

# Chapter 17

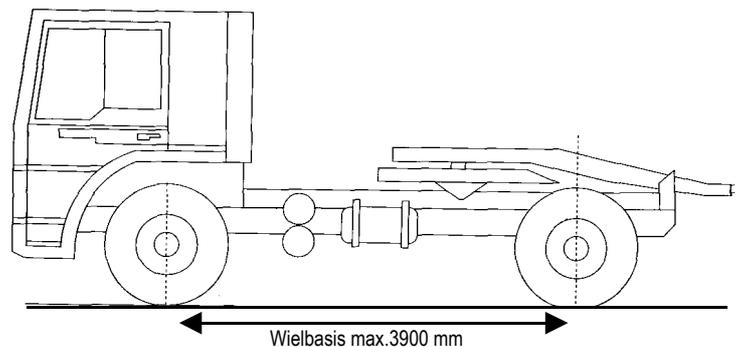
## S-DIVISION TRUCKS

### A. Classes

1. The classes are divided in three categories S-Trucks:
  - a. Standard class
  - b. Sports class
  - c. Supersports class

### B. General rules truck classes

1. Rules for all truck classes:
  - a. The truck must have the looks of a standard truck used for road transport (not a special build truck). The cabin, the chassis and the engine, must be of the same brand.
  - b. Maximum engine size 18,5 l., maximum number of cylinders: 10.
  - c. The maximum weight consists of the weight of the vehicle, the driver and the extra ballast load.
  - d. The maximum wheelbase 3.900 mm. Maximum width 2.700 mm, mirrors not included. (See figure 32). The distance to the ground should be enough to drive over the weighbridge in a normal way.
  - e. No air suspension or other mechanical lift mechanisms on any axle are allowed during the pull.
2. A standard class truck must meet the following extra rules:
  - a. The truck must be a standard road truck without any changes. (must meet factory specifications).
  - b. The truck must be registrated in its home country and should have a valid technical inspection form.
  - c. The truck must be of a 4x2 or a 6x2 configuration. In case of a 6x2 configuration the wheelbase will be measured from the middle of the front axle to the middle of the last rear axle.
  - d. Maximum weight: 8.500 kg.



**Figuur 32: Sizes S-division trucks (4x2); In case of a 6x2 counts: the last axle**

3. A Sports class truck must meet the following extra rules:
  - a. The truck must have been registrated in its home country for road transport in a European country. Trucks from other countries will only be allowed after a written approval of the national tech- and safety board.
  - b. The truck must be of a 4x2 configuration.
  - c. Maximum weight 8.500 kg.
  - d. The engine, maximum one (1), must be original from the outside and be mounted on its original position. The engine must be used by the manufacturer in a standard European road truck. (no special build truck).

- e. De-stroke is not allowed.
  - f. Maximum valves per cylinder: 4 (four)
  - g. The fuel injection pump should look original from the outside and must be a standard part for the OEM engine that is used. The number of fuel injection pumps and the number of pump elements or common-rail injectors per cylinder should be the same as used on the OEM engine.
  - h. Sport class trucks are limited to 1 (one) pressure stage and allowed to have a maximum of 2 (two) turbochargers in 1 (one) stage.
  - i. The inlet manifold must be original and must be a standard part for the OEM engine that is used. Both turbocharger(s) and inlet manifold should have the original flange sizes.
  - j. The outlet manifold must be original and must be a standard part for the OEM engine that is used. The exhaustpipe must discharge vertically. Vertical is defined as being within 10 degrees, in any direction of being in plumb. Rain caps or megaphone may not be used.
  - k. A Intercooler is allowed if it is a standard part for the OEM engine that is used.
  - l. A spacer between the engine and the housing of the clutch is allowed only when it is a original for the truck.
  - m. The drive-line, gearbox, drive shaft and rear axle, should be of the same brand as the whole truck and must be legal for European road trucks. The drive line must fit together without any spacers, flanges or welded parts and should be on the original position.
  - n. The rear axle must be locked mechanical to the frame in a way that the drawbar can not be lifted during the pull. Pneumatic or hydraulic systems are only allowed with a written approval of the national tech- and safety board.
4. The Supersports class must meet the following extra rules:
- a. The truck must have been registrated in its home country for road transport in a European country. Trucks from other countries will only be allowed after a written approval of the national tech- and safety board.
  - b. The truck must be of a 4x2 configuration.
  - c. Weight classes:
    - 1. maximum weight 8.500 kg.
    - 2. maximum weight 10.500 kg.
 When both weicht classes compete together in one class the difference in weight will be compesated by the difference in the position of the drawbar.
  - d. The engine, maximum one (1), must be original from the outside and be mounted on its original position. The engine must be used by the manufacturer in a standard European road truck. (no special build truck).
  - e. De-stroke is not allowed..
  - f. Maximum valves per cylinder: four (4).
  - g. Any type of fuel injectionpump is allowed if the number of fuel injection pumps and the number of pump elements or common-rail injectors per cylinder should be the same as used on the OEM engine.
  - h. Supersport class trucks are limited to 1 (one) pressure stage and allowed to have a maximum of 2 (two) turbochargers in 1 (one) stage.
  - i. The inlet manifold has no limits.
  - j. The outlet manifold has no limits. The exhaustpipe must discharge vertically. Vertical is defined as being within 10 degrees, in any direction of being in plumb. Rain caps or megaphone may not be used.
  - k. Systems for cooling of the intake air are permitted.
  - l. A spacer between the engine and the housing of the clutch is allowed only when it is a original for the truck.

- m. The drive-line, gearbox, drive shaft and rear axle, should be of the same brand as the whole truck and must be legal for European road trucks. The drive line must fit together without any spacers, flanges or welded parts and should be on the original position.
- n. The rear axle must be locked mechanical to the frame in a way that the drawbar can not be lifted during the pull. Pneumatic or hydraulic systems are only allowed with a written approval of the national tech- and safety board.

## C. Safety rules

1. For all truck class apply the following safety rules:
  - a. The only legal fuel is normal diesel. Diesel fuel is defined by the ETPC as a pure hydrocarbon. The ETPC will evaluate diesel fuel using the dielectric constant value. That value shall be determined by the ETPC-approved fuel checkmeter only. The fuel check meter shall use cyclohexane to establish the zero reference point for determining all diesel fuel dielectric constant values. Diesel fuel to be used in ETPC sanctioned events shall have a dielectric value of no greater than 4.9, nor a value of no less than 2.2. The use of additives containing oxygen, such as nitro methane, propylene oxide, dioaxane, MTBE, alcohol, or nitrous oxide, are strictly prohibited. The use of other kinds of fuel (for example bio-diesel) is only allowed, with a written approval of the national tech- and safety board. It is not allowed to add, inject or spray other kinds of fuels or gasses on any part of the truck. Water injection systems are not allowed.
  - b. Fuel tank(s) may contain a maximum of 150 l. fuel.
  - c. Except for diesel no flammable kinds of fluids are allowed.
  - d. The truck must have a strong and rigid seat(s). The seat(s) must be able to adsorb the weight of the driver and when there is one, the navigator, in all directions. The chairs must be blocked.
  - e. The use of at least a three-point safety belt by the driver and navigator during the pull is mandatory.
  - f. Nothing on the cabin may be changed that has an effect on the safety.
  - g. A reverse safety light (white) system is required, an extra buzzer is optional. The light (and buzzer) should be activated by the gearshift lever in such a way that it will be lit only when the vehicle is in reverse.
  - h. The truck should have well working air powered brakes on the front wheels and the driven wheels. There should also be a parking break.
  - i. If no foot throttle is used it should be a deadman's throttle. All throttles working in a forward-rearward direction shall be closed in the rearmost position. Must be positive, two way, mechanical linkage.
  - j. Electrical systems that can affect the clutch are not allowed.
2. A standard class truck must meet the following extra safety rules:
  - a. The maximum RPM of the engine may not exceed the original RPM by 30%. With a maximum of 2.900 rpm.
  - b. Exhaust gasses must leave the engine by the original exhaust pipe. Bypass-systems are not allowed. If this gives practical problems then rule C.3.e will apply.
3. The sports and supersports classes must meet the following extra safety rules:
  - a. The maximum RPM of the engine may not exceed 2.900 rpm.
  - b. All sports and supersports classes must have equipment to measure the RPM, during the pull as well in the parc-ferme. To make this possible each truck must have a RPM sensor prescribed by the national Tech- and Safety board.
  - c. To make it possible to measure the fuel there should be an access point to take a sample. This point should be placed in the fuel supply pipe just after the fuel pump.

- d. Turbo(s) should be completely shrouded by a steel plate of a minimum thickness of 2 mm. Except for the inlet and exhaust pipes. Turbos that are shrouded by any other parts of the truck are allowed after a written approval of the national tech- and safety board.
- e. Turbo charged engines must have two M10 grade 8.8 bolts through exhaust pipe(s). Head of bolts must remain for inspection. Bolts to be installed 90 degrees to each other, within max. 25 mm of each other. If the exhaust pipe has a diameter bigger than 100 mm a extra cross must be placed in a angle of 45 degrees to the first one.
- f. Kill switches
  - i. A kill switch is mandatory. The kill switch must activate the air shut-off required on all diesel engines. A cable may be used for this purpose, but the flaps must have a spring-loaded closing mechanism. A system to be deemed acceptable must at least prevent building of boost. A hole with a maximum diameter of 25 mm in the flap is allowed. It is recommended that a gasket/seal arrangement be used to shutoff the air flow more effectively. The engine must be equipped with an emergency shut down air shut-off at the air intake that can be utilised from the driver's seat.. It must be possible to block the fuel supply to the engine from the driver's seat.
  - ii. In case of an electric kill switch system, the solenoids that hold the flaps up must have positive (+) connection through the kill switch system, Use of solenoids or electric motors that need voltage in order to activate the flaps is not allowed. Also, systems that need air pressure to activate the kill switch are not permitted.
  - iii. The kill switch must be located at the back, in the rear center of the vehicle, 1.700 mm above the point of the ground. (maximum of 150 mm off center in any direction).
  - iv. The break-away kill switches must have attached to them a minimum of 50 mm diameter ring. The cable from the sled will be attached to this ring. Kill switch ring or cable 'ring' must be secured with a nylon tie wrap (1/8 inch). The tie wrap must be broken for a re-pull. ETPC and affiliated organisations will supply the tie wraps for uniformity. It must be possible to activate the kill switch from all directions.
  - v. The force which is necessary to pull the kill switch must be not more than 10 kilo.
- g. Drive shafts must be fitted with safety loops made out of 8 mm steel and 35 mm wide. Two safety loops per part on the drive shaft, to be securely connected to the frame.
- h. The use of a four or five point safety belt is recommended.
- i. The trucks must be equipped with a minimum of one 2.0 kg fire extinguisher (yearly checked with certificate) fully charged, in working condition and within easy reach of the driver in the cabin.

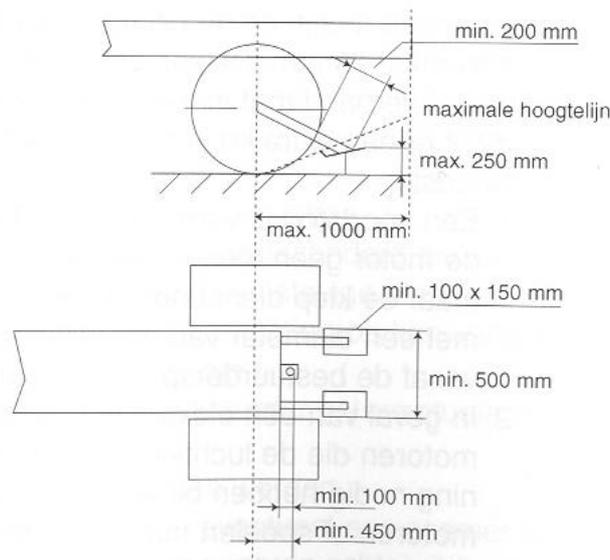
## **D. Tires**

1. Rules for all truck classes:
  - a. Contests open to trucks with rubber tyres.
  - b. Dual tires are allowed. For the width dual tires are considered as one tire.
2. A standard class truck must meet the following extra rules:
  - a. Only road transport tires are allowed. Maximum radii of 570 mm, maximum width 700 mm. The radii is measured from the top of the tire to the midpoint of the axle. The width is measured between the far ends.
  - b. It is not allowed to cut tires.
3. The sports and supersports classes must meet the following extra rules:
  - a. There are no limits on the kind of tires. Maximum radii of 700 mm, maximum width 900 mm. The radii is measured from the top of the tire to the midpoint of the axle. The width is measured between the far ends.

## E. Stabilisers bars

### 1. Rules for all truck classes:

- a. Stabilisers bars are mandatory for all trucks.
- b. The stabiliser bar system must be able to support the weight of the vehicle including weights.
- c. Jacking up the pads, so the trucks is completely off the ground must be possible when it is not possible to leave the track on its own power.
- d. The stabilisers should be visible 200 mm from the midpoint of the rear axle. The stabilisers may not be higher of the ground then the maximum height line. (indicated in figure 33) The stabilisers may not be visible more than 1.000 mm behind the midpoint of the rear axle.
- e. When the hook and the stabilisers are mounted to the same frame, the stabilisers should be connected to the frame at least 100 mm before the connection of the hook.
- f. The distances between both stabilisers must be at least 500 mm.
- g. The stabiliser pad must be a minimum of 15000 mm<sup>2</sup> at ground contact point, min. Width 100 mm length 150 mm. It is allowed to have one pad which connects both stabilisers.

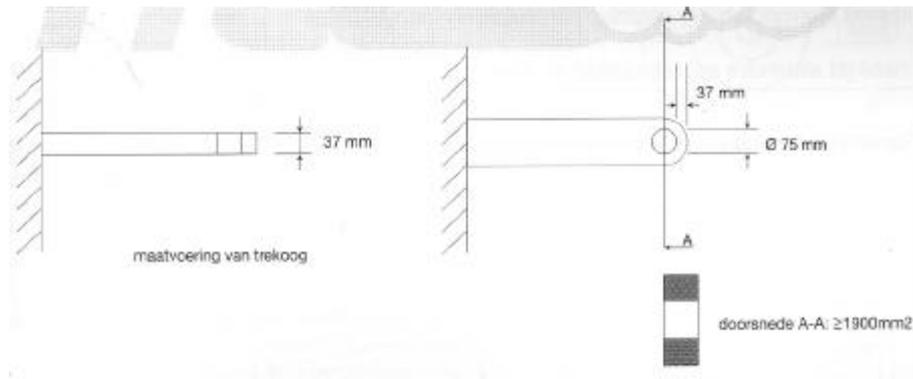


**Figure 33: dimensions stabilisers for standaard, sports en supersports trucks**

## F. Drawbars

### 1. Rules for all truck classes:

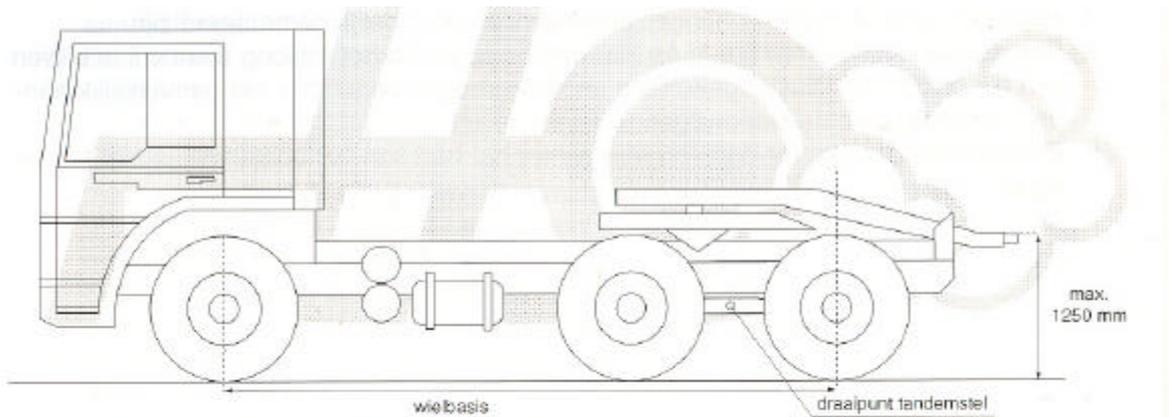
- a. The drawbar should be according the dimensions given in figure 34. Drawbars to be a minimum of 19002 total material (steel) at any point. This includes the area of the mounting pin with the pin removed.
- b. The use of chains or cables is not allowed.
- c. Drawbars must be parallel to the ground with a tolerance of +/- 10 degrees.
- d. Drawbars must be rigid in all directions.
- e. An area of 150 mm wide and 300 mm high immediately above the drawbar must be free of all obstructions (including weights, stabilisers bars) for easy hooking and unhooking.
- f. The connection point of the hook may not be shorter than 450 mm behind the midpoint of the rear axle.
- g. The connection point of the hook may not be longer than 500 mm behind the rear end of the truck.



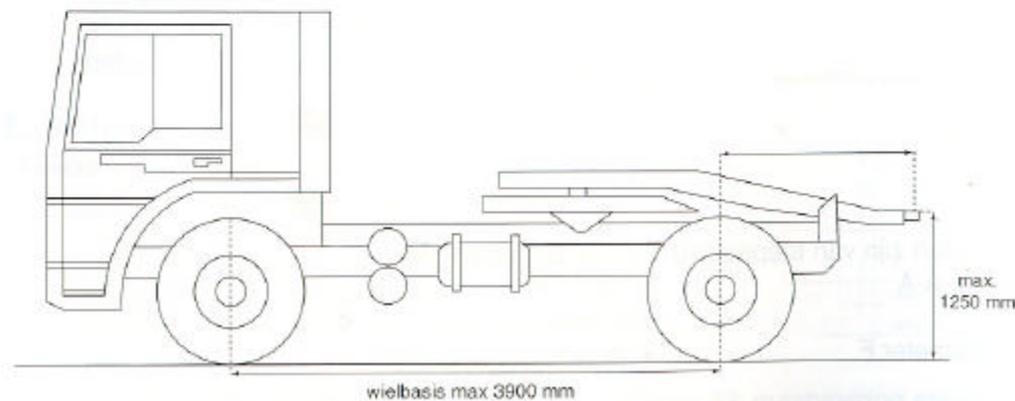
Dimensions for S-Trucks	
Profile A-A (surface)	≥ 1900 mm <sup>2</sup>
Measure B	= 37 mm
Diameter mounting pin F	= 75 mm

**Figure 34: dimensions drawbar for standaard, sports en supersports trucks**

2. A standard class truck must meet the following extra rules:
  - a. The drawbar should be mounted by the king-pin to the truck. During the pull the lock on the king-pin must be secured.
  - b. The drawbar must be mounted according figure 35a or b.
  - c. The drawbar must be placed maximum 1.250 mm behind the midpoint of the rear axle.
  - d. The top of the drawbar must be placed maximum 1.250 mm above the ground.
3. A sports class truck must meet the following extra rules:
  - a. The drawbar must be placed maximum 1.250 mm behind the midpoint of the rear axle.
  - b. The top of the drawbar must be placed maximum 1.250 mm above the ground.
4. A supersports class truck must meet the following extra rules:
  - a. Trucks of a maximum weight of 8.500 kg.:
    1. The drawbar must be placed maximum 1.250 mm behind the midpoint of the rear axle. In 2007 it is allowed to place the drawbar on a position of 40% of the wheelbase behind the midpoint of the rear axle.
    2. The top of the drawbar must be placed maximum 1.250 mm above the ground.
  - b. Trucks of a maximum weight of 10.500 kg.:
    1. The drawbar must be placed maximum 1.170 mm behind the midpoint of the rear axle.
    2. The top of the drawbar must be placed maximum 1.170 mm above the ground.



**Figuur 35a: trekhaakconstructie tandemstrucks**



**Figuur 35b: trekhaakconstructie enkelstrucks**

## G. Tow-hitch

### 1. Rules for all truck classes:

- a. The truck is required to have a tow-hitch on the front of the vehicle. The original tow-hitch is the first option. The hitch must have a 75 mm diameter hole, preferably positioned horizontally, and be strong enough for pushing or pulling the vehicle.
- b. The Tow-hitch must be easy accessible.

## H. Weights

### 1. Rules for all truck classes:

- a. All weights must be securely fastened.
- b. During the pull, the use of movable weights or movable weight carriers is not permitted. Movable weights or movable weight carriers should be visible locked during the pull. Weights or weight carriers may not be movable from the cabin.
- c. Weights may not extend rearwards more than 100 mm before the farrest position of the drawbar. In 2007 it is permitted for 8.500 kg trucks that the weights extends as far as the rear end of the drawbar.
- d. Weights may not extend before the front bumper. The front bumper should be in its original position.
- e. Weights may never case any danger for the driver or its navigator.

## I. Advertising

### 1. Rules for all truck classes:

- a. Billboards are allowed as long as they do not stick out of the truck and do not hinder the driver's sight. Billboards must be mounted rigidly and may not be moveable except for rotating billboards in the wheels..

## **J. Uitlaatverlening voor indoorwedstrijden.**

1. Rules for all truck classes:
  - a. Truck competing at indoor pulls must be equipped with de-mountable (for clearing purpose) exhaust extension which will discharge all exhaust horizontally rearwards at a point vertically above the hitching device.
  - b. The exhaust pipe extension must meet the dimensions of figure 14 b and c (page 28 NTTO rulebook) and according to the following rules.
    - i. The exhaust pipe extension which will discharge all exhaust horizontally rearwards at a point 600 mm behind the hitching device and 3.000 mm above the ground.
    - ii. From the end of the exhaust pipe extension 600 mm must be completely free of any part of the vehicle.
    - iii. On top of the exhaust pipe extension there must be a pin mounted. 300 mm from the end.
    - iv. The pin should have a diameter of 20 mm and a length of 60 mm. The pin should have a hole 10 mm from the top. The hole should have a diameter of 5 mm with a safety-pin.
    - v. The last 700 mm of the extension may have a diameter of maximum 180 mm. If the truck has two exhaust pipes, then they should be fit together before the last 700 mm.
    - vi. The free end of the extension must be strong enough to carry the smoke collector.
    - vii. The extension should not have any leaks and withstand the heat.

## **I. Competition**

For trucks apply the same rules as stated in chapter 10. The following extra rules also apply:

1. The contestants must have a legal driver's licence for the vehicle.
2. The contestants participate fully at their own risk.
3. The truck must be insured. The driver has to sign for this before he can pull.
4. Only the driver (and in the sports and supersports classes, the navigator) are allowed to be in the driving truck. The navigator must meet the same rules as the driver. Only he is allowed to be at least 16 years old.
5. Whenever the maximum RPM of the engine is exceeded or can not be measured within 3 minutes the pull is disqualified. The truck can not participate until a legal RPM value can be determined.
6. If there are any doubts regarding the legality of a truck configuration, the contestant in question must verify that 150 units of the truck in question have been produced and registered for use on the European roads.
7. Protests: It is not possible to make a protest to the jury.
8. It is not allowed to drive faster than 5 km/h on the pulling area. If this rule is violated the truck can not participate anymore on that pulling event.