G. Intermodal Freight Transport

G.I INTRODUCTION

G.I-01 Intermodal freight transport

Multimodal transport of goods, in one and the same intermodal transport unit by successive modes of transport without handling of the goods themselves when changing modes.

The intermodal transport unit can be a container, swap body or a loaded vehicle travelling on another vehicle.

The return movement of empty containers/swap bodies and empty goods road vehicles/trailers are not themselves part of intermodal transport since no goods are being moved. Nevertheless, such movements are associated with intermodal transport.

G.I-02 Multimodal freight transport

Transport of goods by at least two different modes of transport.

Intermodal transport is a particular type of multimodal transport.

International multimodal transport is often based on a contract regulating the full multimodal transport.

G.I-03 Simultaneous use of two means of transport (Active mode)/(Passive mode)

Intermodal transport of goods using two modes of transport simultaneously, where one (passive) means of transport is carried on another (active) means of transport which provides traction and consumes energy, e.g. Rail/road transport, sea/road transport and sea/rail transport.

Piggyback transport is a synonym for rail/road transport.

G.I-04 Piggyback transport

Transport of road vehicles by rail.

The term was originally for transport of semi-trailers by rail but is also now applied to the transport of road vehicles in general.

G.I-05 Rolling Highway

Transport of complete road vehicles, using roll-on roll-off techniques, on trains normally comprising low-floor wagons throughout.

Rolling motorway is a specific type of Piggyback transport.

Transport of lorries via Eurotunnel is an example of a rolling road.

G.I-06 Transport of driver accompanied goods road motor vehicle

Transport of a complete goods road motor vehicle, accompanied by the driver, by another mode of transport (for example by sea or rail).

G.I-07 Transport of road goods road motor vehicle, unaccompanied by the driver

Transport of a goods road motor vehicle or a trailer, by another mode of transport (for example by sea or rail), not accompanied by a driver.

G.I-08 Mode of transport

Method of transport used for the carriage of goods and passengers.

For statistical reporting, the following classification of methods of transport should be used:

a) Rail;

b) Road;

c) Inland Waterways;

d) Maritime;

e) Pipeline;

f) Air;

g) Unknown mode of transport.

The classification may apply only to the active mode of transport, or to both the active and the passive mode. In the latter case a two-digit code might be used, the first digit indicating the active mode and the second digit the passive mode.

G.I-09 Transport chain

Sequence of transport modes used to move the goods from their origin to their destination. Along the chain one or more transhipments take place.

The goods may not necessarily stay in the same loading unit along the full transport chain. Stuffing and stripping of an intermodal transport unit may take place during the journey.

G.I-10 Intermodal transport terminal

A structure equipped for the transhipment and storage of intermodal transport units (ITUs) between at least two transport modes or between two different rail systems, and for temporary storage of freight, such as ports, inland ports, airports and rail-road terminals.

Intermodal Transport Terminals often perform as hubs in a 'Hub and Spoke' distribution concept which relates to collection through a central point (the hub) and distribution in various directions (the spokes). The hub is a central point for the collection, sorting, transhipment and distribution of goods for a particular region.

G.II TRANSPORT EQUIPMENT

G.II-01 Loading unit

Container, swap body.

'Flats' (see G.II-09 below used in maritime transport) are included as a special type of container.

G.II-02 Intermodal transport unit (ITU)

Container, swap body or semi-trailer/goods road motor vehicle suitable for intermodal transport.

G.II-03 Container

Special box designed to carry freight. It is strengthened and stackable, allowing horizontal or vertical transfers. A more formal technical definition of a container is:
Article of transport equipment which is:

a) Of a permanent character and accordingly strong enough to be suitable for repeated use;

b) Specially designed to facilitate the carriage of goods, by one or more mode of transport, without intermediate reloading;

c) Fitted with devices permitting its ready handling, particularly its transfer from one mode of transport to another;

d) So designed as to be easy to fill and empty;

e) Stackable; and

f) Having an internal volume of 1 m^3 or more.

Swap bodies are excluded.

Although without internal volume, and therefore not satisfying criterion (f) above, flats (see G.II-09 below) used in maritime transport should be considered to be a special type of container and therefore are included here.

G.II-04 Sizes of containers

The main sizes of containers are:

a) 20 foot ISO container (length of 20 feet and width of 8 feet);

b) 40 foot ISO container (length of 40 feet and width of 8 feet);

c) ISO container over 20 feet and under 40 feet of length;

d) ISO container over 40 feet long;

e) Super high cube container (oversize container);

f) Air container (container conforming to standards laid down for air transportation).

Containers are normally 8 feet high but other heights also exist. 'High-cube containers' are containers with a height of 9.5 feet. 'Super high cube containers' are containers exceeding the ISO dimensions. They include container lengths of 45 feet, 48 feet and 53 feet.

Containers sizes classified under a) to e) are referred to as large containers.

G.II-05 Tare weight of container

The tare weight of a container is included in the total weight of the containerised goods transported, also called the gross-gross weight of goods. The gross weight of containerised goods transported can be calculated from the gross-gross weight by deducting the tare weight of the container and vice versa. If information about the tare weight is missing then the tare weight may be estimated using the averages below.

The tare weight of a container may be estimated as:

a) 20 Foot ISO container 2.3 tonnes;

b) 40 Foot ISO container 3.7 tonnes;

c) ISO container over 20 feet and under 40 feet of length 3.0 tonnes;

d) ISO container over 40 feet of length 4.7 tonnes.

G.II-06 Types of containers

The main types of containers, as defined by ISO Standards Handbook on Freight Containers are:

1. General purpose containers.

2. Specific purpose containers:

- closed ventilated container
- open top container
- platform-based container open sided

- platform-based container open sided with complete superstructure
- platform-based container open sided with incomplete superstructure and fixed ends
- platform-based container open sided with incomplete superstructure and folding ends
- platform (container)

3. Specific cargo containers:

- thermal container
- insulated container
- refrigerated container – (expendable refrigerant)
- mechanically refrigerated container
- heated container
- refrigerated and heated container
- tank container
- dry bulk container
- named cargo container (such as automobile, livestock and others); and
- air mode container.

G.II-07 TEU (Twenty-foot Equivalent Unit)

A statistical unit based on a 20 foot long (6.10 m) ISO container to provide a standardised measure of containers of various capacities and for describing the capacity of container ships or terminals.

One 20 foot ISO container equals 1 TEU.
One 40 foot ISO container equals 2 TEU.
One container with a length between 20 and 40 feet equals 1.50 TEU.

One container with a length of more than 40 feet equals 2.25 TEU.

G.II-08 Swap body

A freight-carrying unit optimised to road vehicle dimensions and fitted with handling devices for transfer between modes, usually road/rail.

Such units were not originally designed to be stacked when full or top-lifted. Many units now can be, although not to the same extent as containers. The main feature distinguishing them from containers is that they are optimised to road vehicle dimensions. Such a unit would need UIC approval to be used on rail. Some swap bodies are equipped with folding legs on which the unit stands when not on the vehicle.

G.II-09 Flat

A loadable platform having no superstructure whatsoever but having the same length and width as the base of a container and equipped with top and bottom corner fittings.

This is an alternative term used for certain types of specific purpose containers – namely platform containers and platform-based containers with incomplete structures.

G.II-10 Pallet

Raised platform, intended to facilitate the lifting and stacking of goods.

While pallets are usually made of wood, they can be made of other materials. They are of standard dimensions, which vary between regions. One common dimension in Europe and Asia is 1 000 mm x 1 200 mm (ISO) and 800 mm x 1 200 mm (CEN).

G.II-11 Roll cage, roll container, roll pallet

Small, un-stackable, normally boxy unit on wheels intended to facilitate the loading and unloading of goods.

G.II-12 Rail wagon for intermodal transport

Wagon specially built or equipped for the transport of intermodal transport units (ITUs) or other goods road vehicles.
Types of wagons are:

- Pocket wagon: Rail wagon with a recessed pocket to accept the axle/wheel assembly of a semi-trailer.
- Basket wagon: Rail wagon with a demountable sub frame, fitted with devices for vertical handling to allow the loading and unloading of semi-trailers or road motor vehicles.
- Spine wagon: Rail wagon with a central chassis designed to carry a semi-trailer.
- Low-floor wagon: Rail wagon with a low loading platform built to carry, inter alia ITUs.
- Rolling-Road wagon: Rail wagon with low floor throughout which, when coupled together, form a rolling-road.
- Double stack wagon: Rail wagon designed for the transport of containers stacked on top of each other.
- Bimodal semi-trailer: A road semi-trailer that can be converted into a rail wagon by the addition of rail bogies.

G.II-13 Ro-Ro unit

Wheeled equipment for carrying goods, such as a lorry, trailer or semi-trailer, which can be driven or towed onto a vessel or train.

Port or vessels' trailers are included in this definition.

G.II-14 Gantry crane

An overhead crane comprising a horizontal gantry mounted on legs, which are either fixed, run in fixed tracks or on rubber tyres with relatively limited manoeuvrability. The load can be moved horizontally, vertically and sideways.

Such cranes normally straddle a road/rail and/or ship/shore interchange.

G.II-15 Straddle carrier

A rubber-tyred overhead lifting vehicle for moving or stacking containers on a level reinforced surface.

G.II-16 Reach stacker

Tractor vehicle with front equipment for lifting, stacking or moving ITUs.

G.II-17 Fork lift truck

Vehicle equipped with power-driven horizontal forks, which allow it to lift, move or stack pallets, containers or swap bodies. The latter two are usually empty.

G.II-18 Spreader

Adjustable fitting on lifting equipment designed to connect with the upper corner fittings of an ITU.

Many spreaders have in addition grappler arms that engage the bottom side rails of an ITU.