Guide to Trucks

For internal use only

Introduction

You are new to trucks – maybe new to the industry.

Perhaps you are in a role that doesn't necessarily **need** you to know about the product.

Now you would like to – maybe you need to.

But in an industry so full of jargon, terminology and buzz words, where do you turn?

Welcome to Guide to Trucks!

Guide to Trucks is a handbook that will teach you the basics.

Using diagrams and language that even 'non-truckies' will understand, it is designed as a reference manual that will tell you – or at least allow you to look up – everything (well, almost everything!) you need to know.

Best of all, it will give you the confidence to ask the right questions AND hold your own with those who have been in the industry for ever!

- **Throughout Guide to Trucks, you'll find some points written in *italics.***
- **This is to highlight IMPORTANT POINTS that can often be confusing!**

Trucks

Chassis Cab

- All trucks start life as a CHASSIS CAB
- A CHASSIS CAB is effectively the 'bare skeleton' of a truck
- It has a chassis - cab - engine/gearbox/axles - and that's it!
- **It is ready to be turned into a RIGID or a TRACTOR**

Rigid

- A RIGID carries a BODY
- Type of body depends on what the truck is going to do
- That body is permanently fixed to the chassis *(usually)*
- RIGIDS have 2, 3 or 4 axles

Tractor

- A TRACTOR is designed to pull a semi-trailer
- A FIFTH WHEEL is fixed to its chassis
- The fifth wheel enables the tractor to couple with the semi-trailer
- TRACTORS have 2, 3 or 4 axles

So why is it called a TRACTOR?

- *Literally, because it 'pulls' something, so it applies 'traction'*
- *Don't confuse the terminology with an 'agricultural' or 'farm' tractor!*

Trailers

- TRAILERS are able to stand on their own (ie without legs to prop them up)
- TRAILERS generally have 2 or 3 axles
- Those axles will be at either end OR under the centre of the TRAILER
- TRAILERS are pulled by rigids

Drawbars

- A DRAWBAR is a RIGID coupled to a TRAILER
- A RIGID is connected to a TRAILER via a DRAWBAR COUPLING

Semi-trailers

- SEMI-TRAILERS cannot stand on their own without 'landing legs' to support them at the front end
- SEMI-TRAILERS generally have 1, 2 or 3 axles
- HEAVY DUTY semi-trailers will have 4, 5 or more axles
- Those axles will be at the rear end of the SEMI-TRAILER
- SEMI-TRAILERS are pulled by tractors

Because we're lazy, most people refer to semi-trailers as 'trailers'

- *Yes, it is confusing*

Artics

- An ARTIC (articulated truck) is a TRACTOR coupled to a SEMI-TRAILER
- A TRACTOR is connected to a SEMI-TRAILER by a fifth wheel

Truck Types & Configurations

Why are there so many different types of truck configurations?

Trucks are there to do a job - what we know as an application ...

And there are literally thousands of applications for which a truck can be used.

- Deliveries to homes and high streets
- Mixers delivering concrete or tippers delivering gravel to building sites
- Waste collection in and around housing and industrial estates for off-loading at transfer stations
- High speed, long-distance haulage on the motorways of Europe

Each requires different things from a truck.

So each requires a different configuration of truck.

And that's not all.

Whatever the application, trucks operate at different weights.

This is determined by the customer's specific application:

- Parcels tend to be light, so can be delivered by a lighter truck
- Bricks and building materials are heavier, so need a heavier truck

Both can be delivered by the same configuration of truck but by trucks of different weights.

There's more.

In simple terms, the heavier the truck, the more axles it requires.

Once it gets to a legal maximum weight, another axle is required.

But why are there so many variations?

Some applications require a truck to be more manoeuvrable
- So an additional steering axle will be fitted

Some applications require a truck to be more driveable and perform better off-road
- So an additional driven axle/s will be fitted

Some applications require the truck to carry heavy loads one day, lighter loads the next
- So some are specified with a lifting axle to save on tyre wear - and cost

Some applications require heavier loads in different places on the vehicle (eg cranes)
- So (as an example) some trucks have an additional axle at the front, rather than the rear, to carry that weight

Manufacturers are always looking for innovative configurations to offer the customer a truck that's ideal for their needs

FIRST, we differentiate trucks - RIGIDS & TRACTORS - by the **number of axles** they have:

- 2 axle rigids
- 3 axle rigids
- 4 axle rigids
- 2 axle tractors
- 3 axle tractors
- 4 axle tractors

SECOND, we differentiate trucks by their **layout:**

- Some axles have ONE wheel on each end
- Other axles have TWO wheels on each end
- TWO WHEELS (or tyres) are always counted as ONE

2 axle rigids/tractors	
4x2	4 wheels - 2 driven
4x4	4 wheels - 4 driven

3 axle rigids/tractors	
6x2	6 wheels - 2 driven
6x4	6 wheels - 4 driven
6x6	6 wheels - 6 driven

4 axle rigids/tractors	
8x2	8 wheels - 2 driven
8x4	8 wheels - 4 driven
8x6	8 wheels - 6 driven
8x8	8 wheels - 8 driven

Think cars:

- *We call a Mercedes-Benz GLE or Land Rover a '4x4' - 4 wheels, all of them driven*
- *The same terminology applies with trucks*

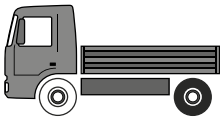
AXLES can be almost any combination of the following:

- Steered
- Driven
- Dead or lazy (or simply weight-bearing)
- Lifting

These are explained on pages 21 - 22.

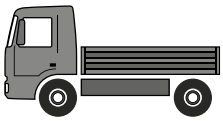
RIGIDS

2 axle rigid



4x2 - 2 wheels driven

Sometimes referred to as a **'four wheeler'**

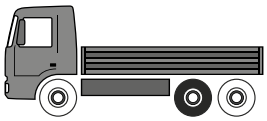


4x4 - 4 wheels driven (all-wheel drive)

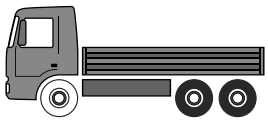
Sometimes referred to - understandably - as a ***'4x4' or a '4 by 4'***

3 axle rigid

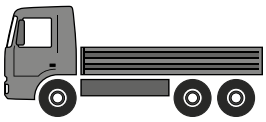
Sometimes referred to as a **'six wheeler'**



6x2 - 2 wheels driven



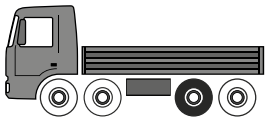
6x4 - 4 wheels driven



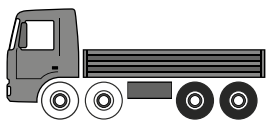
6x6 - 6 wheels driven/all-wheel drive

4 axle rigid

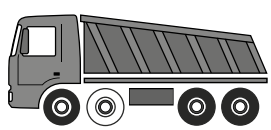
Sometimes referred to as an **'eight wheeler'**



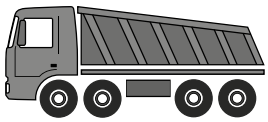
8x2 - 2 wheels driven



8x4 - 4 wheels driven



8x6 - 6 wheels driven

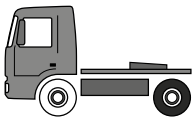


8x8 - 8 wheels driven/all-wheel drive

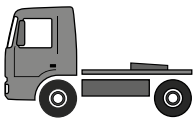
TRACTORS

◎ *Undriven* ◉ *Driven*

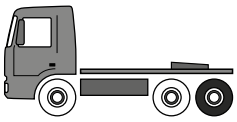
2 axle tractor



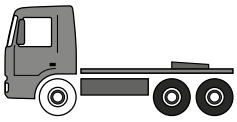
4x2 - 2 wheels driven



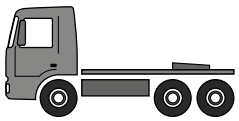
4x4 - 4 wheels driven



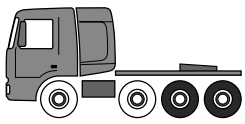
6x2 - 2 wheels driven



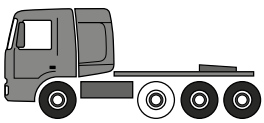
6x4 - 4 wheels driven



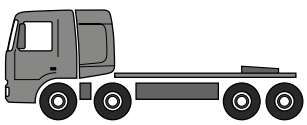
6x6 - 6 wheels driven/all-wheel drive



8x4 - 4 wheels driven



8x6 - 6 wheels driven



8x8 - 8 wheels driven/all-wheel drive

How can you tell?

It is not easy to identify the configuration of a truck simply by looking at it but there are a few obvious pointers to identify what a truck is! So to help, here are a few examples - look at the photographs left to right.

4x2 rigid driven - steered

6x2 rigid steered - driven - steered

6x2 rigid steered - driven - steered

6x4 rigid driven - driven - steered

8x4 rigid steered - steered - driven - driven

8x4 tridem steered - driven - driven - steered

6x2 rigid driven - steered

4x2 tractor steered - driven

6x2 tractor steered - lifting - driven

6x2 tractor lifting - driven - steered

8x4 tractor steered - steered - driven - driven

8x4 tractor steered - steered - driven - driven

Mercedes-Benz & FUSO

Mercedes-Benz and FUSO offer a wide variety of axle configurations on all model ranges.

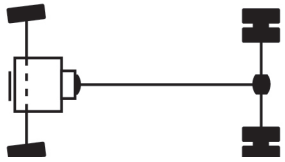
We also have our own model designations or coding system to help identify these configurations.

This section enables you to understand both.

Axle Configurations

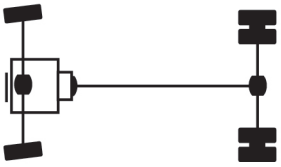
Mercedes-Benz and FUSO ranges include the following axle configurations, RIGIDS and TRACTORS:

Layout	**4x2**
MB designation	**4x2**



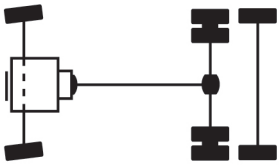
2 axle rigid/tractor with driven rear axle

Layout	**4x4**
MB designation	**4x4**



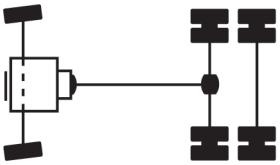
2 axle rigid/tractor with all-wheel drive

Layout	**6x2**
MB designation	**6x2 ENA**



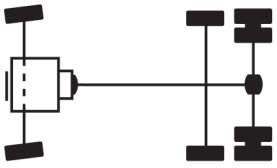
3 axle rigid/tractor with one driven rear axle and single-tyre trailing axle

Layout	**6x2**
MB designation	**6x2 DNA**



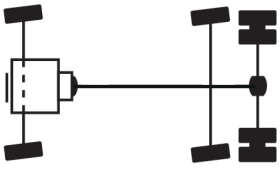
3 axle rigid/tractor with one driven rear axle and twin-tyre trailing axle

Layout	**6x2**
MB designation	**6x2 VLA**



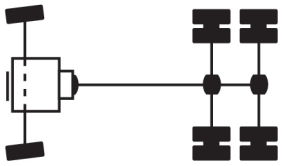
3 axle rigid/tractor with single-tyre leading axle (non-steered) and one driven rear axle

Layout	**6x2**
MB designation	**6x2/4 VLA**



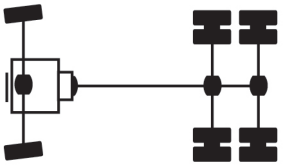
3 axle rigid/tractor with single-tyre leading axle (steered) and one driven rear axle

Layout	**6x4**
MB designation	**6x4**



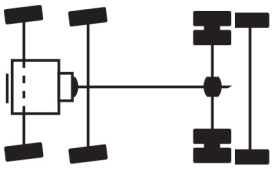
3 axle rigid/tractor with two driven rear axles

Layout	**6x6**
MB designation	**6x6**



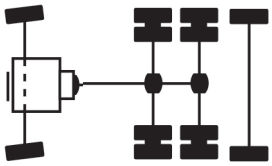
3 axle rigid/tractor with all-wheel drive

Layout	**8x2**
MB designation	**8x2/4**



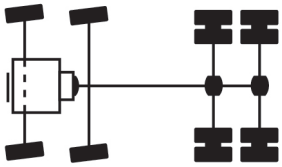
4 axle rigid/tractor with two steered front axles, one driven rear axle and one trailing axle

Layout	**8x4**
MB designation	**8x4 ENA**



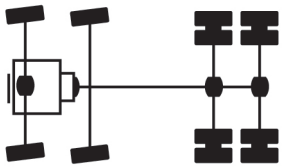
4 axle rigid/tractor with one steered front axle, two driven rear axles and one single-tyre trailing axle

Layout	**8x4**
MB designation	**8x4/4**



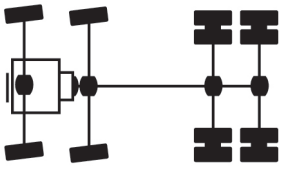
4 axle rigid/tractor with two steered front axles and two driven rear axles

Layout	**8x4**
MB designation	**8x6/4**



4 axle rigid/tractor with one driven/steered front axle, one non-driven/steered front axle and two driven rear axles

Layout	**8x4**
MB designation	**8x8/4**



4 axle rigid/tractor with two driven/steered front axles and two driven rear axles

Model Designations

Mercedes-Benz

Example:	**1843 LS 4x2 FV 11**
18	Permissable gross vehicle weight (gvw) in tonnes (rounded)
43	Engine output in horsepower, divided by 10
LS	Vehicle version
4x2	Drive configuration
FV 11	Extended model identification

Base Model Identification

No suffix	Rigid vehicle	B	Concrete mixer
L	Air suspension, rigid vehicle	S	Tractor
A	All-wheel drive vehicle	F	Fire engine
AK	All-wheel drive tipper	G	Natural gas engine vehicle
AS	All-wheel drive tractor	KO	Municipal vehicle
AF	All-wheel drive fire engine		
K	Tipper		

Extended model identification

LB	Air suspension concrete mixer
LK	Air suspension tipper
LS	Air suspension tractor
LKO	Air suspension municipal vehicle
nR	Low frame
nRA	Low frame car transporter
nRL	Low frame LowLiner
ENA	Trailing axle with single tyres
DNA	Trailing axle with twin tyres
NLA	Trailing axle (Econic only)
VLA	Leading axle

1st digit	**F**	Long distance truck
	V	Distribution truck
	B	Construction truck
2nd digit		Standard truck
	V	Volumer version
	L	Loader version
	G	Grounder version
3rd/4th digit		Engine displacement in litres

FUSO

Example:	**7C15D**
7	Permissible gvw in tonnes (rounded +/- 0.5 tonnes)
C	Comfort cab
15	Engine output in horsepower, divided by 10
D	Double or Crewcab

Artics

The word ARTIC is a shortened version of ARTICULATED TRUCK.
It is called 'articulated' because it bends or 'articulates' in the middle.

An ARTIC is a TRACTOR coupled to a SEMI-TRAILER:

- The TRACTOR will usually have 2 or 3 axles
- Tractors with more than 3 axles will be engaged on specialist haulage
- The SEMI-TRAILER will usually have 1, 2 or 3 axles
- SEMI-TRAILERS with more than 3 axles will be engaged on specialist haulage
- We often *(through laziness!)* refer to a semi-trailer simply as a 'trailer'

To connect the tractor to the semi-trailer:

- A tractor is connected to a semi-trailer by a FIFTH WHEEL
- A FIFTH WHEEL is a well-greased 'circular' plate fitted to the tractor's chassis
- Its circular shape is the most obvious reason it is known as a 'Fifth Wheel'. However, the term originated from the American West where such a device allowed large horse-drawn wagons to steer using their front wheels
- The semi-trailer has a pin protruding from the front underside
- This is known as the KINGPIN
- The FIFTH WHEEL has a jaw-like locking mechanism at its centre
- The tractor reverses under the front of the semi-trailer
- The KINGPIN locks in to the jaw of the FIFTH WHEEL, closing a locking arm
- To release the kingpin/semi-trailer again, the driver has to pull out/disengage the locking arm

Matching a tractor correctly to a semi-trailer is essential:

- To ensure that the two cannot come into contact when operating or manoeuvring
- To ensure that legal lengths are adhered to
- To ensure that legal turning circle requirements are met
- To ensure that weight distribution on the vehicle is correct

To assist in tractor/semi-trailer matching:

There are two types of Fifth Wheel:

FIXED	Fifth Wheel is fixed in a permanent, unmovable position
SLIDER	Fifth Wheel is fixed to rails that allow it to 'slide', so the correct position can be obtained with different semi-trailers

There are two types of Kingpin:

FIXED	Kingpin is fitted in a fixed position
VARIABLE	Kingpin can be unscrewed and moved to a different position

Once tractor and semi-trailer/rigid and trailer are connected, the driver must connect all the 'service lines/pipes' to ensure the two operate as one vehicle.

- Positioned at the back of the tractor/rigid, these are coiled extendable pipes known as SUZIES

RED suzie	Permanent air supply
YELLOW suzie	Service brakes
Electrical suzie	One suzie if 15 pin electrics are in use, two suzies if 7 pin electrics

Why are they called 'suzies'?

- This coiled design was invented by Sir Edward Suzenderger in the late 1940s
- Just like 'Hoover', it is now a trade name generic - you can still buy 'Suzies'

Cabs

Cabs come in all shapes, sizes and types - and like almost everything on a truck, choice depends on application.

Cab Design

Forward Control cab *Also known as 'cabover'*

- Where the cab effectively sits over the engine
- Allows maximum goods carrying space within legal truck length limits

Normal Control cab *Also known as 'bonneted'*

- Where the engine sits ahead of the cab under a bonnet
- Increases the length of the truck
- Reduces payload space - a problem where legal truck length limits are restricted
- Popular in countries with more relaxed legal length limits (eg USA)

Semi-Forward Control cab *As used on all vans*

- Where the driver's legs are effectively to one side of the engine
- Effectively a van cab design

Cab Width

2.0/2.1 metre wide cab

- Used on the lightest trucks
- Compact design minimises space taken up by cab, allowing maximum body size and loadspace
- Also minimises truck's 'footprint' on the road

2.3 metre wide cab

- Used for all purposes
- Compact design boosts loadspace by allowing a longer body within overall legal length limits, and reduces the truck's 'footprint' on the road
- Extra width gives the driver more space to work and live

2.5 metre wide cab

- Maximum width available within maximum allowable vehicle width (2.55 metres)
- Allows the driver maximum in-cab space
- Important when the driver will effectively work, rest and sleep in the cab for days on end

Cab Type

Day

- Ideal if the truck operates locally/regionally and returns to base each evening

Sleeper

- Ideal if the truck is occasionally away from base for one to two nights
- Usually with a single bunk

High roof sleeper

- Preferred if the truck is away for longer periods, perhaps three to six nights a week
- Often with twin bunks

Flagship sleeper

- Maximum living space for the longest periods away from base - often several weeks
- Usually with twin bunks

Why are trucks often fitted with twin bunks, when 99% operate with only one driver?

- *Good question!*
- *Storage is at a premium in a truck - think of all the things you would need to take if you were travelling away from home for a week or more*
- *Whilst modern sleeper cabs have plenty of storage facilities, most would say 'you can never have too much', so drivers often use the top bunk to store day-to-day items*
- *And just occasionally a second driver/passenger accompanies the truck*

Why are trucks often specified with a sleeper, when the driver is never away overnight?

- *Same reasons - storage - AND it gives the driver a chance for a catnap during a rest break*
- *It also makes the truck more saleable at the end of its first working life*

Cab Floor Design

In-cab space is important to drivers, especially if they spend most of their day inside the cab.

In-cab space is dependent on the size/dimensions of the cab but is also influenced by the **design** of the cab floor.

Engine tunnel cabs

- On most forward control cab designs, the engine necessarily protrudes into the middle of the cab, effectively between the driver and passenger seats. This is known as the engine tunnel
- The lower the engine tunnel mid cab, the more in cab space for the driver and the easier it is for them to move around, get dressed, etc.

Flat floor cabs

- With flat floor cab designs, the cab is raised to allow/position a flat cab floor above the engine. As there is no engine tunnel, in-cab space is maximised, increasing the driver's day-day ease of living and comfort. As the cab is higher set, it can be more effort to get in and out

Specialist cabs

Top sleeper cab

- A single berth sleeper 'pod' above a day cab to provide sleeping accommodation for the driver
- Allows a larger body to be fitted for maximum payloads
- Often favoured when maximum body space is required

Crew cab

- With a second row of seats behind the driver/passenger to accommodate up to four crew/passengers
- Examples include fire engines and recovery trucks

Low Entry/Walk Thru cab

- Cab is set forward and ahead of the engine. This allows it to be positioned low to the ground, enabling 'step-in/step-out' access and obstacle-free walk-thru access. It also allows the driver to get out on the nearside with ease
- Design minimises Health and Safety risks for driver/crews, particularly important when driver/crews are accessing the cab regularly in operation
- Ideal for operations such as waste/refuse collection/aircraft refuelling and city centre operations to maximise visibility and pedestrian/cycle safety. This is especially the case in Greater London where this cab type achieves 'Best Score' for Direct Vision Standard required from February 2021

Half cabs

- Where the passenger side of the cab is cut away to leave only a seating/control area for the driver
- Adds space for specialist equipment
- Examples are terminal tractors, aircraft luggage loaders or catering suppliers and some crane applications

Weights

You would think this one was simple. It isn't!

When it comes to trucks, WEIGHT is extremely important.

- Weight of the truck
- Weight of the body
- Weight of the load

WEIGHT is primarily a **legal** issue - for example, a truck may not weigh more than a certain amount.

However, it is also a OPERATIONAL issue - for example, 'How much weight can I put on this truck?'

Of necessity, we use a wide variety of WEIGHT DEFINITIONS.

It is important you are aware of the - sometimes very subtle - differences.

Beware!

- *With a few exceptions, there is no accepted definition as to whether weights should be quoted with an empty/part full/full tank of fuel!*
- *Generally, truck manufacturers will make their own decisions on how they define certain weights*
- *So it is important to check the small-print when comparing specifications*

CHASSIS CAB WEIGHT **

- The weight of a chassis cab as it comes out of the factory

ULW UNLADEN WEIGHT**

- Weight of ready-to-use truck, without load or driver

GVW GROSS VEHICLE WEIGHT

- Maximum legal permissible weight of a RIGID or TRACTOR (on its own)
- Includes **everything** - body, load, equipment, driver

GCW GROSS COMBINATION WEIGHT

- Maximum legal permissible weight of an ARTIC (tractor and semi-trailer)
- Includes **everything** - tractor, semi-trailer, body, load, equipment, driver

GTW GROSS TRAIN WEIGHT

- Maximum legal permissible weight of a DRAWBAR (rigid and trailer)
- Includes **everything** - rigid, trailer, bodies, load, equipment, driver

GVM GROSS VEHICLE MASS

- Same as GVW
- Often used by van manufacturers instead of GVW
- Rarely used in trucks

**Amount of fuel included is up to the manufacturer*

DESIGN WEIGHT

- The maximum weight at which a vehicle is designed to operate

- *Trucks are usually 'designed' to operate at higher weights than allowed in specific countries*
- *This is to give an element of tolerance and strength to the vehicle AND to allow the truck to be sold (with minimal adaptation) in markets where legal weight limits can be more generous*

KERB WEIGHT

- The weight of a ready-to-use truck with a full tank of fuel, equipment and driver - but NO LOAD

OPERATING WEIGHT

- The weight at which the truck usually operates

- *Trucks often operate at well below their maximum permissible GVW/GCW/GTW*
- *An example of this would be carrying cornflakes or beds*
- *For these operations, payload SPACE is far more significant than WEIGHT because the goods are light*

TAXATION WEIGHT or VEHICLE EXCISE DUTY (VED) WEIGHT

- Weight at which Vehicle Excise Duty is charged

- *A truck's VED is influenced by its gvw/gcw/gtw*
- *If the truck operates at well below this, there are often opportunities to 'down plate' the gvw/gcw/gtw of the truck to achieve a lower/less expensive taxation class*
- *Hence the concept of 'taxation weight' or 'VED weight'*

PAYLOAD WEIGHT

- Weight of the load alone

BODY/PAYLOAD WEIGHT ALLOWANCE

- gvw/gcw/gtw less CHASSIS CAB WEIGHT, fully fuelled

It is a common misconception that trucks always operate at their maximum permissible weights!

They don't.

*A 56 tonne **DESIGN WEIGHT** tractor:*

- *May operate as an artic legally in the UK at a **maximum gcw** of 44 tonnes*
- *At an **OPERATING WEIGHT** of 34 tonnes*
- *With a **KERB WEIGHT** of 14 tonnes*
- *And a **PAYLOAD WEIGHT** of 20 tonnes*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Axles

Axles have a combination of three purposes:

- STEER/MANOEUVRE the truck
- DRIVE the truck (eg supply drive to the wheels/tyres and road)
- CARRY WEIGHT

Steering axle/s

- All trucks have a STEERED axle at the front of the truck
- Quite obviously, this determines the direction of the truck

Some trucks have a SECOND STEERED AXLE:

Positioned directly behind the front axle

- Where the truck needs more axles to operate at higher weights
- For example, an 8x4 rigid/eight wheeler
- A second steer axle makes the truck more manoeuvrable

Positioned directly forward of the driven axle

- Where the truck needs more axles to operate at higher weights
- For example, a 6x2 rigid/six wheeler
- Placing the second steer axle ahead of the driving axle significantly increases manoeuvrability
- Ideal where space is restricted - eg farm yard milk collection

Positioned directly behind the driven axle

- Where the truck needs more axles to operate at higher weights
- For example, a 6x2 rigid/six wheeler
- Placing the second steer axle behind the driving axle increases manoeuvrability
- Ideal for refuse vehicles operating on crowded housing estates etc.

Some trucks have a THIRD STEERED AXLE:

Typically, this is positioned either ahead or behind the driving axle

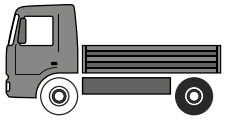
- Where the truck needs more axles to operate at higher weights
- For example, an 8x2 rigid/eight wheeler
- Adding a THIRD STEERED AXLE gives exceptional manoeuvrability
- Ideal where high weights need to be manoeuvred in very confined spaces/roads

Driving axles

- The number of DRIVING AXLES relates to what the truck is used for and the terrain on which it operates
- More driving axles increase traction/performance on difficult terrains (usually off-road)

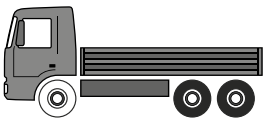
ONE driving axle

- Ideal for all on-road or light-duty off-road operations
- eg high street distribution - all on-road



TWO driving axles

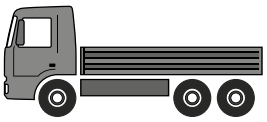
- Ideal for a mix of on and off-road operations
- Where the truck needs to negotiate more arduous terrain
- eg a concrete mixer that needs to access a building site for deliveries
- eg an 8x4 tipper that needs to access the depths of a quarry to load gravel/stone



Two driven axles together are referred to as a BOGIE.

THREE or MORE driving axles

- For increasing degrees of arduous operation on the most challenging terrains



Single/hub reduction axles

- This refers to how driven axle(s) apply power to the road
- Most driving axles are SINGLE REDUCTION
- The power from the engine is transferred via the prop-shaft to the final drive (also known as the differential) in the centre of the axle. This is a set of gears that turn the drive through 90 degrees to go to each wheel and reduce its speed - hence Single Reduction
- Some driving axles are HUB REDUCTION, often found in vehicles with an off-road bias
- In addition to the speed reduction from the final drive in the centre, a hub reduction axle has additional gearing in the hubs at the end of the axle that further reduces the speed
- More importantly, through this contribution to the axle's overall speed reduction, it allows the final drive in the centre of the axle to be smaller, giving the vehicle greater ground clearance

Lifting axles

- Sometimes, a truck will operate below its maximum gvw/gcw, so it doesn't need so many axles physically on the road
- A LIFTING AXLE can be lifted in such circumstances
- This saves tyre wear and fuel consumption, so reducing cost - and improves manoeuvrability

Dead or lazy/weight-bearing/tag axles

- Axles whose only function is to carry weight
- Axle doesn't drive, steer or lift

Bodies

Trucks are there to do a job - and there are literally thousands of jobs for which a truck can be used.

- Ultimately trucks CARRY GOODS
- Those goods are carried in or on TRUCK BODIES

- RIGIDS are fitted with a body on the back of their chassis
- DRAWBARS are fitted with bodies on both the rigid and trailer
- ARTICS comprise a tractor and semi-trailer, with a body on the semi-trailer

What the truck is going to be used for determines the type of body fitted.

There is the widest variety of different body types:

- Simple, standard bodies
- More complicated, bespoke bodies

Bodies can also be:

FIXED	A body that is permanently fixed in position on the truck/trailer/semi-trailer
DEMOUNT	A body that can be demounted from the truck/trailer/semi-trailer

DEMOUNT bodies can be:

SIMPLE DEMOUNT	Where the body is hydraulically lifted to stand alone on 'landing legs'
ROLL-ON/OFF	Where the body detaches by 'rolling' on runners off the back of the chassis
FRONT END LOADER	Where the body is hydraulically lifted up-and-over the cab onto the chassis
SKIP	Where the body is effectively site equipment and is hydraulically lifted off rearwards
CONTAINER	Where the body is craned on/off the truck/trailer/semi-trailer Where the body is kept in place by using 'twistlocks'

BOX
Solid box with side/rear doors

BOX

BULKER
Self-contained bulk body for grain or powders, either tips or blows load off


BULKER

CONTAINER
Sealed for national/international/intercontinental journeys by sea or rail


CONTAINER

CURTAINSIDER
Tightened curtain sides for ease of loading/unloading (pallets in particular)


CURTAINSIDER

DROPSIDE
Flat body with low sides that drop to allow easier loading/unloading


DROPSIDE

FLATBED
Simple flat body


FLATBED

FRIDGE
Insulated box with side/rear doors


FRIDGE

GULLY EMPTIER
Empties drains


GULLY EMPTIER


LOW LOADER

LOW LOADER
To carry plant and equipment - low height and ramp at rear aids stability and facilitates ease of loading/unloading


LUTON

LUTON
Box body with loadspace built above the cab. Luton name derives from the town of Luton

The truck looks as if it is wearing a hat.
Luton used to be the centre of hat manufacturing!


MIXER

MIXER
Concrete mixer


MUNICIPAL

MUNICIPAL
'Catch-all' for local authority applications


PANTECHNICON

PANTECHNICON
A high volume removals body, often integrated with the cab


PLATFORM/FLAT

PLATFORM/FLAT
Flat body, no sides


RECOVERY

RECOVERY
For roadside recoveries


REFUSE/WASTE

REFUSE/WASTE
For door-to-door refuse collection

ROADSWEEPER
With brushes to one/both sides to sweep and collect dirt


ROADSWEEPER

ROLL-ON/OFF
Usually a waste body that is hydraulically loaded with a 'grab' behind the cab, and rolls off the back of the chassis


ROLL-ON/OFF

SKELETAL
For carrying containers loaded by overhead crane, secured via twistlocks


SKELETAL

SKIP
Skips are hydraulically lifted on/off to the rear


SKIP

SNOW PLOUGH/GRITTER
Body carries and spreads salt from the rear. May be demountable to allow the truck to be used on other applications in the spring/summer/autumn. Often carries a demountable snow plough


SNOW PLOUGH

TANKER
Tank to carry bulk liquids - load is pumped on/off or top-filled


TANKER

TIPPER
Body tips via a hydraulic front-end or underfloor 'tipping ram' to eject load


TIPPER

TRANSPORTER
Car transporter body to carry as many cars as possible


TRANSPORTER

Maximum Permissible Weights - UK

Rigids Also tractors without semi-trailers	Maximum UK gvw
2 axles	18,000 kgs or 18 tonnes
3 axles	26,000 kgs or 26 tonnes (< 19,000 kgs gross weight of rear axles or road friendly rear suspension)
4 axles	32,000 kgs or 32 tonnes (< 19,000 kgs gross weight of rear axles or road friendly rear suspension)

Drawbars		Maximum UK gtw
4 axles	2 axle rigid - 2 axle trailer	36,000 kgs or 36 tonnes (subject to axle spacing)
5 axles	3 axle rigid - 2 axle trailer 2 axle rigid - 3 axle trailer	40,000 kgs or 40 tonnes (subject to axle spacing)
6 axles	3 axle rigid - 3 axle trailer	44,000 kgs or 44 tonnes (subject to axle spacing) Requires road-friendly suspension system - usually air suspension and twin tyres

Artics		Maximum UK gcw	
3 axles	2 axle tractor - 1 axle semi-trailer	26,000 kgs or 26 tonnes	
4 axles	2 axle tractor - 2 axle semi-trailer	36,000 kgs or 36 tonnes	
5 axles	3 axle tractor - 2 axle semi-trailer 2 axle tractor - 3 axle semi-trailer	40,000 kgs or 40 tonnes	
6 axles	3 axle tractor - 3 axle semi-trailer	44,000 kgs or 44 tonnes Requires a road-friendly suspension system - usually air suspension and twin tyres	
7 axles +	4 axle tractor - 4+ axle semi-trailer For abnormal loads STGO regulations (Special Types General Order)	STGO Category 1 STGO Category 2 STGO Category 3 Vehicle Special Order	Up to 50 tonnes gcw Up to 80 tonnes gcw Up to 150 tonnes gcw > 150 tonnes gcw

What will they carry?

So what is the typical maximum weight of payload we would expect trucks to carry?

Configuration	Max gvw/gtw/gcw	Payload expectation
2 axle rigids	7.5 tonnes gvw	3-3.5 tonnes approx.
2 axle rigids	8.55 tonnes gvw	4.5-5 tonnes approx.
2 axle rigids	9.5 tonnes gvw	5 tonnes approx.
2 axle rigids	10.5 tonnes gvw	6 tonnes approx.
2 axle rigids	12 tonnes gvw	7 tonnes approx
2 axle rigids	13.5 tonnes gvw	8 tonnes approx.
2 axle rigids	15 tonnes gvw	9 tonnes approx.
2 axle rigids	18 tonnes gvw	10 tonnes approx.
3 axle rigids	26 tonnes gvw	16 tonnes approx.
4 axle rigids	32 tonnes gvw	20 tonnes approx.
6 axle drawbar	44 tonnes gtw	27 tonnes approx.
6 axle artic	44 tonnes gcw	29 tonnes approx.

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Dimensions

Vehicle dimensions are strictly controlled throughout the UK.

WIDTH

Maximum permissible UK widths

All trucks	2.55 metres
All trailers and semi-trailers	2.55 metres

The only exceptions are:

FRIDGE trucks, trailers and semi-trailers	2.60 metres

Why?

- Fridge trucks/trailers/semi-trailers use insulated bodies
- These are thicker than standard dry freight bodies
- An additional 50mm of sidewall thickness avoids penalising chilled/frozen operators as a result

HEAVY HAULAGE/STGO applications

- Width will be defined by nature of the load
- Loads > 3.5 metres require escort attendants

HEIGHT

There are NO RESTRICTIONS on VEHICLE HEIGHT in the UK.

The only restrictions are practical (eg motorway bridges are normally 5.03 metres high).

So:

- Popular semi-trailer heights are 4.0 metres and 4.2 metres
- Most double-deck semi-trailers are 4.8 metres high
- NOTE: much of Europe adopts a 4.0 metre vehicle height restriction
- Accordingly, operators driving in Europe use 4.0 metre high semi-trailers

Why are there no vehicle height restrictions in the UK?

- A height limit was adopted in the early 1980s
- Exceptions to this height were always allowed and as a result it became a nonsense. The restrictions were therefore dropped in the 1990s

LENGTH

Maximum length of vehicles here in the UK

RIGIDS	12.0 metres
TRAILER	12.0 metres
DRAWBAR COMBINATION	**18.75 metres**
SEMI-TRAILER	13.6 metres
ARTIC COMBINATION	**16.5 metres**

HEAVY HAULAGE/STGO APPLICATIONS

DRAWBAR/ARTIC COMBINATIONS	to 18.75 metres > 18.75 metres require escort attendants > 30 metres requires Vehicle Special Order from Highways Agency

Trials of LONGER SEMI-TRAILERS are currently taking place with approved operators.

- *If proven, these would allow **semi-trailers of up to 15.65 metres** with steered axles on the semi-trailer, and longer artic combinations as a result*
- *The Government's aim? To improve the productivity of the UK's existing artic fleet by allowing additional pallets on today's trucks at the same permissible operating weights*

Truck Market

Unlike cars, trucks are tools to do a job. Operators buy them to do specific things.

So (at least in theory), operators are making a rational, practical purchasing decision.

TYPE of truck bought depends on its APPLICATION.

Different types of application require different trucks.

So that's what manufacturers produce.

As a result, the UK truck market is split into several sectors, based principally on:

- Type of truck
- Gross weight

These are recognised by all manufacturers and acknowledged by the SMMT (Society of Motor Manfacturers & Traders).

Of course, there's always more than one approach to the right truck for a specific application.

So that's what manufacturers produce and operators aquire.

- Some might choose a 2 axle rigid
- Whilst others might choose a 3 axle rigid

- Some might choose an artic - a tractor & semi-trailer
- Whilst others might prefer a drawbar - a rigid & trailer

- Some will go for a simple, basic specification
- Whilst others will go for a bigger, more powerful specification

So the truck market is wide and diverse.

An LGV (Large Goods Vechicle) driving licence is needed to drive vehicles over 3,500 kgs.

HOWEVER, the 3.51-6 tonne market is - with rare exceptions such as our own CANTER - served by VANS.

So manufacturers agree that TRUCKS effectively start from 6.1 tonnes gvw.

Market Sectors

RIGIDS

Chassis	Sectors	Focal Products
2 axle rigids	6.1-7.4 tonnes gvw	
	7.41-7.5 tonnes gvw	7.5 tonners
	7.51-12 tonnes gvw	10 & 12 tonners
	12.1-15 tonnes gvw	13 & 15 tonners
	15.1 tonnes + gvw	16 & 18 tonners
3 axle rigids	To 26 tonnes gvw	26 tonners
4 axle rigids	To 32 tonnes gvw	32 tonners

TRACTORS

2 axle tractors	To 32.52 tonnes gcw
	32.521 - 40 tonnes gcw
3 axle tractors	To 44 tonnes gcw
	> 44 tonnes gcw for Heavy Haulage/STGO applications
4 axle tractors	> 44 tonnes gcw for Heavy Haulage/STGO applications

Sectors

- Sectors are grouped together in trucks of certain weights
- For example, the sector '2 axle rigids: 12.1-15 tonnes' groups together trucks at any individual weight point between these two weights
- Some manufacturers will make trucks available at regular weight points - others will only make them available at the most popular weight points

Focal Products

- These are the most popular products within each sector
- This really only applies to RIGIDS
- 95%+ of all tractors are designed to operate at/up to maximum weight

Market Sectors
History & characteristics

2 axle rigids: 4x2: 6.1 -7.4 tonnes gvw — FUSO Canter

This is a relatively new and fast-developing sector:

- Until recently, it was the preserve of large vans
- As a result, few manufacturers make variants of their light truck range available at approx 6.5 tonnes because volumes were very small
- Manufacturers are now taking a fresh look at the sector, however
- This was sparked by increasing demand - particularly from 'dirty trades' sectors and others (local builders, garden centres, local/urban deliveries) - for a light, easy to drive, simply specified truck
- This was boosted by ever-increasing specifications/complications of heavier trucks at 7.5 tonnes in particular
- It was also encouraged by the market entry of 'Far Eastern' trucks such as FUSO's Canter and Isuzu's Grafter & Forward
- Starting at 3.5 tonnes, these were seen as hard-wearing alternatives to van chassis-cab products
- However, IVECO's Daily is now available at 7.2 tonnes gvw, and - spec for spec - can offer greater payloads than any comparable 7.5 tonne truck, except FUSO Canter

It is likely the 6.1-7.4 tonne sector will continue to grow as operators increasingly look for simplicity and low cost of operation.

2 axle rigids: 4x2: 7.5 tonnes gvw — FUSO Canter - Mercedes-Benz Atego

Long-term workhorse of lighter weight distribution

- Until 1997, you could drive up to 7.5 tonnes gvw on a car licence
- As the 'Biggest Box on a car licence', that made 7.5 tonners hugely popular
- Indeed, the sector was once 30%+ of the market, peaking at over 19,000 annual registrations
- The move to a 3.5 tonne driving licence threshold in 1997 changed all that
- Those who had a car driving licence at the time of the change were allowed to retain their right to drive vehicles up to 7.5 tonnes gvw under a system known as 'Grandfather Rights'
- However, the number of drivers with 'Grandfather Rights' has inevitably dwindled, so the availability of drivers has now diminished
- This has made 7.5 tonners less attractive to operate
- Many operators have moved to 3.5 tonne vans as a result - a few have moved to 10/12/15 tonnes
- **But with some 4,500 registered annually, 7.5 tonners still play a vital role in light truck operations**

7.5 tonners remain the backbone of lighter weight distribution

- They are adaptable to almost any application, making them universally practical
- They are economical to operate, delivering low costs
- They can carry big bodies, delivering high levels of productivity
- They are ideal for urban and inter-urban environments
- They are allowed through the UK's 7.5 tonne weight limits

Today, there are two types of 7.5 tonner:

LIGHTWEIGHT

FUSO Canter, Isuzu Forward

- Ideal for operators who want a narrow, simple, easy to drive, 'no frills' trucks where the truck is ancillary to the job, not the job itself
- Focused on construction, 'dirty trades', light distribution
- Tippers, flats, refuse, mini-skips, box bodies, fridges

PREMIUM

Mercedes-Benz Atego, DAF LF, IVECO Eurocargo, MAN TGL

- Ideal for operators who want a blend of practicality and comfort where the driver will spend most of his time in the cab, driving the truck
- Focused on urban/inter-urban distribution
- Curtainsiders, box bodies, fridges, tankers

2 axle rigids: 4x2: 7.5 1-12 tonnes gvw — Mercedes-Benz Atego

Transport's best-kept secret

- The focal weights in this sector are 10 tonnes and 12 tonnes gvw
- Effectively, they are 7.5 tonne designs with bigger wheels and tyres but with less than 2,000 registered each year, operators buy relatively few
- Many expected operators would move to 10/12 tonners when the driving licence threshold changed away from 7.5 tonnes. This change has only been small because operators perceive 10/12 tonners to be 'bigger' than 7.5 tonners - they don't want the 'hassle' of bigger trucks (eg access, size etc.)
- This can be significant in a sector that's generally less professional than heavier sectors. Long term, operators still prefer the practicality of a 7.5 tonner over a 10/12 tonner
- In reality, 10/12 tonners are not generally 'bigger'- they're more productive than 7.5 tonners, carrying greater payloads on the same on-road footprint and at lower costs-per-tonne-carried
- That makes them the industry's 'best kept secret'

10/12 tonners tend now to be a more specialist transport sector

- Some 50% are still bought for distribution with box, curtainside or fridge bodies where things like high front axle loads can cause diminishing load challenges
- Others are used for applications as diverse as waste, construction, rescue/recovery, fuels/oils etc.
- Councils & local authorities are long-term users of 10-12 tonners
- Much of this has ceased as many now contract their operations out to specialist fleets or rental companies. They tend to buy at maximum weights to maximise residual values

10-12 tonners are derived UP from 7.5 tonners

- They share the same base design as a premium 7.5 tonner
  - o Cabs
  - o Engines
  - o Axles
- Mercedes-Benz Atego, DAF LF, IVECO Eurocargo, MAN TGL, Renault range D

2 axle rigids: 4x2:13 -15 tonnes gvw — Mercedes-Benz Atego

Increasingly a niche sector

- The focal weights in this sector are **13 tonnes** and **15 tonnes gvw,** but there are few operations that truly need a truck at these weights
- With only 800-1,000 registered every year, operators are buying fewer than ever

13 -15 tonners are now a niche transport sector as a result

- 50% are bought for distribution with box, curtainside or fridge bodies
- The other 50% are bought for specialist municipal applications: street cleaners, refuse, fire engines etc.
- 13-15 tonners are popular with operators who need payload VOLUME, rather than weight
- Bread companies, for example - operators like Allied Bakeries use 13-15 tonners because they offer a high cube/space body for a low-weight load

Most 13-15 tonners are derived UP from 7.5/10/12 tonners

- Sharing the same base design: cabs, engines and axles
- Mercedes-Benz Atego, DAF LF, IVECO Eurocargo
- Others are derived down from 18-26 tonners
- Using components derived from 'in-house' opportunities
- MAN TGM, Volvo FL, Renault range D

2 axle rigids: 4x2:16 -18 tonnes gvw — Mercedes-Benz Atego/Arocs/Actros/Econic

Long-term workhorse of heavier urban/inter-urban distribution

- Focal weights in this sector are **16 tonnes** and **18 tonnes gvw**
- **16 tonners** are a small sector, but one with potential. They appeal to operators where deck height/accessibility is more important than payload
- Smaller wheels and tyres make the truck lower to the ground and more practical for some operations (eg drinks distribution)
- **18 tonners** - as the maximum allowable 2 axle rigid gvw - are universally popular
- They account for 25% of all rigids registered or 5,500-6,000 units per year
- This has wavered slightly in recent years as some distribution operators have moved up to 6x2 rigids or tractors/artics for greater productivity, dampening demand for 18 tonners by approx 30%

- 18 tonners are used by/on the widest portfolio of operators/applications
- They are fully flexible and adaptable to any body type
- 55% are box bodies, curtainsiders or fridges for urban/inter-urban distribution
- 15% are focused on construction: flats, tippers, mixers, dropsides
- 15% are municipal and waste: skips, gritters, fire engines etc.

SOLO 18 tonners

- 90% of the sector
- 2.1-2.3m wide cab/6.5-8 litre engines/220-330hp
- 70% day cabs, 30% sleeper cabs
- Either derived UP from light 12-16 tonne range
- For example: DAF LF, IVECO Eurocargo
- Or derived DOWN from premium range
- For example: Mercedes-Benz Actros/Arocs - DAF CF - IVECO S-WAY - MAN TGM - Renault range D - Scania P - Volvo FL/FE

DRAWBAR 18 tonners

- 10% of the sector
- 2.3-2.5m wide cab/9-13 litre engines/280-500hp
- 10% day cabs, 90% sleeper cabs
- Either part-time drawbars (mainly 2.3m)
- Or full-time drawbars - an alternative to artics
- For example: Mercedes-Benz Actros/Arocs - DAF CF/XF - IVECO S-WAY - MAN TGS/TGX - Renault range D/T - Scania G/R - Volvo FM/FH

3 axle rigids: 6x2: 26 tonnes gvw — Mercedes-Benz Arocs/Actros/Econic

Increasingly popular on distribution and waste applications

- Long-term, 18 tonner operators are increasingly moving to 6x2 rigids for urban/inter-urban distribution
- In real terms, 6x2s are an '18 tonner with an extra axle'. They can carry some 6-7 tonnes more payload, so are more productive than 18 tonners within the same body size and on-road footprint. They are no bigger and no less manoeuvrable
- They tend to share the same base design and driveline as 18 tonners - fuel and operating costs remain similar - so 6x2s offer a win/win alternative to 18 tonners
- They are also widely being used for waste operations (eg Econic)
- Waste applications increasingly rely on transfer station operations, rather than landfill - so operate on-road, rather than off-road
- 6x2s offer operators the ideal blend of productivity and manoeuvrability that's critical on waste collection and delivery
- 6x2 rigids now account for approx 80% of all 3 axle rigid registrations

- 40% of all 6x2 rigids are used for distribution
- 30% are used on waste applications
- 15% are used on construction/municipal operations
- Remaining 15% are used on other applications
- Curtainsiders - tankers - box bodies - waste - construction
- With such diversity of applications, 6x2s come in a wide selection of axle configurations
- These are designed to offer improved manoeuvrability, weight distribution etc.

- Most 6x2 rigids are derived from premium 18 tonne rigids
- 2.3m wide cab/8 litre engines/240-330hp/day cabs (eg Mercedes-Benz Actros/Arocs)
- Waste 6x2 rigids focus on specialist cabs: Mercedes-Benz Econic, Dennis Elite, Scania L Series
- Some 6x2s are used as drawbars to allow 44 tonnes gtw. These are derived from 44 tonne tractor types

3 axle rigids: 6x4: 26 tonnes gvw — Mercedes-Benz Arocs/Actros/Econic

Glorious past, now less popular

- 6x4 rigids are focused on construction
- In years gone by, there was a phrase '6x4's build 'em up, 8x4s knock 'em down'
- So 6x4 rigids were focused on building materials, 8x4 rigids hauled away the demolition
- That's less and less the case because most construction operators have turned to 8x4 rigids for greater productivity - they offer higher payloads than a 6x4 and more returns as a result
- Construction site surfaces have improved too, so 6x2 rigids are now often preferred to 6x4s. They are lighter and able to carry more payload, so are more productive
- **6x4 rigids retain a following for specific applications, however (eg concrete mixers)**

- 6x4s remain popular with applications such as building site deliveries: for example, bricks and bagged materials where a crane is required to off-load
- Concrete mixers too - and skips
- Waste operators use 6x4 rigids where their operations revolve around delivery to landfill sites
- Main advantage of a 6x4 is additional traction of the extra driven axle
- Where this is needed, a 6x4 is operationally preferable to a 6x2

- Most 6x4 rigids are derived from premium 18 tonne rigids
- 2.3m wide cab/8 litre engines/240-330hp/day cabs (eg Mercedes-Benz Arocs)

4 axle rigids: all types: 32 tonnes gvw — Mercedes-Benz Arocs/Econic

Construction workhorse

- Eight wheelers are used mostly for construction
- Most are tippers - although they offer opportunities for other applications too
- Greatest advantages?
  - Productivity - they carry a maximum allowable payload
  - Driveability - on any surface, on or off road
  - Traction - with two driven axles, they rarely get stuck
- High proportion of tipper operators are small fleets, contracted to the big construction companies who use them instead of having their own fleets
- They can never be sure where they're going to be working - or what they're going to be carrying
- 8x4 rigids with multi-purpose bodies enable them complete operational flexibility as a result
- Unsurprisingly, the sector is strongly defined by the strength of construction as an industry. Demand for 8x4s can be volatile as a result
- Interestingly, 4 axle rigids are a very image conscious sector influenced by a high proportion of small fleets/owner drivers

- 60% of all 8x4 rigids are tippers
- 80% of all 8x4 rigids are used on construction
- Other applications include mixers, skips, municipal etc.
- Increasingly used as an 8x2 for waste operations, with a steered/lifting rear axle
- Known as 'tridems' or 'triples' when 3 axles are grouped together

- Most 4 axle rigids are derived from premium 44 tonne trucks/tractors
- 2.3m wide cab/10-14 litre engines/280-460hp/day cabs (eg Mercedes-Benz Arocs)
- Few are derived from top weight 2.5m wide trucks. These tend to be too big/wide for the application (manoeuvrability etc.) and exposed to damage (on building sites etc.) as a result

2 axle tractors: 4x2: 40 tonnes gcw — Mercedes-Benz Arocs/Actros

Principally supermarkets and distribution

- 2 axle tractors were historically the big volume seller here in the UK
- Then gross weights were increased (to 38 tonnes in 1983, to 44 tonnes in 1994 on 6 axles) requiring the use of 3 axle tractors
- Now 2 axle tractors are the preserve of those who operate around 32-40 tonnes gcw
- As a result, they're still popular with those on daily distribution patterns such as supermarkets (Tesco, Sainsburys, Waitrose, Morrisons)
- Also those using tractors for high street distribution (Boots etc.)
- With the gradual move to tractors for distribution, the sector is unlikely to disappear, but at approx 3,000 units per year, this is the smaller tractor segment
- Includes specialist tractors at 24 tonnes (brewery distribution etc.), also known as 'urban tractors'
- Popular across the continent where 40 tonnes is the norm on 5 axle artics

- Mainly used for supermarket deliveries (Tesco, Sainsburys, Waitrose, Asda etc.)
- Used below maximum allowable gross weight because their goods don't 'weigh out'

- 'Medium' trucks tend to share drivelines with bigger truck partners
- Usually 2.3m wide cab/8 to 12-13 litre engines/240 to 420hp (eg Mercedes-Benz Actros)
- Also 2.5m wide types (eg Mercedes-Benz Actros)
- They are rarely used for long haul because they cannot achieve 44 tonnes maxiumum weight productivity
- Whilst they are less popular for UK transport, they are well used for international transport as they can only legally operate at 40 tonnes. Why carry the payload penalty of an extra axle? They are also able to carry larger fuel tanks, allowing an operator to use bunkered fuel rather than stop at expensive fuel stations

3 axle tractors: all types: 44 tonnes gcw — Mercedes-Benz Arocs/Actros

The Big One

- Critical market sector. Now approximately 40% of all trucks registered
- Offers 44 tonne gross weight operation, so maximum productivity. Operators are increasingly moving to 3 axle tractors for ALL operations as a result
- A 3 axle tractor and double-deck semi-trailer is the most productive layout of truck achievable
- 3 axle tractors are fully-flexible. They can adapt to any maximum weight requirement, so any application
- Now the all-round workhorse of the UK transport industry

- Ideal for allmost all applications
- Mainly used for longer distance transport, so 95% sleeper cab
- Mainly used for long haul applications, UK and Europe
- Curtainsiders, box trailers, tippers, bulkers, fridges, specialist trailers
- Also popular for UK tramping at 44 tonnes (eg leave on a Monday, return on a Friday - travel all over the UK)
- Also adaptable to operations such as supermarkets, moving heavier loads between Regional Distribution Centres (RDCs)

MEDIUM 3 axle tractors

- Usually 2.3m wide cab/8 to 12-13 litre engines/240 to 460hp/day-sleeper-high roof sleeper cabs (eg Mercedes-Benz Actros)

FLAGSHIP 3 axle tractors

- 2.5m wide cab/12-13 to 16 litre engines/380 to 730hp/sleeper-high roof sleeper cabs (eg Mercedes-Benz Actros)

4 axle tractors: all types: <250 tonnes gcw — Mercedes-Benz Actros SLT/Arocs SLT

Heavy haulage specials

- Biggest and heaviest trucks on UK roads
- Operators are Heavy Haulage specialists who focus on moving abnormal, indivisible loads
- Operated under unique STGO (Special Types General Order) regulations
- Applies to loads which are too heavy or too large to be carried under normally permitted weights/lengths/widths
- Design weight of tractor unit can be up to 250 tonnes gcw. Usually used in UK up to 150 tonnes gcw
- Requires special, purpose-designed heavy duty trailers/semi trailers which are longer and have 4, 5 or more axles
- High kingpin loads often require a 4 axle tractor
- Very small UK market size, usually < 20 registered per year

- High profile flagship trucks operating at the highest weights
- Often require 'wide load' escort vehicle
- Used to transport heavy machinery, plant, off-road dump trucks or equipment - eg transport of pre-stressed concrete beams or wind turbine blades
- Large sleeper type cabs, generally with two-man crew
- Most popular are 6x4 and 8x4 tractors, the latter usually with tridem rear bogie
- Specialist 8x6/8x8 models available, usually for military/on-off road application

- Flagship 4 axle models have 2.5m wide cab/13 to 16 litre engines/500 to 750hp/high roof sleeper cabs
- Production line modified tractors (eg Mercedes-Benz Actros SLT/Arocs SLT)
- Automated transmissions with crawler gears


McINTOSH
HEAVY LOGISTICS
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HEAVY LOGISTICS

Operators & Applications

Operators buy trucks for hundreds of different uses.

A **vehicle's application** is the main influence on its bodywork and chassis specification. It defines requirements such as:

- Carrying capacity or payload
- Type of goods carried
- Volume of goods carried
- Need to be temperature controlled
- Method of loading/unloading
- Distance likely to be travelled every day
- Need for a driver to be away overnight
- Number of co-drivers or crew needing to travel with the truck
- Need to go 'off road' or on soft ground
- Accessibility of delivery points
- Number of deliveries in a day

These requirements suggest the ideal vehicle layout. They also determine specification details to achieve the most efficient, productive truck.

Knowing the details of the truck's application identifies:

- Gross vehicle or gross combination weight
- Need for a rigid or tractor - and its wheelbase
- Overall height, length and width of bodywork
- Type of bodywork - fridge, tipper, box, curtainside, etc.
- Need for a tail-lift, chassis height required, etc.
- Power required and transmission type
- Type of cab necessary - day or sleeper, high roof, etc.
- Need for 2, 3 or more seats in the cab
- Need for traction - so one or more driven axles
- Height and width of cab
- Type of gearbox
- Cab step access

DISTRIBUTION

FUSO Canter
Mercedes-Benz Atego

HEAVY DISTRIBUTION

Mercedes-Benz Actros

LONG DISTANCE

Mercedes-Benz Actros

CONSTRUCTION

FUSO Canter
Mercedes-Benz Atego/Arocs

SPECIALIST - WASTE, REFUSE & PUBLIC SERVICE

FUSO Canter
Mercedes-Benz Atego/Arocs/Econic

HEAVY HAULAGE/STGO OPERATIONS

Mercedes-Benz Actros/Arocs

DISTRIBUTION

What type of operation is Distribution?

- Final link in the supply chain
- Focus on consumer-ready goods
- Being delivered from an RDC (Regional Distribution Centre), warehouse or wholesaler to point-of-sale retailer or end consumer
- Operating locally or regionally, usually less than 100 miles from base
- Single/two-shift drivers operating on part-day journeys
- Shorter distances, with timed delivery schedules
- Dense traffic situations, usually A or B roads
- Generally operating in daylight hours

What kinds of work and general characteristics are involved in Distribution?

- Boxed groceries, shrink-wrapped and on a pallet moved into a high street store
- Cases of wine in a 'roll-cage' being wheeled into local village store
- Just-in-time full loads being delivered to an edge-of-town supermarket
- Chilled food ingredients being delivered to a restaurant
- Bread for a burger bar being tail-lifted and trollied into a cafe
- Bricks or bags of sand being delivered to a local building site
- Parcels being delivered to a business on a trading estate
- Washing machine ordered from the internet being home-delivered by a retailer
- Beer kegs hand-unloaded and delivered to a pub cellar

What are the operational priorities with Distribution?

- Manoeuvrability - accessing different delivery spots every day
- Reliability - to meet time-pressured delivery schedules
- Economy - fuel economy in stop-start operations
- Lowest whole life costs - minimal 'cost per drop'
- Driveability - easy to drive and operate in stressful environments
- Comfortable - easy cab entry/exit, day-to-day comfort
- Adaptability - to any type of body, load and ancillary equipment
- Visibility - safety is paramount, especially in town
- Durability and ease of repair - handle the knocks and shocks of stop/start distribution operations

HEAVY DISTRIBUTION

What type of operation is Heavy Distribution?

- Heavy Distribution is part of a goods delivery process
- Methods of load handling/warehousing are integral to deliveries
- Focused on tight time schedules and just-in-time delivery windows
- Serving RDCs and wholesalers nationally and regionally
- Often inter-dependency of logistics and distribution operations
- Double/treble shift system for productivity
- Multi-shift drivers working around the clock
- Repetitive runs between regular collection/delivery points
- Intensively used - only the trailers and drivers get changed

What kinds of work and general characteristics are involved in Heavy Distribution?

- Fuel delivery from oil storage terminals to factories and fuel stations
- Bulk cement from manufacturing sites to ready-mix concrete distributors
- Containers from London to Felixstowe port terminal
- Animal feed from mill to farm distribution centres
- Pallets of packaged cheese, from manufacturer to cold store and on to RDC
- Spare part delivery from central parts warehouse to car dealers
- Farm milk collection to local creamery
- Sand/gravel from quarry to concrete batching plant
- Electrical components from sub assembler to just-in-time fridge manufacturer

What are the operational priorities with Heavy Distribution?

- Reliability - key link in a chain that cannot afford to be broken
- Driveability - easy to drive, easy to live with for any driver
- Cab layout – easy to use controls with practical driver comforts
- Manoeuvrability - optimum access in tight spaces
- Handling - precise steering and efficient braking in intensive use
- Performance - enough power to keep ahead of the traffic
- Economy - fuel is a key component of efficiency
- Wide range of chassis availability - 4x2, 6x2, 6x4 or 8x4 can be needed
- 24/7 customer and dealer support to keep the wheels of industry turning

LONG DISTANCE

What type of operation is Long Distance?

- Longest hauls between collection & delivery points
- High annual mileages over very long distances
- Factory to factory goods movement
- Long time away – from days to weeks
- 1-3 day journeys, up to 5-6 days away from base
- Solo drivers, with dedicated vehicles
- National/international dealer support critical
- Day/night transport with highest tonne-miles
- Trunk routes or motorway operation

What kinds of work and general characteristics are involved in Long Distance?

- Palletised car components from Glasgow to Swindon, returning with stillages
- Daily 20 tonne load of fresh fish from Aberdeen to Billingsgate market in London
- Overnight mail delivery from Manchester sorting office to Exeter
- Refrigerated vegetable movements from Madrid to the south of England
- Formula One team leaving Northamptonshire for Monza in Italy
- Trunking from Norwich to Bristol and then Edinburgh with pet food
- Air Cargo deliveries from Gatwick to North Wales, with return parcels
- Specialist glass carrying from St Helens to building sites in Portsmouth
- Furniture from Bedford to RDCs in Bristol, Reading and Basildon

What are the operational priorities with Long Distance?

- Comfort - larger cabs, low noise level for maximum driver comfort
- Space - workspace, office space and living space in home-away-from- home
- Performance - plenty of power for easy cruising and all terrains
- Fuel economy - biggest influence on cost of operation with long periods on motorways
- Storage – somewhere to keep everything for days and nights away
- Reliability - long periods over long distances at high speed
- Handling – confidence with braking at high weights
- In Cab Entertainment - for long hours parked up
- Manufacturer and dealer support - confidence in case of breakdown

CONSTRUCTION

What type of operation is Construction?

- Short and medium distances up to 150 miles a day
- Specialised transport of materials, equipment and resources to support construction-related activities
- Building, maintenance, demolition, civil engineering
- Local, regional and national operations
- High density, relatively low value per tonne loads
- Dominated by tipper, concrete mixer, skip or dropside with cranes
- Tight time scales (eg motorway building and maintenance)
- On-road and part time off-road

What kinds of work and general characteristics are involved in Construction?

- Local builder using a tipper to carry ladders, tools and loose sand
- Scaffold contractor transporting tubes, couplers and planks to a site
- Gravel collected from quarry to concrete plant
- Builders merchant with bricks, breeze blocks, bagged sand or cement
- Mixer delivering wet concrete to a new-build housing estate
- Drop-off/collection and emptying of skips
- Sand or aggregates to building sites
- Demolition materials being hook-loaded and transported to a landfill site
- Asphalt being tipped into a road laying machine

What are the operational priorities with Construction?

- Tough - nature of goods carried means tendency to overload
- Ground clearance - on/off road operation may need higher chassis layout
- Load tolerance – driver is rarely able to directly control loading
- Durability - to withstand the rigours of tipping or hookloader bodies
- Driver comfort - day-to-day comfort for the driver, who rarely gets out of cab on site to ensure Health and Safety
- Safety - building sites are dangerous places, requiring good visibility
- Versatility - adaptable to any body, any load
- Driveability - easy to drive, easy to live with
- Power spread - a wide gear range for load speeds and high power for big loads

SPECIALIST - WASTE, REFUSE & PUBLIC SERVICES

What type of operation is Specialist - Waste, Refuse & Public Services?

- Waste collection and recycling from households
- Road-sweeping around city streets
- Transport of material to landfill sites or Waste Transfer Stations
- Local and regional operation
- Driver plus crew, any hour of the day operations
- Emergency call out for weather conditions, fire or civil disruption
- Public sector ownership or contracted operation
- Relatively low annual mileages, but some static running required

What kinds of work and general characteristics are involved in Specialist - Waste, Refuse & Public Services?

- The weekly refuse collection of waste bins on a housing estate
- A fire engine answering an emergency call-out to a factory
- An articulated unit with bulk trailer moving recyclable waste to an energy site
- A council sub-contractor collecting roadside waste with a caged tipper
- Snow ploughing at night in the Grampian region with an all-wheel drive truck
- Sweeping the roads around a new road-building project
- Putting down traffic cones on a busy motorway section
- A municipal truck with swap body for gritting roads in winter
- A council contractor collecting glass from a recycling site

What are the operational priorities with Specialist - Waste, Refuse & Public Services?

- Crew cab - driver plus up to 4 crew can be required
- Low front entry - easy to get in and out for crew, many times a day
- Traction - snow/ice and on/off road operation can require all-wheel drive
- Reliability - emergency situations require responsive operations
- Easy to drive - automated transmissions with a lot of stop-start
- Health and Safety - operating with several crew members requires special attention
- Versatility - adaptable chassis for swap bodies, low and high speeds
- Maintenance - public service vehicles with a 15 year life need good parts availability
- Durability - regular stationary engine running with a power take-off causes a lot of wear

HEAVY HAULAGE - SPECIAL TYPES GENERAL ORDER (STGO)

What type of operation is Heavy Haulage (STGO)?

- Transport of loads too large or heavy for normal authorised weights that cannot be carried within the normal 44 tonne gcw limit
- Abnormal, wide or long indivisible loads over 2.6m wide/15m in length
- Operated under unique STGO (Special Types General Order) regulations
- Three different weight categories with different speed limits and minimum dimensions:
  STGO Category 1 up to 50t gcw, normal speed limits, min. 8m axle distance
  STGO Category 2 up to 80t gcw, max 40 mph, min. 10.67m axle distance
  STGO Category 3 up to 150t gcw, max 30 mph, min. 12.14m axle distance
- Most operations require a 6x4 or 8x4 tractor with multi-axle trailers

What types of work and general characteristics are involved in Heavy Haulage (STGO)?

- Movement of heavy plant and equipment (eg off-road dump trucks)
- Transport of long or wide cranes, concrete beams for bridges or wind turbines
- Delivery of heavy excavators, 100 tonne tanks or electrical transformers
- Transfer a large yacht to a new berth or deliver components to an aerospace company
- STGO load movements must be pre-notified to Police, Highways Agency and bridge authorities
- Loads over 3.5m wide or 18.75m long require escort attendants and STGO markings
- Specialist multi-modal, heavy haulage, heavy lifting operators require STGO vehicle plating
- Low-loading heavy duty trailers often with 5 or more steering axles required
- Over 30m length and 150 tonnes gcw requires a Vehicle Special Order from the Highways Agency

What are the operational priorities with Heavy Haulage (STGO)?

- Highest power and torque level to maintain road speeds at highest weights
- Automated transmissions with deep first gear for smooth pull-away
- Traction - high gross weights need double drive layout
- Comfort - large cabs with low noise levels for two-man driver comfort
- High axle and kingpin loads - up to 16.5 tonnes per drive axle
- Heavy duty chassis with 3.5 inch kingpin for heavy duty trailers
- Design weight of tractor must be equal or greater than STGO category weight
- Retarder/engine brake for increased safety with primary braking

Unimog

The ultimate vehicle in versatility.

Some transport applications need more than just a standard truck.

Perhaps the operator needs a base on which to transport and operate specialised equipment - a field sprayer perhaps, or a paving stone impactor, a snow plough, a sewer flusher or forestry equipment.

Perhaps the operator needs extreme off-road ability for applications such as fire and rescue, pipeline engineering, pylon and overhead line support - where things like rugged build, good ground clearance, traction and all-round, off-road mobility are priorities.

Or perhaps the operator needs a blend of the two.

For extreme applications such as these, a standard truck is not enough, but an agricultural tractor is far too much for the job.

The answer? A Unimog.

A Unimog is neither truck nor tractor - it is both.

It is designed to work equally as productively on field, farm and forest as it does on road, on site and on every conceivable surface.

It is the ultimate high-performance implement carrier, and it is the ultimate go-anywhere, never-get-stuck, do-anything, deliver everything transport tool.

That makes the Unimog a unique concept: a tough 2-axle 4x4 rigid combining the carrying capacity of a truck with the off-road capability of an agricultural tractor.

It gets man, machine, equipment and load direct to a working site, no matter what the weather or ground conditions. Target applications include:

- Fire and rescue services
- Electricity and water authorities
- Airport operations
- Highway maintenance
- Agriculture and forestry
- Building and construction
- Railway operations

The Unimog range is available in two 2 axle 4x4 formats.

Compact in design, these can be used in solo rigid/drawbar or artic combination formats depending on application and gross weights.

Implement Carrier

10 tonnes gvw	U216	156hp
	U218	177hp
11 tonnes gvw	U318	177hp
13.8 tonnes gvw	U423	231hp
14 tonnes gvw	U427	272hp
	U430	299hp
16.5 tonnes gvw	U527	272hp
	U530	299hp

Extreme Off-Roader

10.3 tonnes gvw	U4023	231hp
14.5 tonnes gvw	U5023	231hp

Mercedes-Benz

- Carl Benz launched the world's first car in 1886 and first bus in 1895
- Gottlieb Daimler launched the world's first truck in 1896
- Daimler-Benz formed in 1926
- First Mercedes truck launched in 1927
- First Unimog built in 1948
- Strategic alliance with FUSO (then Mitsubishi Fuso) formed in 2001

Daimler Trucks: worldwide truck brands

- Mercedes-Benz
- Freightliner (USA)
- FUSO
- Western Star (Canada/Australia)
- BharatBenz (India)

Daimler: worldwide Group Production and Assembly locations

GERMANY	**Mercedes-Benz plants** • Gaggenau • Kassel • Mannheim • Rastatt • Wörth
FRANCE	**Mercedes-Benz plant** • Molsheim
TURKEY	**Mercedes-Benz plant** • Aksaray

FUSO

- Mitsubishi Fuso produced their first commercial vehicle in 1932
- Led the post-war production of trucks in 1940s/50s/60s
- Launched the first Canter model in 1963
- Entered strategic alliance with Daimler in 2001
- Re-branded as FUSO in 2010
- Stockholders: Daimler 89.29%, Mitsubishi 10.71%

FUSO: worldwide Group production and assembly locations

PORTUGAL **FUSO Trucks Europe**
- Tramagal

JAPAN **FUSO Truck & Bus**
- Kawasaki

Mercedes-Benz and FUSO in the UK

- Both brands represented by Mercedes-Benz Trucks UK and its Dealer network
- UK headquarters since 1985: Tongwell, Milton Keynes
- Also: Wentworth Park, Tankersley, South Yorkshire

UK operational headquarters for:

- Mercedes-Benz Trucks
- FUSO Canter
- Mercedes-Benz Financial Services

Mercedes-Benz Model Range

Trucks are tools to do a job. Operators buy them to carry out specific tasks.

So the Mercedes-Benz product range offers them the widest flexibility in choosing the right truck to meet their needs.

Atego

Atego is a lighter weight rigid/drawbar truck range, aimed at DISTRIBUTION and CONSTRUCTION duties from 7.5 to 16 tonnes gvw.

Types	4x2 - 4x4 rigid/drawbar	
Gross weights	7.49 - 7.99 - 9.5 - 10.5 - 11.99 - 13.5 - 15 tonnes	
Engines	5.1 litre, 4 cylinder	156-177-211-231hp
	7.7 litre, 6 cylinder	238-272-299hp
Transmissions	PowerShift 3	6-speed or 8-speed
	Manual	6-speed (specific models only)
Cabs	S-cab - S-cab Extended - L-cab	ClassicSpace
	L-cab	BigSpace

Actros

Actros is a rigid/drawbar and tractor range aimed at DISTRIBUTION and LONG DISTANCE duties from 18 tonnes gvw and above.

Types	4x2 - 6x2 - 6x4 rigid/drawbar		
	4x2 - 6x2 - 6x4 tractor		
Gross weights	18-26 tonnes gvw - 44-250 tonnes + gcw		
Engines	7.7 litre, 6 cylinder		238-272-299-320-354hp
	10.7 litre, 6 cylinder		326-360-394-428-455hp
	12.8 litre, 6 cylinder		421-449-476-510-530hp
	15.6 litre, 6 cylinder		517-578-625hp
Transmissions	PowerShift 3		8-speed or 12-speed
Cabs	2.3m wide	S-cab	ClassicSpace
		M-cab	ClassicSpace or CompactSpace
	2.3m wide	L-cab	CompactSpace, ClassicSpace or StreamSpace
	2.5m wide	L-cab	StreamSpace, BigSpace or GigaSpace

Arocs

Arocs is a truck and tractor range aimed specifically at CONSTRUCTION duties from 18 tonnes gvw and above.

Types	4x2 - 4x4 - 6x4 - 8x4 rigid/drawbar 4x2 - 4x4 - 6x4 - 8x4 tipper/drawbar 6x4 - 8x4 mixer 4x2 - 4x4 - 6x2 - 6x4 - 6x6 - 8x4 - 8x6 - 8x8 tractor		
Gross weights	18-32 tonnes gvw - up to 250 tonnes+ gcw		
Engines	7.7 litre, 6 cylinder 10.7 litre, 6 cylinder 12.8 litre, 6 cylinder 15.6 litre, 6 cylinder		238-272-299-320-354hp 326-360-394-428-455hp 421-449-476-510-530hp 517-578-625hp
Transmissions	PowerShift 3 Manual		8-speed or 12-speed 9-speed
Cabs	2.3m wide 2.5m wide	M-cab S-cab L-cab L-cab	CompactSpace or ClassicSpace ClassicSpace ClassicSpace or StreamSpace StreamSpace or BigSpace

Econic

Econic is in the SPECIALIST truck range. It is aimed primarily at WASTE, REFUSE & PUBLIC SERVICES applications at 18 tonnes gvw and above. However, Econic's low-set, all-round visibility cab design makes it of increasing interest for CONSTRUCTION & DISTRIBUTION duties in urban areas.

Types	4x2 - 6x2 - 6x4 - 8x2 - 8x4 rigid/mixer/tipper/drawbar	
Gross weights	18-32 tonnes gvw - 44 tonnes gcw	
Engines	7.7 litre, 6 cylinder	272-299-320-354hp
Transmissions	Allison automatic/PowerShift 3	6-speed or 12-speed
Cabs	2.3m wide	Low roof - High roof

Competition

DAF

- Dutch company based in Eindhoven, Netherlands, where engines and heavy trucks are manufactured
- Lighter models are designed and built by Leyland Trucks, Preston
- DAF designs and produces trucks from 7.5 to 250 tonnes
- US-owned by Paccar who design, produce and sell ONLY trucks under Kenworth, Peterbilt, DAF and Tatra brands
- Main manufacturing locations
    - Netherlands: Eindhoven
    - United Kingdom: Leyland
    - Belgium: Westerlo
    - Brazil: Ponta Grossa
- UK headquarters: Haddenham, Bucks
- UK website: www.daf.co.uk

Vehicle range

LF	7.5 to 18 tonnes gross weight - 4x2 rigids Paccar (Cummins) engines: 3.8, 4.5 and 6.7 litre - 156hp to 325hp
CF	18 to 44 tonnes gross weight - 4x2, 6x2, 6x4, 8x2, 8x4 rigids and tractors Paccar (Cummins) engines: 6.7 litre and Paccar 10.8 and 12.9 litre - 234hp to 530hp
XF	18 to 44/250 tonnes gross weight - 4x2, 6x2, 6x4, 8x4 rigids and tractors Paccar engines: 10.8 and 12.9 litre - 299hp to 530hp

DAF in the UK

- DAF acquired Leyland's truck operations in 1987, forming Leyland DAF (UK only) before DAF went into receivership in 1993. Bought by Paccar in 1996. DAF-only branding was adopted in 2000
- Paccar acquired British-owned manufacturer Foden in 1980. This was merged into DAF's UK operations in 2006
- Virtually all DAF models sold in the UK are built at Leyland's factory
- DAF have been consistent UK market leaders >6 tonnes GVW since 1995
- UK Dealer network: 134 Service/Parts

+ Strengths

- Continuity and stability of management
- Consistently strong market share especially in light/medium trucks
- Large stable dealer network with good service reputation
- Sizeable vehicle parc
- Retains 'British-built' perception
- Strong after sales perception

– Weaknesses

- Heavier truck range based on older cab designs (30 years +)
- Dependency on larger fleet and rental/contract hire customer base
- Limited model range - no refuse collection low-entry cab
- Maximum engine power limited to 530hp

IVECO

- Ultimately part of FIAT, based in Turin
- IVECO (Industrial Vehicles Corporation) was formed in 1975 after a merger of Italian (FIAT, OM), French (Unic) and German (Magirus-Deutz) brands
- Now part of CNH Industrial - designs agricultural and construction equipment (Case and New Holland). Became operational in 2013 after the integration of FIAT Industrial and CNH Global
- Designs and builds vans and light/medium/heavy commercial vehicles from 2.8 to 44/250 tonnes
- Sub-brands focus on construction site trucks, buses and specialist/military vehicles
- Main manufacturing locations
    - Italy: Suzzara; Brescia
    - Spain: Madrid
    - Germany: Ulm
- UK headquarters: Basildon, Essex
- UK website: www.iveco.com/uk

Vehicle range

Daily	3.5 to 7/7.2 tonnes gross weight - integral van and chassis cab FPT engines: 2.3 and 3.0 litre - 106 to 210hp
Eurocargo	7.5 to 18 tonnes gross weight - 4x2, 4x4 rigids FPT engines: 4.5 and 6.7 litre - 160 to 320hp
X-WAY	18 to 44 tonnes gross weight - 4x2, 6x2, 6x4, 8x2, 8x4 rigids and tractors FPT engines: 8.7, 11.1 and 12.9 litre - 310 to 570hp
S-WAY	18 to 44 tonnes gross weight - 4x2, 6x2, 6x4 rigids and tractors FPT engines: 8.7, 10.8 and 12.9 litre - 400 to 570hp

IVECO in the UK

- IVECO acquired Ford's European truck operations in 1986, forming IVECO Ford
- IVECO acquired Spanish-owned Pegaso and UK subsidiary Seddon Atkinson in 1990/91
- All brands merged into IVECO by 2006
- IVECO were consistently UK market leaders >6 tonnes GVW until 1994
- IVECO have invested heavily in the development of alternative fuels - mainly 'natural power' LNG and CNG gas engines
- UK Dealer network: 89 Service/Parts

+ Strengths

- Market share in heavier vans
- Long term experience and sizeable UK truck parc
- Mature product range
- Value for money perception
- Early adopters of alternative fuels: CNG, LNG and hydrogen

– Weaknesses

- Weak share in growing heavy rigid and tractor markets
- Dependency on shrinking light truck sector
- Dependency on vehicle rental/lease market
- Poor (unjustified?) market image for reliability
- Weak dealer network

MAN

- MAN Truck and Bus SE is a German company, part of Traton SE, itself a subsidiary of Volkswagen AG
- Owned by Volkswagen AG since 2011 and Traton specialised truck and bus group since 2015
- Further integration with sister brand Scania expected, but retaining independent branding
- Headquartered in Munich, MAN produce trucks from 7.5 to 44t, 250t combinations, buses and coaches
- Produce diesel engines (Rudolf DIESEL - from which the name comes - was an employee of MAN)
- MAN SE also own 25% of Sinotruk from China
- Main manufacturing locations
    - Germany: Munich; Salzgitter
    - Poland: Krakow
    - Brazil: Resende (Volkswagen Trucks & Buses)
- UK headquarters: Blagrove, Swindon, Wiltshire
- UK website: www.entry.man.eu/uk/en

Vehicle range

TGL 7.5 to 12 tonnes gross weight - 4x2 rigids
MAN engines: 4.6 and 6.9 litre -160 to 250hp

TGM 13 to 26 tonnes gross weight - 4x2, 4x4, 6x2 and 6x4 rigids
MAN engines: 6.9litre - 250 to 320hp

TGS 18 to 44 tonnes gross weight - 4x2, 6x2, 6x4, 8x4 tractors and rigids
MAN engines: 9.0 and 12.4 litre - 330 to 510hp

TGX 18 to 250 tonnes gross weight - 4x2, 6x2, 6x4 tractors and rigids
MAN engines: 9.0, 12.4 and 15.2 litre - 330 to 640hp

MAN in the UK

- Present in the UK (as MAN subsidiary) since 1979
- MAN acquired British ERF in 2000 and merged existing MAN and ERF dealer networks
- Won a long-term military contract with British army in 2005 to supply 4x4, 6x6 and 8x8 trucks
- Launched New Generation range in 2020 with revised cab styling/interior
- Sales force employed directly by MAN UK
- Dealers provide service and parts support only
- UK Dealer network: 66 Service/Parts

+ Strengths

- Strong engineering history
- Military business with British army
- Large fleet business especially fuel tankers
- Perception of quality build

- Weaknesses

- Declining share in light truck market
- Dependency on rental/lease market
- Market relationship with Scania under VW ownership
- Market awareness of previous D20 engine and EGR issues

Renault

- Renault Trucks is a French truck manufacturer with headquarters in Lyon
- It was formed by a merger between Saviem and Berliet in Europe, and Dodge and Commer in the UK
- Acquired US-based Mack in 1987
- Renault Trucks have been owned by Volvo Group since 2001
- Designs and manufactures trucks from 6 to 44 tonnes +
- Main manufacturing locations
    - o France: Bourg-en-Bresse, Blainville, Batilly
    - o Brazil: Sao Jose dos Pinhais
- UK headquarters: Warwick, Warwickshire
- UK website: www.renault-trucks.co.uk

Vehicle range

Range D	10 to 26 tonnes gross weight - 4x2, 6x2, 6x4 rigids Volvo (Nissan) engines: 5.1 and 7.7 litre - 210 to 320hp
Range C	18 to 44 tonnes gross weight - 4x2, 6x2, 6x4, 8x4 rigids Volvo engines: 7.7, 10.8 and 12.8 litre 250 to 520hp
Range K	26 to 60 tonnes gross weight - 6x4, 8x4 rigids and tractors Volvo engines: 10.8 and 12.8 litre - 380 to 520hp
Range T	18 to 44 tonnes gross weight - 4x2, 6x2 rigids and tractors Volvo engines: 10.8 and 12.8 litre - 380 to 520hp
Range T High	18 to 44 tonnes gross weight - 4x2, 6x2 rigids and tractors Volvo engine: 12.8 litre - 440 to 520hp

Renault in the UK

- Renault grew from 1983 with the acquisition of Dodge/Commer
- Trucks were produced in the UK at Dunstable until 1990
- Renault's HQ organisation was integrated into Volvo's offices at Warwick in 2014
- Renault's UK 'back office' functions now merged with Volvo. Separate products, dealer branding, sales and marketing organisation
- Renault's market share peaked at 7.4% (6 t+) in 2011, but has declined since
- UK dealer network: 87 Service/Parts

+ Strengths

+ Volvo drivelines
+ Improving dealer network
+ Cab used on Range T, K and C wide is well liked

- Weaknesses

- Poor market share in trucks below 18 tonnes
- Confused market perception as a 'cheaper Volvo'
- Maximum power limited to 520hp
- Range T High limited to tractor range only

Scania

- Scania AB is a Swedish truck manufacturer of heavy trucks and buses
- Also manufactures diesel engines for marine, and general industrial applications
- Headquartered in Sodertalje, Sweden, it produces trucks from 16 to 200t, with power units up to 730 hp
- Originally partnered with Saab, the company split in 1995
- Owned by Volkswagen since 2011 and Traton specialised truck and bus group since 2015
- Further integration with sister brand MAN expected, but retaining independent branding
- Main manufacturing locations
    - Sweden: Sodertalje
    - France: Angers
    - Netherlands: Zwolle
    - Brazil: Sao Bernado do Campo, Sao Paulo
- UK headquarters: Tongwell, Milton Keynes, Bucks
- UK website: www.scania.co.uk

Vehicle range

L series	18 to 26 tonnes gross weight - 4x2 and 6x2 rigids Scania engines: 6.7 (Cummins) and 9.3 litre - 220 to 360hp
P series	18 to 44 tonnes gross weight - 4x2, 6x2, 6x4, 8x2, 8x4 rigids and tractors Scania engines: 6.7 (Cummins), 9.3 and 12.7 litre - 220 to 500 hp
G series	18 to 44 tonnes gross weight - 4x2, 6x2, 6x4, 6x6, 8x2, 8x4 rigids and tractors Scania engines: 9.3 and 12.7 litre - 280 to 540 hp
R series	18 to 250 tonnes gross weight - 4x2, 6x2, 6x4, 6x6, 8x2, 8x4 rigids and tractors Scania engines: 9.3,12.7 and 16.4 litre - 280 to 730 hp
S series	18 to 250 tonnes gross weight - 4x2, 6x2, 6x4, 6x6, 8x2, 8x4 rigids and tractors Scania engines: 12.7 and 16.4 litre - 370 to 730 hp
XT series	Available on all models (except L series), all engines/cab types XT adds reinforced chassis, axles, bumper and cab equipment

Scania in the UK

- Scania have been in the UK since the early 1970s, initially as Scania-Vabis
- Tractor market leaders since 2012
- Scania entered the 4 axle rigid sector in 1983, becoming sector leader in 2011 and retaining it ever since
- Strong reputation with specific fleet operators and owner drivers with V8 R and S series
- UK dealer network: 84 Service/Parts

+ Strengths

+ Brand image
+ Modern product range
+ Good residual values
+ Reputation for durability and reliability
+ Good dealer service/parts reputation

- Weaknesses

- Dependency on heavy market with no presence below 16 tonnes
- Perceived arrogance

Volvo

- Swedish truck manufacturer, owned by AB Volvo. Volvo car business was sold in 1999
- Volvo Group formed in 2012 with Renault, Mack Trucks and UD Trucks (Nissan Diesel Trucks)
- Global headquarters in Gothenburg, Sweden
- Volvo builds trucks from 12 to 250 tonnes
- Most 12-26 tonne Volvo models are built by sister company, Renault
- Main manufacturing locations
    - Sweden: Gothenburg, Umea
    - Belgium: Ghent
    - USA: Virginia
    - Brazil: Curitiba
- UK headquarters: Warwick, Warwickshire
- UK website: www.volvotrucks.com/trucks/uk-market/en-gb

Vehicle range

FL	12 to 18 tonnes gross weight - 4x2, 4x4 rigids Volvo (Nissan) engines: 5.1 and 7.7 litre - 210 to 280hp
FE	18 to 26 tonnes gross weight - 4x2, 6x2, 6x4 rigids Volvo (Nissan) engines: 7.7 litre - 250 to 350hp
FM	18 to 44 tonnes gross weight - 4x2, 6x2, 6x4, 8x2, 8x4 rigids and tractors Volvo engines: 10.8 and 12.8 litre - 330 to 500hp
FMX	18 to 44 tonnes gross weight - 4x2, 4x4, 6x4, 6x6, 8x4, 8x6 rigids and tractors Volvo engines: 10.8 and 12.8 litre - 330 to 540hp
FH	18 to 250 tonnes gross weight - 4x2, 6x2, 6x4, 8x4 rigids and tractors Volvo 12.8 and 16.1 litre - 420 to 750hp

Volvo in the UK

- Long established (since 1967). Had UK assembly plant at Irvine, Scotland from 1975 until 2000
- First European truck manufacturer to gain a significant foothold in the UK market
- Overall UK market share (6t+) now 11-13%
- Reached over 20% share of the tractor market by 1976. Today, that has fallen to approx 16-18%
- New FM, FMX and revised FH ranges launched in 2020. All share same base cab mounted at two different heights on chassis
- UK dealer network: 87 Service/Parts

+ Strengths

+ Brand image
+ Well respected, experienced dealer network
+ Broad product range from 12 tonnes gvw upwards
+ Updated heavy product range including alternative fuels

- Weaknesses

- Poor market share below 26 tonnes gvw with Renault-based products
- Declining truck parc
- No lightweight market presence sub 12 tonnes gvw

Dennis

- Dennis Eagle Limited, owned by Terberg Ros Roca Group of Netherlands
- Specialist refuse collection vehicle manufacturer
- Two UK manufacturing sites: body and chassis assembly in Warwick, cabs in Blackpool
- 9-depot service network - although Dennis manage sales, service and parts centrally
- UK website: www.dennis-eagle.co.uk

Truck range (refuse collectors only)

Elite 6 18-32 tonnes gross weight - 4x2, 6x2, 6x4, 8x4 rigids
Volvo (Nissan) engines: 7.7 litre - 280 to 320 hp

Isuzu

- Isuzu Truck (UK) Ltd - based in Hatfield, Hertfordshire
- Became a wholly-owned subsidiary of Isuzu Motors Ltd., Japan in 2013
- Specialise in light trucks from 3.5 to 13.5 tonnes gvw
- UK website: www.isuzutruck.co.uk
- UK dealer netork: 60

Truck range

Grafter	3.5 tonnes gross weight - 4x2 rigids
	Isuzu engine: 1.9 and 3.0 litre - 123 to 150hp
Urban	7.5 tonnes gross weight - 4x2 rigid
	Isuzu engine: 3.0 litre - 150hp
Forward	5.5 to 13.5 tonnes gross weight - 4x2 rigids
	Isuzu engine: 3.0 and 5.2 litre - 150 to 240hp

Sinotruk

- Chinese origin product, represented by J.Harris (Assemblers) in Ireland, who previously built Hino products
- Already sold in Ireland and could come to the UK in future
- Harris assemble CKD kits from China, selling mainly 8x4 models since 2018 in Irish Republic
- Sinotruk is now 25% owned by MAN and uses MAN/ZF componentry. Some models still use older Volvo cabs
- Website: www.howosinotruk.cn

Truck range

A7 32 tonne gross weight - 8x4 rigid
MAN engine: 12.8 litre - 420hp

Ford

- Ford Otosan - factory based in Inonu, Turkey
- Formed in 1960, Ford Trucks imported and then built CKD trucks in Turkey from 1982
- Still using engines/gearboxes built under licence from IVECO (FPT), ZF and ex-Ford Cargo cab
- New F-Max with in-house Euro VI engine and new cab launched in continental Europe 2019
- Won 'International Truck of the Year 2019'
- RHD not yet available. Few sales dealers in Western Europe

Truck range

F-max 40 tonnes gross weight – 4x2 tractor
Ford engine: 12.7 litre - 420 to 500hp

Terminology

A	
ABA	**Active Brake Assist:** safety system to perform emergency braking in critical situations
ABS	**Anti-lock braking system: a**nti-lock brakes prevent the wheels from locking up
ADA	**Active Drive Assist:** driving assistance system to maintain distance from traffic ahead and keep vehicle in the centre of the lane
ADR	Abbreviation for the 'European Agreement concerning the International Carriage of Dangerous Goods by Road'. European regulations for the carriage of dangerous goods
Air Management Kit	Combination of air dam, cab corner deflectors, side skirts and roof fairing to reduce wind resistance and improve fuel economy
Anti-roll bars	Stabilisers fitted to axles to minimise chassis roll during cornering
Artic	An artic (or articulated truck) is a tractor coupled to a semi-trailer
ASR	Electronically controlled traction device to prevent wheels spinning when power applied
ATF	**Authorised test facility** where an MOT test can be carried out by a DVSA staff member
B	
Bogie	Two or more driven axles together
Bulkhead	Wall between the driver and the load area (usually vans)
C	
Cab heater	Auxiliary cab heater that works independently of the engine. Sometime refered to as a night heater
C&U Regulations	**Construction & Use Regulations** that govern UK truck weights and dimensions. Replaced by Authorised Weight regulations in 1999
Chassis Cab	Bare 'skeleton' of a truck, with a chassis - cab - engine/gearbox/axles
Clean Air Zone	To improve air quality, local authorities may charge extra to enter a CAZ, depending on the exhaust emission standards of the truck
CoC	**Certificate of Conformity**: usually issued by the manufacturer. Confirms that the product meets required standards or specification
Contract Hire	Form of longer term rental where the vehicle is off balance sheet and is used, rather than owned. Includes a maintenance contracts as well as the lease element
Crane	For easier loading/unloading
CPC	**Certificate of Professional Competence**, required by all LGV drivers. LGV licence holders are required to undertake 35 hours of approved training every three years to qualify and maintain their Driver CPC. Without it, they are not allowed to drive professionally. This is different to the CPC needed by operator's O licence holder

D

Differential (or Diff)	A centre-mounted set of gears in the drive axle that receives drive from the engine/gearbox via the propshaft and delivers this to the road wheels, allowing them to turn independently. This is required to compensate for the difference in speeds between the inner and outer wheel when cornering
Direct Vision Standard	Introduced in 2020 for trucks operating in London over 12 tonnes GVW. Vehicles entering most of London now require a vision 'star rating' permit
DVSA	**Driver & Vehicle Standards Agency**: control all operating legislation in the UK
Drawbar	A rigid truck coupled to a trailer
Drawbar coupling	A coupling mounted to the rear of a rigid. This couples the rigid to a trailer to form a drawbar
Driven axle	An axle that receives drive from the engine/gearbox via the propshaft into a centre-mounted differential. The differential converts this drive to apply torque to the road wheels to drive the vehicle

E

Engine brake	Secondary braking system using the engine as a compressor (also 'Jake brake')
Engine tunnel	On most forward control (or cabover) cab designs, the engine necessarily protrudes into the middle of the cab, effectively between driver and passenger seats. This is known as the engine tunnel
Euro I - II - III - IV - V - VI	Exhaust emission standards applied to trucks, legislated by the EU
Euro pallet	International standard pallet of 800mm x 1200mm
EWVTA	**European Whole Vehicle Type Approval:** the certification process allowing vehicles to be 'type approved' for sale and registration throughout the EU without the need for further testing in individual countries
Exhaust brake	Butterfly valve fitted in exhaust system to assist vehicle braking

F

Fifth wheel	A well-greased circular plate fitted to the chassis of a tractor. It couples the tractor to the semi-trailer and allows the two to 'articulate' or bend as the vehicle drives. Its circular shape is the most obvious reason it is known as a 'fifth wheel'. However, the term originated from the American West where such a device allowed large horse-drawn wagons to steer using their front wheels
Front end ram	Telescopic tipping ram mounted at the front of a tipper body
FTA	Freight Transport Association. Now re-branded **Logistics UK**
Full air suspension	**All axles of the vehicle are air suspended**

G

Gradability	Determines theoretical maximum gradient a vehicle can climb
Greedy boards	Removable extension pieces fitted around the top of a tipper body to increase payload volume

H

Hazchem	Abbreviation for hazardous chemicals
Headboard	Front vertical part of a body or trailer to stop load shifting forward
Heavy haulage	Haulage in excess of 44 tonnes gcw/gtw

I

Insulated body	Refrigerated body to maintain load at constant temperature. Tippers can also carry insulated bodies for loads that need to be kept warm (eg tarmac)
Intercooler	Heat exchanger used with turbocharger to cool inlet air, increasing its density and improving power and economy
Inter-modal	Transport system which combines road, rail or water transport
IVA	**Individual Vehicle Approval:** an approval scheme to ensure conformity to regulations by inspecting each vehicle individually

J

JIT	Just-in-time logistics

K

Kingpin	The kingpin protrudes from the front underside of a semi-trailer. It mates to the fifth wheel fitted on the tractor to couple the two together

L

Landing legs	Support front end of a semi-trailer when uncoupled from a tractor. Also fitted to stabilise a drawbar trailer when uncoupled from a rigid
Lead-on ramps	Angled guides behind a tractor's fifth wheel to aid semi-trailer coupling
Logistics UK	See FTA

M

Ministry inspections	Operators are subject to inspections by DVSA to check drivers hours, safety & maintenance records and annual MOT tests
MirrorCam	Camera-based rear vision system for trucks giving improved visibility and increasing safety. Replaces conventional external truck mirrors
Movement order	A form completed by a haulier who is planning to move an indivisible load with a length, width or weight outside the normal C&U regulations, and requires authorisation through STGO as a result
Multi wheeler	Vehicle with more than two axles

O

'O' licence	Needed to operate a vehicle over 3.5t GVW for hire/reward
Own account	Operators who use trucks purely to carry their own goods

P

Parabolic spring	Single-leaf or few-leaf springs, tapered in thickness. Only contact in the centre and at each end, unlike multi-leaf springs which have full contact along their entire length
Payload	Term to describe the load carried by a rigid, drawbar or artic
Pet regs	Abbreviation for Petroleum Regulations which impose technical and safety specifications for carrying petroleum-based products over and above ADR. Now referred to as a 'Safe Loading Pass'
Plated weight	Maximum weight a vehicle can operate at. Shown on a plate the truck
Power take-off	Powers ancillary equipment from the engine or gearbox
PPC	**Predictive Powertrain Control:** a satellite-based mapping system which optimises gearshifting according to terrain and speed
Prime mover	Main vehicle providing the power for a drawbar/artic combination
PSV	Passenger Service Vehicle (Bus or Coach). Also known a PCV – Passenger Carrying Vehicle
Pusher axle	A three axle tractor or rigid where the middle axle is not driven

R

RDC	Regional Distribution Centre
Rear end loader	Refuse collector/waste collection vehicle loaded from the rear of the chassis
Reefer	Refrigerated or temperature-controlled body, trailer or semi-trailer
Retarder	Electromagnetic or hydraulic brake that is secondary to the foundation braking system
RHA	Road Haulage Association
R&M	**Repair & Maintenance** contract covering all servicing

S

Semi-trailer	A semi-trailer has axle/s at one end only, so requires 'landing legs' to support it when uncoupled. It couples to a tractor to become an ARTIC
Side guards	Protective bars down the sides of a truck/trailer/semi-trailer to prevent cyclists or cars being drawn underneath
Side skirts	Attached to lower side of vehicles/trailers/semi-trailers to improve air flow and reduce fuel consumption
Slider	Sliding fifth wheel. Variable position for different semi-trailers and ease of coupling
SLT	Mercedes-Benz model terminology for heavy haulage tractors
Speed limiter	Governs maximum speed of a vehicle >3.5 tonnes up to 56 mph (also Road Speed Limiter)
Spot hire	Vehicles hired from a rental company for a short term
Spray suppression equipment	To minimise spray from wheels in wet weather
Spring brakes	Fail-safe brake where high air pressure works against a strong spring

S *Continued*

SMMT	**Society of Motor Manufacturers & Traders**
Steering axle	An axle that steers/helps to steer the vehicle. There is always one at the front of the truck. There may be others fitted at the front, mid or rear of the truck to assist manoeuvrability
STGO	**Special Types General Order:** legislation to allow specialised vehicles to carry loads in three categories up to 150 tonnes. Applies to Heavy Haulage. A Movement Order is required >150t
Super single	Wide section tyre that can do the work of conventional twin tyres
Suzie	Suzies are coiled pipes at the rear of the tractor/rigid that deliver services from the prime mover (tractor with an artic, rigid with a drawbar) to the semi-trailer (artic) or trailer (drawbar). These services include air for service and foundation brakes, and electrics for lights and any other powered requirements

T

Tachograph	In-cab recorder of driver's hours
Tachometer	Engine speed or rev counter
Tail-lift	Hydraulic platform for easier body access/loading/unloading
Tag axle	Lifting or trailing axle behind a driven axle
Tare weight	Unladen weight
Tautliner	Generic term for a curtainsider body
Tipping gear	Tipping ram to raise the body on a tipper
TC	Traffic Commissioner - responsible for HGV operating regulations throughout the UK
Torque converter	Fluid coupling between engine and an automatic gearbox allowing smoother take-up of drive
Traction	Grip on a road surface - ALSO where an operator supplies a tractor unit and driver to haul another company's trailer
Tractor	A tractor (or tractor unit) draws a semi-trailer to form an ARTIC
Trailer	A trailer has either centre or each-end axles, so is able to stand on its own without legs supporting it. It is coupled to a rigid to form a DRAWBAR
Trailer brakes	Separate control for a trailer/semi-trailer's braking system
TRC	**Turbo Retarder Clutch:** Mercedes-Benz innovation - a hydrodynamic starting clutch combined with a powerful retarder
Tridem	A tridem is a relatively new truck configuration. It refers in particular to a 4 axle rigid (an eight wheeler) where the second, third and fourth axles are fitted close together at the rear of the vehicle - usually either with axle 2 steering and axles 3 & 4 driving or with axles 2 & 3 driving and axle 4 steering
Triple	When three load-bearing axles are fitted on a trailer or semi-trailer
Trombone	A trailer of adjustable length, normally for very long loads

T *Continued*

Turning circle	Outer dimension described by a vehicle on full steering lock
Twin steer	Vehicle with two front-steered axles and a single drive axle
Type approval	Certification process required by every EC country to ensure new vehicles meet safety, weight and dimensional legislation. Now required for bodywork as well as chassis

U

Under-floor tipping gear	The hydraulic tipping ram is situated under the tipping body to minimise the gap between cab and tipper body, providing more payload space
Under-run	Safety under-run equipment either end of a truck
Under-run bumper	Legally required at front and rear to prevent a car going under the truck in an accident

V

VOSA	**Vehicle & Operator Standards Agency.** Now replaced by DVSA
VGT	**Variable Geometry Turbocharger** where the size of the turbine inlet is varied electronically to control boost at all engine speeds

W

Whole Vehicle Type Approval	Vehicles over 3.5 tonnes must meet WVTA, a process which confirms that both chassis and body are fully complementary in design and conform to all relevant European dimensional and safety regulations
Wagon & drag	Slang term for a drawbar combination
Wrecker	Slang term used for a truck used to recover breakdowns or accident-damaged trucks

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