why roads cannot be turned into railways, little realizing that were this to occur the local

supermarket would not be able to stock their favourite brands of breakfast cereal, no more than the local garden centre or do it yourself (DIY) store would have on their shelves the goods customers are looking for on a Saturday morning shopping trip. As we have already seen (p. 59), even the European Commission (EC), which is a very keen proponent of intermodalism (i.e. getting freight off the roads, and on to rail and inland waterways) admits that road transport will remain the backbone of inland surface transport. However, a growing number of trucks on our roads, along with increasing private car and light van use, is putting a great strain on the road networks in the UK and Europe, causing daily traffic jams affecting an estimated 10 per cent, or 7500 kilometres, of the European Union's (EU's) motorway network. Road congestion also leads to vehicle accidents which across Europe are said to result in 41 000 deaths annually, a figure that the EC is desperate to reduce by half by the year 2010 according to its 2001 White Paper on transport; *European Transport Policy for 2010: Time to Decide*. It should be noted that not all of these road deaths are attributable to heavy lorries, although precise Euro-wide statistical data on the breakdown of lorry involvement in road accidents is not currently available.

The full legal burden on road transport operations is far too extensive to explain in depth here; neither it is appropriate because road haulage is not the *be all* and *end all* of intermodalism. Any reader wishing to gain a full understanding of transport law is recommended to consult the author's work on the subject, *The Transport Manager's and Operator's Handbook* published annually by Kogan Page Limited, London. However, it is useful to consider here just a few of the vital issues that feature prominently on the road haulage fleet manager's agenda, particularly when he is contemplating the intermodal conundrum – for example, issues such as maximum vehicle dimensions and weights; operator licensing, community authorizations, and professional competence; exhaust emissions, energy consumption, and noise limits; limits on driver working times; safety law in regard to carrying containers and working in docks; and proposed measures for tolling lorry use of motorways; namely, the dreaded Lorry Road-User Charge (LRUC).

6.1 Lorry sizes and weights for intermodal operations

For a start, we should consider the physical constraints on road haulage vehicles of the type that are normally encountered in intermodal operations; namely their maximum size and gross weight as defined in EC Directive 96/53/EEC and for Great Britain (GB) are defined in both *The Road Vehicles (Construction and Use) Regulations 1986* and *The Road Vehicles (Authorized Weight) Regulations 1998*. Most road vehicles used in intermodal operations are either articulated combinations comprising a tractive (i.e. motive) unit and a semi-trailer, or are road trains comprising a load-carrying rigid vehicle towing a drawbar trailer (alternatively referred to as a drawbar combination, or colloquially in old English haulage parlance as a 'wagon and drag'). There are important operational differences between these two vehicle types, but the most significant in terms of their role in intermodalism lies in the length of the loading platform, a vital dimension in relation to carrying containers and swap bodies. Maximum-length articulated vehicles at 16.5 metres usually have a load platform length of 12.2 metres on which a standard 40-foot International Standards Organization (ISO) container or a 13.6-metre swap body can be loaded, or a 45-foot container which has Geest-designed corner castings to allow for the necessary swing clearance defined by regulations (see also p. 164). Alternatively, such vehicles can carry two 20-foot ISO containers. The drawbar vehicle combination, on the other hand, can manage only two 20-foot ISO containers or two 7.15 metres long swap bodies within its 18.75 metres maximum overall length despite having a combined maximum platform length potential between the drawing vehicle and the trailer of 15.65 metres. A common width limit of 2.55 metres applies to all heavy vehicles except those with refrigerated bodies designed for carrying controlled-temperature products which may be 2.6 metres wide. Europe has a 4-metre maximum height limit for all vehicles, but the UK has no such limit.

The 44-tonne maximum weight limit for heavy road vehicles has already been mentioned a number of times and it would generally be a vehicle of this weight capability that would be used in an intermodal

operations. However, in circumstances where the load density permitted (i.e. such as with high-volume, low-weight loads like products made from plastics and polystyrene, for example) vehicles of lower maximum permitted weights (e.g. 38- or 40-tonne gross weight, or even less) may be suitable without infringing the law on maximum weight limits.

6.2 Operator licensing, community authorizations, and professional competence

Road haulage operations in the UK are controlled by a system of 'quality' licensing which requires hauliers to prove their ability to maintain and operate their vehicles safely and within the law, and be able to show that they are of 'good repute' meaning that they must not have previous convictions for road transport related offences. Broadly similar provisions apply in Europe, albeit the words are different. The system in the GB is called 'Operator' ('O') licensing. There are two main categories of licence applying to professional road hauliers who carry goods for hire and reward; namely, standard national licences for GB domestic operations only and standard national and international licences for haulage firms operating internationally (i.e. beyond the country in which their business is registered). Firms that carry goods only in connection with their own trade or business, such as manufacturers or suppliers, who run their own vehicle fleets require only a restricted licence. International 'O' licence holders in GB are automatically supplied with a document known as a 'Community Authorization', which conforms to EU legal requirements and puts them on the same basis as road hauliers in other EU Member States. Certified copies of this document must be carried on relevant vehicles when they are travelling on international journeys.

Another crucial aspect of operator licensing is that 'O' licence holders in the UK and Community Authorization holders in Europe must be 'professionally competent'. This qualification applies personally to the licence holder if the business is registered in their name and the licence or authority is held personally (i.e. if it is not a corporate entity) or, where the licence is held by a corporate entity, the company must employ a person who is professionally competent. This provision, implemented under EC legislation (Directive 98/76/EC), requires the individual (the scheme only applies to individuals) to qualify either by examination or by past experience to prove their knowledge of road transport law and safe operating procedures.

6.3 Exhaust emissions, noise limits, and energy consumption

Heavy lorries (trucks in common terminology) are notoriously persecuted by public opinion because of their reputation for emitting noxious exhaust fumes, making noise, and creating undue vibration, especially in confined urban streets, and for their energy consumption. But it is important to recognize that in all of these aspects today's lorries are a vast improvement on those that populated our roads only a few years ago. Driven by legislative pressure from government and the constant griping of conservationist groups the latest products from heavy truck manufacturers are surprisingly quiet, fume and vibration free; and they are very energy efficient. Driving cabs in top-of-the-range models are akin to saloon cars in terms of their equipment, appointments (e.g. air conditioning, compact disc (CD) players, bunk beds, etc.) and comfort, even their in-cab quietness (a recent press article said drivers of some of the latest top-of-the-range heavy vehicles are complaining that they are so quiet inside they cannot judge their gear changing effectively) making the driver's job a great deal easier and much less stressful than in the old days.

Relevant legislation on vehicle exhaust emissions, noise and even vibration is extensive and extremely complex, but the reader may find it helpful to understand the following outlines. Firstly, so far as emissions are concerned, both UK and EU law is relevant; this is to be found in the UK's *Road Vehicles (Construction and Use) Regulations 1986*, as amended, and in EU directives 91/542/EEC (of 1991) and 99/66/EEC (of 1999) which respectively specify what are commonly referred to as Euro I and II, and Euro III, IV and V standards. Euro IV is due to come into force in 2005 to be followed by Euro V which

will apply from 2008. The net effect of these ever tightening standards is to achieve overall reductions in the four main poisonous constituents of diesel vehicle exhausts; namely, nitrogen oxides (NO_x), particulates (i.e. particulate matter, PM), hydrocarbons (HC), and carbon monoxide (CO). In the case of nitrogen oxides and particulates, truck manufacturer Volvo reports that emissions of these substances from new trucks over the past 20 years have dropped by 75 per cent and 85 per cent, respectively. For instance, the Euro IV standard which comes into effect in 2005 is intended to reduce NO_x emissions from the present level of 5 grams/kilowatt hour to 3.5 grams/kilowatt hour and by 2008 the Euro V standard will have reduced this further to just 2.0 grams/kilowatt hour. Clearly these stringent controls on emission standards are to the public benefit, but while we are actually seeking to reduce road transport use by switching more freight to alternative modes, where road haulage remains the preferred or the essential mode at least we (the public) can rest assured that everything possible is being done, especially by the heavy truck makers, to clean up the air we breathe.

Vehicle noise (i.e. external noise as opposed to in-cab noise mentioned above), too, is subject to strict legislative control. However, here we are dealing with a much more subjective topic than exhaust emissions, for example, which are specifically controlled by legislation. Noise in this context is not just the vehicle's engine exhaust note, which invariably with heavy trucks is only a minor constituent of the whole noise package, provided the silencer is properly maintained, but it includes the noise made by the tyres on the road surface (quite a considerable element) and the vehicle bodywork and equipment which again can be considerable in the whole scheme of things, especially if the driver does not properly secure container doors, securing chains or even the load itself. There is controlling legislation under the vehicle construction and use provisions mentioned above, which makes it an offence to use a vehicle on a road that causes excessive noise which could have been reasonably avoided by the driver. Noise standards set out in EU Directive 92/97/EEC (of 1992) apply to vehicles made on or after 1 October 1995 and first used on or after 1 October 1996. For post-October 1995 goods vehicles in the category with which we are concerned in this book the maximum noise level in decibels (written as dB(A)) is limited to 78 dB(A) for vehicles with an engine power output between 75–150 kilo Watts, and 80 dB(A) for vehicles with engines exceeding 150 kilo Watts.

Measurement of energy consumption for heavy lorries is quite simply a matter of diesel fuel consumption in miles per gallon (mpg) in imperial measure or, in metric measure, in litres per 100 kilometres. Generally, as may be expected, the heavier the vehicle the greater the fuel consumption and similarly, the higher the engine power the greater the fuel consumption; thus a 44-tonne articulated vehicle with an engine producing, typically, some 500 horse power (bhp) would, on average, be expected to return a fuel consumption figure of around 8.0–8.5 miles per gallon which in metric measure equates to approximately 35–33 litres/100 kilometres.

6.4 Limits on driver working times

One of the major constraints on road haulage operations is the legal restriction on lorry drivers' working times. There are, in fact, two quite separate pieces of legislation for the operator to contend with; first, the new set of rules introduced by the EU's Road Transport Directive (Directive 2002/15/EC) commonly referred to as the RTD, which became effective on 4 April 2005; and second, the long-standing EU drivers' hours law which has been in existence since 1986 under the provisions of EC Regulation 3820/85/EEC and which remains in force despite overlapping the RTD. Both of these sets of rules have to be observed in full making the driver's life a nightmare when it comes to working out what hours he has left to drive and work, when he must take a statutory break and when his rest periods are due. It is, of course, right and proper that heavy vehicle drivers should be restricted in the hours they are allowed to work for reasons of safety, both of the drivers themselves and of other road users. A heavy lorry is a potentially lethal weapon when in the charge of a tired driver or, indeed, one who is over the limit on drink or drugs.

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The RTD, which may be described an off shoot from the main EC Working Time Directive (Directive 93/104/EC) which applies to most workers in Europe, deals specifically with working time provisions for those persons performing 'mobile transport activities' (mainly LGV drivers) – within scope of the EU drivers' hours rules (mentioned above), but with the exception of self-employed mobile workers (such as owner–driver road hauliers) who remain exempt from the Directive until 23 March 2009. The most important, and one of the most heatedly debated provisions of these working time directives is the restriction to a weekly maximum of 48 hours' work, with a maximum of 60-hours work allowable in any 1 week. These weekly totals may be averaged over a 4-month (i.e. 17 weeks) reference period, which can be extended by agreement between employer and employee to 6 months. The total working time is calculated excluding breaks during the working day and waiting time (i.e. 'periods of availability'), but unlike the main working time directive, the RTD does not offer an 'opt out' from the maximum working time. There are special provisions in the Directive relating to break periods, periods of availability, otherwise known as waiting time, night work, worker's holiday entitlements (i.e. at least 4 weeks paid holiday), the need for employers to keep detailed records and the rights of night workers to be given health assessments by a qualified health professional, and even a medical examination if necessary.

Self-employed workers are exempted from inclusion in the RTD until 23 March 2009, as already mentioned. However, to qualify as self-employed these drivers must be genuinely self-employed in accordance with both RTD and Inland Revenue rules on self-employment meaning:

- having as their main occupation the transport of goods by road for hire or reward under an 'O' licence;
- being entitled to work for themselves;
- not being tied to an employer under an employment contract or other hierarchical working relationship;
- having the freedom to organize their own work;
- their income must derive from the profits of their business;
- they must have the freedom, either alone or in co-operation with others, to work for more than one customer.

The limitation on LGV drivers' working times and the self-employed provisions included in the Directive could have a significant long-term bearing on intermodal transport operations. Firstly, because the reduced working time measure is virtually crucifying the road haulage industry which for years has depended on the willingness of truck drivers to work and drive for the maximum that the EU law allows (60–65 hours weekly depending on circumstances). This means a 20–26 per cent reduction on average in driver's available working time and, by simple calculation, a similar reduction in the numbers of LGV drivers likely to be available in the future. The transport trade press, the trade associations, and the trades unions have bandied around various numbers for the likely LGV driver shortages, but a figure of 80 000 seems to be a reasonable and commonly accepted 'guestimate' for the shortfall. The second significantly potential effect of the EU directives is that changing work practices such as reduced driver working hours, and the obvious increase in costs to the transport operator, could very likely lead to firms hiving off their vehicles and employed driving staff to a freelance, self-employment, status so they can continue to operate for the firm but on the exempt owner-driver's available 60–65 hours weekly basis rather than the restricted 48-hour employed driver's basis.

In intermodal terms, these significant changes could prove beneficial because firms that operate their own delivery vehicle fleets will, in the future, undoubtedly seek to save the costs, inconvenience and lost time of vehicles being away on long-haul journeys when they could so easily switch this traffic to alternative modes. Indeed, in practical terms, with fewer drivers available, firms may just not be able to man vehicles for two, three, or more day journeys away from base; better to keep their own drivers for the local collections and deliveries, and seek intermodal possibilities for the long haul.

6.5 Safety law for carrying containers and working in docks

The carriage of ISO containers and swap bodies can be accomplished very safely if legal provisions and correct procedures are followed. Otherwise, as past horror stories have shown, great danger can arise, especially if such units are not properly secured on vehicles. Equally, lorry drivers are at great risk if they do not follow the rules laid down explicitly to protect their safety. Generally, ISO containers should not be carried on vehicles unless specifically designed securing twist locks are fitted on the vehicle and/or trailer and are secured to the container by inter-locking into the corner castings. For maximum safety at least four twist locks should be used (one at each corner) and these should be fully engaged. Regrettably, one often sees vehicles carrying containers where the twist locks are not properly engaged, the driver merely relying on the weight of the container to hold it in place over the twist locks; a dangerous practice adopted solely on the grounds of laziness and disregard for safe practices.

Container owners and those who lease or are in control of freight containers must, in fact, ensure that they comply with the *International Convention for Safe Containers* agreed in Geneva in 1972. *The Freight Containers (Safety Convention) Regulations 1984*, which is the legislation that relates to this issue, applies to containers; 'designed to facilitate the transport of goods by one or more modes of transport without intermediate reloading, designed to be secured or readily handled or both, having corner fittings for these purposes and which have top corner fittings and a bottom area of at least 7 square metres or, if they do not have top corner fittings, a bottom area of at least 14 square metres'.

Containers in the UK that fall within scope of these legal provisions must have a valid approval issued by the Health and Safety Executive (HSE) or a body appointed by the HSE (or under the authority of a foreign government which has acceded to the Safety Convention mentioned above) for the purpose of confirming that they meet specified standards of design and construction and should be fitted with a safety approval plate to this effect. If they are marked with their gross weight such marking must be consistent with the maximum operating gross weight shown on the safety approval plate. The law also requires that containers must be maintained in an efficient state, in efficient working order and in good repair. Details of the arrangements for the approval of containers in GB are set out in a document *Arrangements in GB for the Approval of Containers*, available from the HSE. The safety approval plate (issued by the HSE) as described in the regulations must be permanently fitted to the container where it is clearly visible and not capable of being easily damaged and it must show: the date of manufacture of the container; its identification number; its maximum gross weight in kilogrammes (kg) and pounds (lbs); its allowable stacking weight; and its Racking Test Load Value.

Also originally published in 1972, like the container safety regulations, and now available in its third edition, the UK Department for Transport (D*f* T) Code of Practice (CoP), the *Safety of Loads on Vehicles*, recommends that ISO containers should only be carried on vehicles fitted with twist locks and these must be maintained in a serviceable condition. The CoP warns that:

> Unlike normal box type loads that spread their weight over a large area, containers are designed to stand on the twist lock sockets or feet that protrude down at each corner. With heavy containers this produces high point loading that could over-stress a normal platform floor. Other platform vehicles may have raised or wide section side ledges, which would prevent the container from resting on the platform floor. The resultant interface between the side ledges and the container feet would offer little frictional resistance making it virtually impossible to secure the container on to the vehicle safely and the practice should be avoided.

Where containers are carried on a vehicle not fitted with twist locks, the Code advises that a safe and secure retention system must be used such as that set out in the Code. (As a general word of warning; where twist locks are not available chains should be used to secure a container through the corner casting apertures, but never ropes.)

In the case of swap bodies, which the Code also classes as a type of container, it suggests that these may be fitted with special attachment brackets or lashing rings which should be secured as shown in the Code. In particular it warns against allowing containers (i.e. swap bodies) to project beyond the rear or sides of the vehicle load platform because permanent distortion of the container may take place if part of its base is left unsupported. It says that lashings or other securing devices should only be attached to those points on the container intended for the purpose or for lifting or for mechanical handling when laden, such as lashing rings or special brackets.

6.6 Safety in docks

There are strict rules concerning the activities of lorry drivers when they are collecting or delivering containers to or from the docks. The *Docks Regulations 1988* made under the authority of the *Health and Safety at Work etc Act 1974*, specify that when goods vehicle drivers work in or visit docks premises including roll-on/roll-off ferry ports they must be provided with high-visibility clothing to be worn when they leave the vehicle cab. The clothing may take the form of fluorescent jackets, waistcoats, belts or sashes and must be worn at all times when out of the cab on such premises including when on the vehicle decks of the ferry. Protective headgear (hard hats) must be supplied and worn in such areas where there is likely to be danger of falling objects from above (e.g. where cranes are working). Drivers must leave the vehicle cab when parked on a straddle-carrier grid or where containers are being lifted on to or off the vehicle.

6.7 Lorry Road User Charging: LRUC

It has long been held by the anti-lorry brigade, other environmentalist groups and even government itself that lorries do not pay their way in road taxes in relationship to the amount of wear they are alleged to cause to our roads. There are many contentious aspects to this issue for which there is insufficient space to debate here; neither it is appropriate to do so because intermodal lorries, with which we are solely concerned here constitute barely a miniscule proportion of the total number of all vehicles on our roads. However, it is important to recognize that the tax to be charged for heavy lorries using strategic routes is a key issue.

In the UK, the long-standing vehicle excise duty (VED) system is to be supplemented – modernized, the government calls it – by a controversial system of lorry charging that is due to be introduced in 2007–2008. The so-called LRUC, is currently being developed by Her Majesty's Revenue and Customs (HMRC) so that both British and foreign hauliers pay an amount related to the distance that they travel on UK roads, to ensure that they contribute towards the road-wear costs they impose in the UK. Overall, the LRUC is intended to be 'revenue neutral' for hauliers who already contribute taxes through UK fuel duty. The charge will apply to all heavy goods vehicles over 3.5 tonnes that travel in the UK but not to cars or light vehicles. This will mean that vehicles will have to be fitted with an On-Board Unit (OBU) that will identify and record the vehicle location both when the ignition is switched on and when it is switched off. Roadside equipment will monitor the vehicle's travel progress and record number plate details with Automatic Number Plate Recognition (ANPR) software and there will also be mobile equipment that detects vehicle payment status to ensure full compliance. The toll charge, payable to a new Directorate established with HMCE, may vary according to lorry size, road type and possibly time of day, but there will be offsetting tax cuts through a reduction in hauliers' fuel duty which will be repaid with their LRUC bill.

Germany introduced its own LKW-Maut heavy lorry tolling system in January 2005 after two false starts in 2003 due to technological hiccups, and this is a scheme that is reputed to be less complex than the proposed UK scheme. The Maut system applies to trucks above 12-tonne gross weight which are fitted with an OBU that automatically identifies its location via satellite-based technology when joining

and leaving motorways. The toll due to be paid is based on the distance travelled and this information is transmitted to the collection agency, Toll Collect, which issues the registered operator with a monthly invoice. Manual payments may be made at the toll terminals or via the Internet on a per journey basis. Tolls are charged at a rate of between €0.09 and €0.14 per kilometre (i.e. between approximately 6 pence and 10 pence in UK currency GBP at present rates of exchange; namely, £1.00 = €1.42641 as at 14 January 2005) depending on the number of axles they have and the emissions category they fall into (i.e. Euro I, II, III, or IV). Despite the best will of the UK Government, and other national governments, these tolling schemes are certain to add to road hauliers' operating costs, as well as adding to their burdens of paperwork and technological headaches to deal with. They are also bound to prove to be yet another motivation for transferring freight from road vehicles onto rail or waterway systems for the long haul, not surprisingly, just what the UK Government and the EC wants.

6.8 Road traffic accidents

A reduction in road accidents is cited as one of the likely beneficial, and very welcome, consequences of shifting more freight off the road and on to alternative transport modes. It is an unfortunate fact of life that, despite the fact that modern heavy vehicles are designed and equipped with safety matters and road accident risks very much in mind, and the best possible training of drivers, awareness campaigns and safety propaganda, road accidents do happen and heavy lorries do become involved in, or cause, a proportion of them; environmentalist campaign groups would have us believe that lorries are the evil motivator of many more accidents than statistical data shows to be the case. In fact, in the UK, heavy lorry accidents accounts for only 8 per cent of collisions on trunk roads although, unfortunately, they do, account for 26 per cent of all trunk road casualties. This is principally because they are large and take a greater distance to stop in an emergency and not necessarily because they are ill maintained or carelessly driven. But nowadays, heavy lorries are much more efficiently maintained than hitherto (under a strict legislative and law enforcement regime) and most are fitted with anti-lock braking systems (ABS), which contribute significantly to a reduction in accident rates. However, in spite of progress towards road accident reductions the EC still sees the overall situation as a disaster from the human, social, and economic points of view. The pre-May 2004 15 Member States of the EU report more than 40 000 road deaths every year and the fact that 1.7 million people are injured annually in road accidents, at a total cost estimated at €160 billion per year. And further, according to the EC, the situation is even worse in the 10 new Member States that acceded to the EU in May 2004 where about 12 000 more fatalities occur yearly. But, if positive measures such as the greater application of intermodalism can help to reduce this dreadful toll of human life, pain and suffering then the switch of traffic from road to alternative modes is very well justified.

6.9 Road haulage operations

It is a fact that most general goods begin the journey to their destination on the back of a lorry either loaded directly into the vehicle itself, or into an ISO container or swap body which is then loaded on to a road vehicle, depending on the forwarding arrangements made by the shipper. The initial choice of transport mode may be that of the shipper or they may have contracted the load movement to a road haulier who will plan the onward movement to the destination. For this the haulier may use his own vehicle for the full journey or tranship the unit load on to rail or waterway for the trunk haul and then arrange for a local road haulier at the destination to deliver the consignment to the customer. Conversely, the shipper may deal directly with a rail freight operator who will arrange the necessary road haulage links at either end. There are other intermediaries in the transport chain, such as freight forwarders who operate no vehicles of their own but who contract as necessary with the relevant intermodal operators on behalf of the shipper. The point is that the procedures for arranging intermodal shipments are simple whether via

In the case of swap bodies, which the Code also classes as a type of container, it suggests that these may be fitted with special attachment brackets or lashing rings which should be secured as shown in the Code. In particular it warns against allowing containers (i.e. swap bodies) to project beyond the rear or sides of the vehicle load platform because permanent distortion of the container may take place if part of its base is left unsupported. It says that lashings or other securing devices should only be attached to those points on the container intended for the purpose or for lifting or for mechanical handling when laden, such as lashing rings or special brackets.

6.6 Safety in docks

There are strict rules concerning the activities of lorry drivers when they are collecting or delivering containers to or from the docks. The *Docks Regulations 1988* made under the authority of the *Health and Safety at Work etc Act 1974*, specify that when goods vehicle drivers work in or visit docks premises including roll-on/roll-off ferry ports they must be provided with high-visibility clothing to be worn when they leave the vehicle cab. The clothing may take the form of fluorescent jackets, waistcoats, belts or sashes and must be worn at all times when out of the cab on such premises including when on the vehicle decks of the ferry. Protective headgear (hard hats) must be supplied and worn in such areas where there is likely to be danger of falling objects from above (e.g. where cranes are working). Drivers must leave the vehicle cab when parked on a straddle-carrier grid or where containers are being lifted on to or off the vehicle.

6.7 Lorry Road User Charging: LRUC

It has long been held by the anti-lorry brigade, other environmentalist groups and even government itself that lorries do not pay their way in road taxes in relationship to the amount of wear they are alleged to cause to our roads. There are many contentious aspects to this issue for which there is insufficient space to debate here; neither it is appropriate to do so because intermodal lorries, with which we are solely concerned here constitute barely a miniscule proportion of the total number of all vehicles on our roads. However, it is important to recognize that the tax to be charged for heavy lorries using strategic routes is a key issue.

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It may to be interesting to the reader to know that many UK road hauliers have established highly successful reputations in various aspects of intermodalism, but for our purposes here just two names in particular are cited by way of example. These firms are widely known in the intermodal context and both have been mentioned previously; they are the Potter Group and the Malcolm Group. The Potter Group claims to be the leading independent UK road and rail-freight logistics service provider, offering, among many related activities, a series of intermodal services through its connected network of distribution centres. The company's main office and base is at Ely in Cambridgeshire and it has locations at Selby in the North and Knowsley in the NorthWest which provide road and rail transfer points for conventional rail wagons, swap bodies, containers, and ISO tanks. The distribution centres are connected to the international rail network via the Channel Tunnel and are capable of receiving both full trainloads and single wagons. The centres are equipped with shunting locomotives, intermodal handling equipment, bulk discharge facilities and covered areas for unloading high-capacity freight wagons. A fleet of modern 44 tonnes, Euro II road vehicles is maintained at each distribution centre to provide customers with flexible and cost-effective transportation services.

The Scottish-based Malcolm Group, a long-established road haulage company, operates fast daily and overnight road–rail logistics services in conjunction with rail freight operator Direct Rail Services (DRS) from the Daventry International Rail Freight Terminal (DIRFT) at Crick, Northamptonshire to Mossend, near Glasgow, and from Grangemouth (Scotland) to Linwood, Aberdeen and Crick. The company operates around 450 heavy trucks, 1000 trailers and has extensive warehousing facilities with which it serves many 'blue chip' companies, including supermarket chain Asda, via its rail freight links with DRS.

Freightliner, too, although principally a major rail freight operator, has a fleet of over 180 heavy vehicles and 500 trailers, which it uses for collection and delivery of containers carried on its rail services. Well-known logistics group, Transport Development Group (TDG) also operates intermodal services, principally for BP's Grangemeouth plant. Some of the major supermarkets also have their own delivery vehicle fleets as well as using intermodal road–rail services where it best suits the economics of their operations. Well-known names, such as Asda, Argos, Marks and Spencer, Safeway, and Superdrug are among those that have found great benefit in the efficiency, reliability and speed of rail services, achieved mainly as a result of being able to avoid the constrictions of reduced truck driver working hours and the notorious bog downs of road traffic congestion which destroy the most carefully calculated delivery schedules.

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7
Rail-Freight Operations

Mm Gudrun Winner-Athens, Managing Director of German forwarding company Winner Spedition, a Board Member of intermodal operator Kombiverkehr, and a well-known and respected figure in European intermodal circles, talking in 2003 about an intermodal vision for the future which was reported in the Swiss published *International Transport Journal*, expressed very clearly the advantages and disadvantage of trains in a manner that the writer cannot do better than record here. She said:

> The railways have three intrinsic advantages. Firstly, they are very competitive with large uniform loads over long distances, secondly they can reach a high speed and thirdly the railway system is planable and reliable. However, this threefold advantage is seldom realised in practice.

She pointed out that even in its core market, that is long haul, the railways only have a market share of about 5 per cent. The average length of international routes served by private European goods train operators is 800–850 kilometres. Two-thirds of this total is generated on transalpine routes, and not because of the efficiency of the rail-based services, but because of extraneous factors (i.e. topography, and fiscal and regulatory measures in Switzerland and Austria, etc.). Furthermore, she went on to explain that intermodal trains are not particularly fast. Even in the case of premium quality block trains or shuttles, mean speeds, including halts en route, are only 45–55 kilometres per hour (kph) and that is without including the time between the handover of the load units at the point of departure to their handover to the consignee at the other end. 'In comparison', she said:

> trucks manage average speeds of between 60 and 70 kilometres/hour, depending on the route and time of day. It is this difference that counts against the railways. As far as reliability is concerned, Europe's railways have really left the intermodal operators out in the cold in recent years with miserable on-time arrival rates of 40–50 per cent. Today one is relieved when punctuality rates of 90 per cent are achieved by Kombi-Netz 2000+ services and with rates of 80–90 per cent on the Brenner Pass route – thanks to intermodal operators themselves seizing the initiative with a few well-managed services. In contrast, road hauliers are achieving punctuality rates of 99 per cent and more, day in, day out.

7.1 Britain's privatized railway

A new era for Britain's railways was heralded in 1996 when privatization brought considerable change and particularly so in the sphere of freight operations, which have undergone a tremendous transformation. In place of the old nationalized British Rail (BR) network, freight operations are currently in the hands of

five independent operating companies (i.e. 'Freight Operating Companies', FOCs), namely English, Welsh, and Scottish Railway (EWS), Freightliner, Great Britain Railfreight (GBRf), Direct Rail Services (DRS), and Advenza Freight each of which contracts individually with Network Rail for use of the national rail infrastructure, for which they pay agreed access charges. Such has been the success of private freight operations that, according to Network Rail, freight carryings since 1996 have increased by 41 per cent from 31 billion to 43.7 billion gross tonne kilometres.

This virtual metamorphosis was brought about by the implementation of European Union (EU) legislation in the form of Directive 91/440/EEC of 1991, the so-called 'Railway Directive', and in Great Britain (GB) the *Railways Act 1993*, which in broad terms effectively opened up the whole of the European rail network to private enterprise operations. In Great Britain, the pre-existing rail-freight operations of BR, namely its old Loadhaul, Main line and Transrail businesses, plus Rail-freight Distribution, were all sold off to an American private enterprise operator and in their new single-entity guise as EWS they became commercially independent, as did the Freightliner rail container business which has retained its original name, competing with each other, with any newcomers that may come along, and with other transport modes, particularly road and inland waterways.

The main objective of the legislation mentioned above was, and still remains, to instigate a status of independent operator on all national rail systems throughout the EU, 'so they behave in a more commercial manner adapting to market needs, and all in the interests of improved efficiency'. Its particular aim was to 'open up the railways for use by independent operators and facilitate access to rail networks throughout the EU for organizations engaged in the international carriage of goods by combined transport'. In simple terms, it means, for example, allowing a freight shipper or transport operator in the UK to hire a freight train, load it with combined transport units, then run it through the Channel Tunnel on the through-rail service and into the European rail network, direct to its destination – and all under his own control. Formerly, prior to rail privatization in 1996, this was not possible in international rail freighting, with responsibility for shipments largely, and control totally, being passed into the hands of the nationalized BR operation as soon as the loading units were on board the train – a scenario frightening enough to dissuade many consignors from shipping their goods by this means.

Under the terms of the European Commission (EC) Directive, the management of rail transport services and of the railway infrastructure had to be separated, with separate accounting systems for each; we saw this in the UK with the establishment of Railtrack (the track operator), now Network Rail, and a whole clutch of independent regional passenger train operating companies and the FOCs identified above. With this 'open-access' structure there is greater facility and incentive for private operators such as road hauliers to incorporate rail trunking within their operating plans. This in turn encourages the use of intermodal transport loading units, whether as swap body, container traffic, or as loaded piggyback semi-trailers, and consequently contributes further to the overall ideology of switching long-haul freight traffic from road to rail.

7.2 Rail operations in Europe

In Europe too, significant changes have taken place as a result of the first railway directive and the subsequent railway legislative packages described in Chapter 4. The most notable change took effect from 15 March 2003 when all railway systems within the EUs were liberalized; this date signifying the official opening of the European rail-freight market to competition from private operators and to free access across inter-state borders on the Trans-European Rail Freight Network (TERFN) for established national rail companies, and new entrants into the rail-freight marketplace. Unfortunately, not all EU Member States were geared up for such a big and bold leap forward at that time; some countries had not adopted all the necessary rules or set up bodies qualified to issue the requisite safety certificates and allocate the necessary train paths to allow open access to their rail-freight networks. But the EC was on the ball, taking the necessary measures to ensure that it did happen as quickly as possible.

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7.2 Rail operations in Europe

In Europe too, significant changes have taken place as a result of the first railway directive and the subsequent railway legislative packages described in Chapter 4. The most notable change took effect from 15 March 2003 when all railway systems within the EUs were liberalized; this date signifying the official opening of the European rail-freight market to competition from private operators and to free access across inter-state borders on the Trans-European Rail Freight Network (TERFN) for established national rail companies, and new entrants into the rail-freight marketplace. Unfortunately, not all EU Member States were geared up for such a big and bold leap forward at that time; some countries had not adopted all the necessary rules or set up bodies qualified to issue the requisite safety certificates and allocate the necessary train paths to allow open access to their rail-freight networks. But the EC was on the ball, taking the necessary measures to ensure that it did happen as quickly as possible.

Part of the reason for the delay was a number of technical hurdles that had to be overcome; not least such shortcomings as:

- differing voltage levels between rail systems;
- incompatible locomotives;
- different safety systems;
- non-standard rail gauges of some countries (e.g. Spain, Portugal, and Russia);
- current need to change train crews at borders;
- lack of compatible track-and-trace systems;
- priority being given to passenger services.

7.2.1 The legislative packages

The so-called 'revitalization' package of March 2003 comprised a series of measures enabling rail companies to provide competitive European services to meet the demands of industry and forwarders, and to secure one of the key objectives of the EU's Transport White Paper, which is to transfer a large chunk of freight from road to rail. The relevant Commission Directives are as follows:

- Directive 2001/12/EC, amending Council Directive 91/440/EEC, on the development of the Community's railways.
- Directive 2001/13/EC, amending Council Directive 95/18/EC, on the licensing of railway undertakings.
- Directive 2001/14/EC on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure and safety certification.

The main points of the package concern:

- Separation of essential functions on the basis of a specific, exhaustive list of tasks that have to be assigned to an authority other than the railway undertaking to ensure the principle of non-discrimination between competing railway undertakings.
- A regulatory body, independent from any infrastructure manager, charging body, allocation body, or applicant for capacity, is to be established in each country to ensure fair and non-discriminatory access conditions for ail railway undertakings.
- Guaranteed access rights to the TERFN: guaranteeing access rights to all licensed rail operators providing international rail-freight services on the network and meeting national safety requirements. Member States wishing to do so would have the possibility of granting more extensive rights; at the latest from March 2008 onward the access rights must be extended to the whole European rail network.
- Setting of charges for the use of infrastructure: the principle of charging on the basis of marginal cost was accepted; but with the possibility of mark ups, if the market would bear them, on condition that the charges were set in a transparent and non-discriminatory manner and that the competitiveness of international freight transport was guaranteed.
- Definition of transparent and fair rules, and procedures for the allocation of train paths: this is an essential prerequisite for high-quality services of railway undertakings.

7.2.1.1 Safety issues

Under an agreement in the Directive amending EC Directive 91/440/EC, safety rules have to be made by entities other than the railway undertakings themselves and existing rail safety rules applied by all railway undertakings, thereby ensuring that the pre-existing high level of safety is maintained after the opening of international rail-freight markets. The second railway package established what was called an 'Integrated

European Railway Area' and a *European Railway Agency* 'to steer and boost the implementation of a truly European rail safety approach and the interoperability of the rail systems'. Additionally, to further back up the intended high level of rail safety, the Commission proposed a Directive – still to be implemented – on train-driver licensing, specifying training requirements and ability standards for train drivers.

7.2.1.2 Competition

With these new rules of the game, traditional railway companies have had to deal with new competitors from among themselves and from private companies such as, for example, German operator 'Rail4Chem', which specializes in the transport of chemical products: in 2003 it had 14 locomotives and had already chalked up a million tonne/miles during the lead up to open access. There were other operators on the scene too at that time, such as HGK, NetLog, Shortlines, RTC, and DLC. Swedish furniture manufacturer Ikea also set up its own rail operation and this was a particular early success story for the 'open-access' regime, operating twice-daily rail services between Sweden and Germany, crossing Denmark en route, which meant, among all the other early problems, working in three languages. Van Dieren Maritime is now operating this service for Ikea in collaboration with Intercontainer-Interfrigo (ICF). However, all this 'open competition' has not happened as smoothly as might have been expected. A report in International Freighting Weekly in March 2004 suggested that Europe's rail giants were still discriminating against newcomers a year after the international freight market was opened to competition – the newcomers citing a catalogue of unfair practices and higher access charges. For their own part, the existing national rail companies – the so-called 'giants' – have been endeavouring to better satisfy their customers' demands by improving services and especially by improving the organization of frontier crossings, the main bottlenecks in the system. The examples of Mannheim–Woippy on the French–German border, and Brenner Rail Cargo on the Munich–Verona route were frequently quoted as being forerunners of the new European approach.

7.2.1.3 EC objectives

The EC's objectives with this legislation were very clear: international freight trains should be able to cross borders without administrative and legal barriers, and benefit from the technical improvements already made by the industry. Diesel locomotives certified in most Member States or electric multi-current locomotives should be able to cross borders without worrying about voltage differences. Similarly, signalling systems should be compatible to allow High-Speed Rail Interoperability between Member States thereby allowing freight trains to cross borders without stopping, achieved by installation of the Euro-wide control system known as the European Rail Traffic Management System (ERTMS) in all Member States. Additionally, the EC requires all rail companies operating on the networks of Member States to comply with the national health and safety rules of those States and with their national rules with regard to employment law.

7.3 European Railway Agency

The EC's ambition to establish an integrated Euro-wide railway network, mentioned briefly above, took a major step forward in July 2004 when the new European Railway Agency, which is responsible for improving the safety and interoperability of Europe's railway networks held its inaugural meeting in Valenciennes (France). This meeting brought together for the first time representatives of all the 25 EU Member States, of the EC and of the railway companies (i.e. infrastructure managers, railway industry, staff representatives, passenger organizations, and railway freight customers involved) all of whom are party to the setting up of the new body. According to the EU's Europa Press Release, published on its website in July 2004, the Agency is intended to be a driving force in Europe's policy on modernizing the railway sector. It mentions

the fact that the existence in the 25 Member States of technical rules and national safety rules that are mutually incompatible is a major handicap to the sector's development and that it will be the Agency's task to gradually approximate these technical rules and set common safety objectives to be achieved on all European railways. Through its work, the Agency intends to directly contribute to creating an integrated railway area that is competitive and guarantees a high level of safety. It is believed that once the new Agency is phased in, between 2004 and 2006, it will help to breath new life into the European railway sector, which is a key element of the EU's common transport policy, and should, in particular, 'improve the balance between the various modes of transport to the benefit of those that are the most environmentally friendly and guarantee a high level of safety'.

7.4 The Euro-wide railway: Railion

The changing face of European rail freighting is amply demonstrated by the EU's ambitious plans for Euro-wide intermodal operations, which can be seen coming to fruition in many quarters. A fine example of this is the German Railion operation, which calls itself 'the first European freight railway'. Formerly this was the freight division of German national rail operator Stinnes AG, the transport and logistics division of Deutsche Bahn (DB), and named at that time DB Cargo. From 1 September 2003 this operation was re-named Railion Deutschland and it has linked up with the rail-freight transportation activities of the Danish and the Netherlands' railway systems. At the time of its launch, Railion was transporting some 280 million tonnes of freight and serving 4500 customer sidings annually and crucially, for intermodal aspirations, saving an estimated 100 000 heavy truck journeys every day. According to the company, half of all its 'transportations' were already cross-border at the time of the launch and the company's intention is to extend the network right across Europe to make the rail system more competitive with road transport, especially on international routes.

As the company said in a press release in March 2003, when rail liberalization was actually beginning to happen:

> Transporting Italian tiles from Ancona via Vienna and Frankfurt right up to Copenhagen, non-stop with one freight train, without having to change locomotive or driver at the borders – soon that will no longer be just a pipedream. What has long been possible for trucks will soon be reality for the railways, too: Through co-operative agreements with railways abroad and stake holdings, Deutsche Bahn wants to break down national barriers to freight transport through Europe. Time-consuming stops for locomotive and driver changes at the borders between Germany and countries like the Czech Republic, France, Denmark, Switzerland, Belgium, and the Netherlands will soon be consigned to history. However, it is not enough to overcome existing obstacles at borders. Rather, the standard of quality that our customers expect must be guaranteed on all routes: transportations from a single source and over and beyond national boundaries.

It is pleasing to be able to comment that these ideals have become a reality. Press reports indicate that new trans-Europe intermodal services are opening up and, importantly, both reliability and punctuality targets are being met. A good example is the recently announced (IFW 24 January 2005) transcontinental rail-freight alliance operating under the name, European Bulls. This new organization promises a new era of quality rail-freight services under an integrated management structure with performance guarantees. The grouping comprises Rail4Chem (Germany), Ferrovie Nord Cargo (Italy), LTE (Austria), Comsa (Spain), and Viamont (Czech Republic). The five railway companies said:

> they wanted to create a pan-European network of 'one face to the customer' cross-border services with routes operated by one or more members but with one railway responsible

to customers for the entire route. The biggest breakthrough would be the end of time-consuming border stops to change locomotives.

7.5 UK rail-freight strategy

While the UK's rail-freight operators (RFOs) have been quietly getting on with their businesses, racking up success stories with increasing tonnages being carried and new routes being developed, fundamental changes have been taking place in the structure of the rail industry itself under provisions set out in the Government's White Paper, *The Future of Rail*, published in July 2004 and incorporated in the Railways Bill of 2004. The new structure is based on the principle of public and private partnership, recognizing rail's status as a public service specified by Government and delivered by the private sector. First, and most significantly, the Bill (later to become an Act of Parliament) allows the Government to wind up the Strategic Rail Authority (SRA) and take charge itself of setting the national strategy for the railways with the objective of streamlining the structure of the rail industry. In future, it will be for Ministers, accountable to Parliament and the electorate, to set the national strategy – which, currently, is not the case – and to determine the level of public expenditure and take the strategic decisions on what this should buy.

Among the other key measures in the Bill, Network Rail is to be given a strengthened role as operator of the network with overall responsibility for its performance – there will be no more passing of the buck for poor performance. The Office of Rail Regulation (ORR) will carry responsibility for safety, performance and cost to reduce bureaucracy, and to ensure that these issues are looked at as a whole. Responsibilities for railway safety will also transfer to ORR from the Health and Safety Commission/Executive and will remain independent of government and the industry. Other matters in the Bill concern rail passenger issues and certain powers for decision-making are to be devolved to the Passenger Transport Executives and Transport for London (TfL) on matters relating to light rail and bus integration with rail services.

7.6 Rail freight in decline

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7.7 The loading-gauge issue

One of the constraints on rail-freight operations in the UK, as mentioned above – unlike Europe where there is no such problem – has been the limited loading gauge on most of the domestic rail network. The loading gauge represents the maximum dimensions for rail vehicles to pass safely through tunnels, bridges and railway station platforms on the network. Track gauge (i.e. the width between the lines), on the other hand, is compatible on the Railtrack network with that of most European countries at 1435 millimetres (4 feet 8½ inches), the exceptions being Spain and Portugal (where the gauge is 1668 millimetres), Finland

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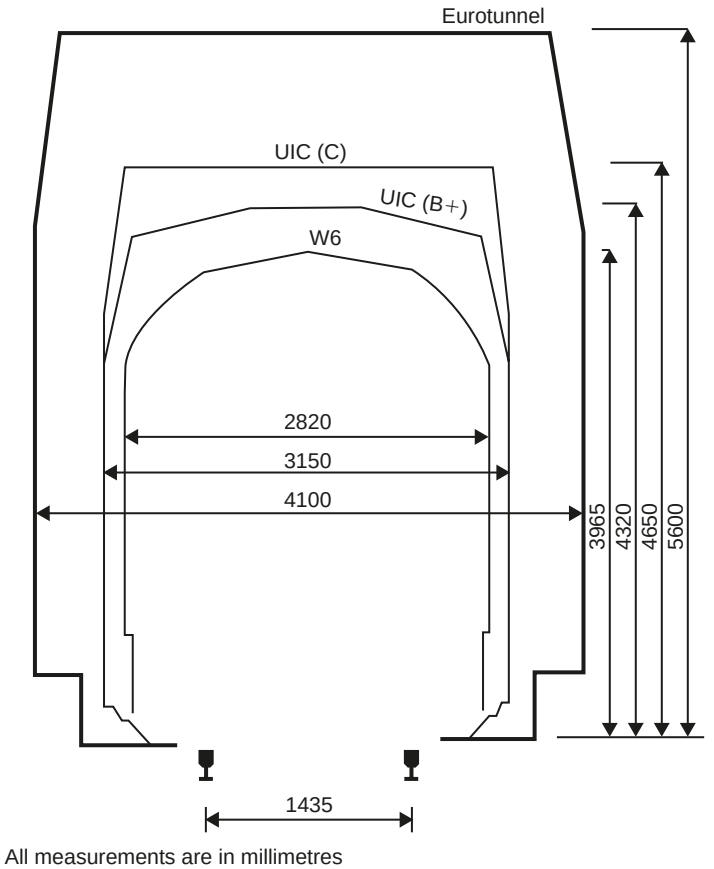

Fig. 7.1 Static UK and European rail loading gauges shown in profile.

annually could be removed from the road network if the WCML and a number of other major routes were upgraded to accommodate such traffic. However, since the upgrade was painfully slow in materializing due to ever-increasing projected construction costs the enthusiasm died away. Today, apart from a number of highly specialized operations such as that of the Lafarge Cement company, piggyback in the UK is seen as a very expensive and relatively inefficient operation – after all, it is not only the load that is carried, but the complete semi-trailer on wheels which represents a lot of dead weight to be hauled and paid for.

7.9 Rolling highways

Somewhat similar in concept to piggyback transport is the so-called rolling highway intermodal system in which entire lorries and their trailers, accompanied by their drivers, are carried on drive-on low-height rail wagons: piggyback is invariably an unaccompanied service. Eurotunnel's freight shuttle service through the Channel Tunnel employs this type of drive-on/drive-off system. Another specialist in this type of operation is Swiss company Hupac renowned for its transalpine services across Switzerland for heavy trucks that are prohibited from transiting the country by road (see Figure 7.2). The particular advantages of rolling highway systems are that, generally, transit can be guaranteed in all meteorological conditions; there are no customs procedures when crossing through Switzerland; the system is suitable for ordinary trucks with no

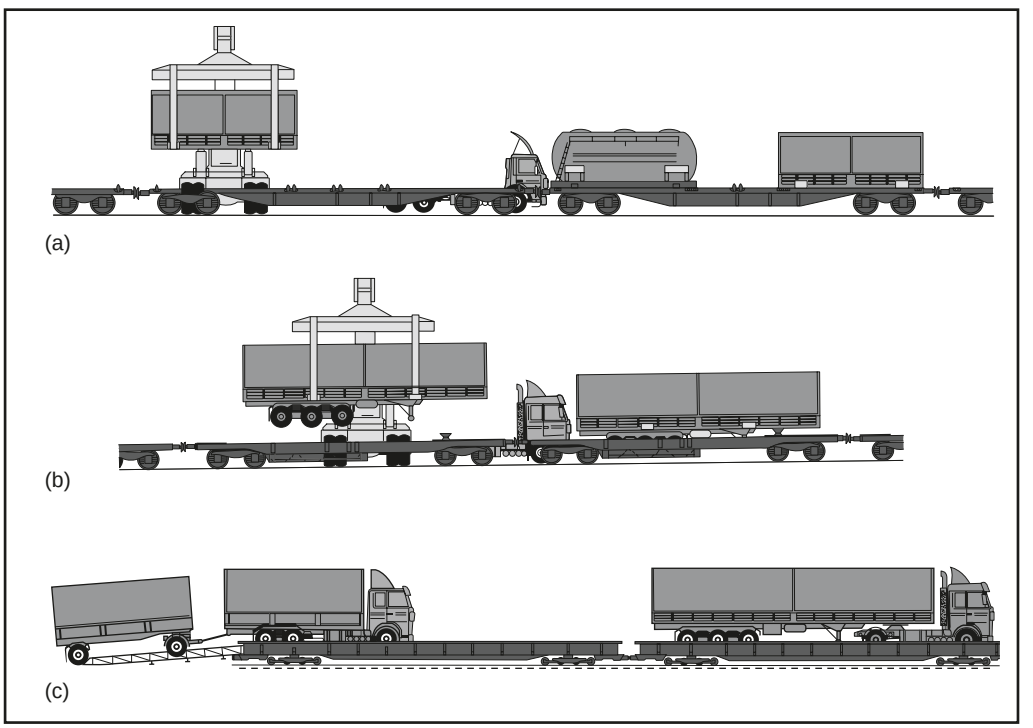

Fig. 7.2 Schematic illustration showing various intermodal systems (combined transport techniques): (a) unaccompanied swap bodies and containers (b) unaccompanied semi-trailers (piggyback/huckepack/Kangaroo) (c) accompanied vehicles on the rolling motorway. (*Source*: Hupac.)

special equipment; and the hours spent by drivers in restaurant or sleeping cars are considered as compulsory resting time under the EU drivers' hours law provisions.

7.10 The Central Railway project

The British Government finally turned its back on this project in March 2004 by refusing to support the proposed £5 billion, 400-mile Central Railway from Liverpool to France via Manchester, Sheffield, Leicester, and London, onto the Channel Tunnel and then onward to France. The project entailed modernizing and operating approximately 650 kilometres (400 miles) of railway between Liverpool and a terminal in Northern France, via the Channel Tunnel. All but 40 miles of the route could have followed existing underused or disused railways, but even where this was not possible, such as around the west of London, it would still have primarily followed existing transport corridors. The railway's core business was intended to be a high-volume, low-cost shuttle operation carrying unaccompanied lorry trailers between the UK and mainland Europe. In effect, it would have converted millions of lorry trunk hauls into block train traffic and its plans were for up to eight 1500-metre-long trains to run per hour each way, thereby, it claimed, removing more than 5-million heavy lorry journeys a year from key UK motorways, including the M25, M20, M1, M40, and M6, by the year 2015.

The project promoter, Central Railway, was a Franco-British project, supported by the French government and working closely with SYSTRA, the French railway company, Societe Nationale des Chemins de Fer's (SNCF's), engineering subsidiary, and RFF, the French rail infrastructure company, to develop the

project in France and a senior SNCF executive had joined the Central Railway board of directors. Central Railway's application to the British Government was for support in the promotion of a Parliamentary Bill to authorize powers to build the £10 billion line. The Government's refusal of support was based on its view that Central Railway had not demonstrated that it would be able to secure the necessary financial backing to build and run the line and that if the project ran into difficulties the Government would be left to intervene with taxpayer's money.

7.11 Channel Tunnel Rail Link

The Channel Tunnel Rail Link (CTRL) is a 69-mile (108-kilometre) long high-speed rail line between Central London (St Pancras) and the Channel Tunnel – the first major new railway to be constructed in the UK for over a century and built as a Public Private Partnership project. While principally intended for speeding up passenger traffic between London (Waterloo) and Lille, Paris, and Brussels, knocking some 20 minutes off the previous journey times, with travel speeds up to 186 miles per hour (mph) (300 kph), the line also has a role to play in speeding freight traffic to the Channel Tunnel. According to TfL, which engaged specialist consultants to study prospects for the route, the CTRL will provide a unique opportunity to operate high-gauge Continental freight trains between mainland Europe and London when the line is fully completed in 2007, but there are currently major issues that need to be resolved in regard to the provision of suitable terminal facilities. TfL says that only two sites in the Barking (Essex) area offer significant opportunities within the M25 (i.e. the motorway ring around London), but major planning hurdles have to be overcome before a terminal can be built. It is also looking at the possibilities of providing terminal facilities in the Thames gateway area.

7.12 Eurotunnel

Eurotunnel's early success carrying significant volumes of intermodal freight through the Channel Tunnel (recorded elsewhere in this book) came almost to grief when in the latter months of 2001 and early 2002 the influx of illegal immigrants stowing away on rail wagons brought the through-Tunnel freight operations to a virtual stop (Figure 7.3). Vast numbers of immigrants were assembling at the Sangatte Red Cross centre near the Tunnel entrance at Calais ready to stowaway on freight trains at every opportunity. They broke through the security fencing then risked their lives hanging precariously on or even underneath the freight wagons – at the same time many were stowing away on lorries travelling to the UK via the Channel Tunnel freight shuttle and the cross-Channel ferry services, slitting lorry sheeting to get on board vehicles and posing threats of violence to drivers who tried to throw them off. This episode marked a significant downturn for Eurotunnel's performance. However, with steps taken at an official level to stem the flow of immigrants, the company has put that turbulent period behind it and has been boosting its freight performances, although in 2004 it launched a new commercial strategy 'Project Dare', designed to rejuvenate the financial returns from its freight businesses (i.e. the lorry shuttle and the rail-freight services). Under this new scheme, existing regular shuttle users are being asked to project their future business with Eurotunnel – on which the rates charged to them will be based and casual users of the service are to be priced out of contention. The company is hopeful that this project will be successful and will enable it reduce its mounting financial problems. As may be imagined, this new philosophy has not gone down well with the company's regular shuttle clients who see it as nothing more than a hike in rates and some of whom have already made plans to switch to exclusive use of the cross-Channel roll-on/roll-off ferry services.

Another Eurotunnel strategy to boost freight traffic through the Tunnel is for the company to start running its own international freight services, so that, in effect, it becomes another RFO along with EWS and others. Certainly there is sufficient capacity for creating more train paths on the existing infrastructure – some 50 000 paths are available. In order to achieve this objective Eurotunnel needs to apply for a Railway Undertaking Licence in France.

Fig. 7.3 Intermodal freight train emerging from the Channel Tunnel. (*Source*: Eurotunnel.)

7.13 Freight aggregators and integrators

Aggregator or integrator; what is the difference? Who are they? What do they do? These two terms have come very much into common usage with the increasing interest in and development of intermodal transport. According to the Oxford English Dictionary, the term aggregate means to 'form a whole by a combination of several disparate elements'; integrate means 'to combine or be combined to form a whole'. A study of these definitions cannot but lead to the conclusion that they virtually mean the same. Thus, by definition, anybody (any company) who fulfils the role of 'aggregator' or 'integrator' must be doing the same thing – combining, in this case, freight loads. Taking this definition business a stage further, we can refer to a report commissioned by the EC from a consortium of consultants based on a study of this function – see bibliography. Here 'Freight Integrators' are described as 'service providers who arrange full load, door-to-door transportation by selecting and combining without prejudice the most sustainable and efficient mode(s) of transportation'.

Intermodal aggregators market timetabled intermodal shuttle trains between terminals located in principal UK and continental centres (Figure 7.4). They 'buy' train services from the FOCs (such as EWS, DRS, GBRf, Advenza Freight, and Freightliner) and then sell the space on the trains to end users. Thus, in effect, they 'aggregate' demand from individual customers into whole trainloads. The principal UK intermodal aggregator is Allied Continental Intermodal (ACI, part of the Swiss group ICF).

The concept of 'freight integrator' as a developing profession for individuals was mooted in the *European Transport Policy for 2010: Time to Decide* White Paper of 2001 which emphasized the role of a transport flows organizer who was 'able to combine the specific strength of each mode at European and world wide level to offer their clients the best services'. The EC issued a consultation on the subject in October 2003, seeking public views on how such freight integrators could improve their knowledge, awareness, and understanding of intermodal transport; how intermodalism could be simplified through further standardization; how greater co-operation could be achieved between transport users; and how

project in France and a senior SNCF executive had joined the Central Railway board of directors. Central Railway's application to the British Government was for support in the promotion of a Parliamentary Bill to authorize powers to build the £10 billion line. The Government's refusal of support was based on its view that Central Railway had not demonstrated that it would be able to secure the necessary financial backing to build and run the line and that if the project ran into difficulties the Government would be left to intervene with taxpayer's money.

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Fig. 7.4 Typical view of a busy intermodal freight terminal. (*Source*: Bob Sweet/Freightliner.)

responsibility and accountability in intermodal transport could be clarified. Although nothing further has been heard of this scheme at the time of writing this text, at least the European Intermodal Association (EIA) has taken up the cudgels with its own scheme called 'Intermodal Master Class'. The course, which is being developed by European universities that have logistics specialities in their programmes, will comprise lectures and working visits.

7.14 Locomotive power

A highlight of the current rail-freighting scenario has been the revolution in heavy freight traction since the launch in 1998 of the Class 66 locomotive. This Canadian-built General Motors diesel locomotive of 3200-horsepower/92 000-pound-feet tractive effort and capable of 75 mph operation has proved to be highly successful in the UK. In fact, so much so that there are now almost 400 of these machines currently operating, predominantly with EWS, which has more than 250 of these locomotives in service. Freightliner followed suit putting a significant number into operation including some lower-geared versions with reduced speed (65 mph), but increased tractive effort (105 080 pounds/feet). Other operators include GBRf – also with some lower-geared versions for heavy operations – and DRS, which took 10 Class 66s in 2003. Following on from the Class 66 model, a high-speed Class 67 version has been developed which is capable of operation in GB at up to 125 mph.

Interestingly, the success of the Class 66 in the UK led to a number of trials in mainland Europe with German, Belgium, Swedish, and Norwegian RFOs. Here the key to success lay in the fact that as a diesel locomotive the Class 66 – there will be different European national model designations – is a quicker and more cost-effective solution for cross-border international rail haulage than the use of expensive multi-voltage electric locomotives. Thus, it has become attractive to the new band of open-access operators now running, or on the verge of running, new inter-European rail-freight services.