The technology of transportation is developing rapidly. And the demands made on truck reliability, performance, road safety and the versatility required to solve special transport problems are steadily increasing. Volvo has the answers. The trucks of the F 89 Series are designed and built for long-distance and short haul duties, which demand unusual strength and speed. Their ability to carry out these duties with a minimum of downtime and maximum driver comfort is exceptional.

Volvo trucks are sold on many markets – and each market has its own peculiarities. Geographical conditions, the range of use, and legislative requirements differ considerably. Which is why not all models are sold on all markets. The G 89 models included in this brochure, for example, are designed to conform with the so-called “bridge formula regulations” which govern the distance between the leading and trailing axle of a truck in some countries.

High performance and good economy, however, are two requirements which apply world-wide and played an important role in the development of the Volvo F 89 Series.
Tested and approved.

Testing is a key word at Volvo. Tests carried out in the laboratories and in the field provide an important source of information for the finishing touches to design. Before a new model is put into series production, a large number of the try-out series are put to the test in various fields of operation. The experience gained from these trials guarantees that the customer gets a good quality truck from the very start. The main engine and transmission components are manufactured in Volvo's own factories. This means that throughout production Volvo is able to apply extremely stringent control procedures which are a guarantee for the quality of these famous trucks.

Many of the features of the F 89 are the result of extensive investments in research and development work. Frame design, dimensions and materials, for example, are the results of improvements based on the experience gained from field and laboratory evaluation as well as real life.

A further example of the intensive development work behind these trucks is the engine which powers the F 89. In prototype form, this unit first saw the light of day in 1965 — long before it was needed on the market. Since then it has passed through numerous tests and its design has been continuously refined.
Versatility = Economy.

To give really good economy, reliability and performance a truck must be fully adaptable to the type of job it will face. This is one of the facts on which Volvo truck building policy is based. In consequence, the F 89 is available in either four or six-wheeler form, to F or G specifications, and with a short cab or sleeper cab in basic or TIR-versions. Three types of final drive are available: double reduction, single reduction with hub reduction, or a tandem-drive bogie with or without hub reduction. And each of these final drive units is available with a number of optional ratios.

The SR 61 gearbox has 16 evenly spaced speeds to make driving easier and haulage more economical. The SR 61 offers high averages — even under the most adverse conditions.

Powering these trucks is the super-charged TD 120 diesel engine, which combines high performance and a fuel consumption which, for this class of truck, is good to say the least. The engine and transmission make the F 89 ideal for the kind of trucking work which requires ample power, speeds above normal and the ability to combine the two. The large number of standardized wheelbases is another factor behind the success of these trucks in getting the work done — no matter what — as quickly and as economically as possible.

The Volvo F 89 Series can be specified with three different axle configurations: 4x2, 6x2 (four and six-wheeler trucks respectively, one powered axle) and a 6x4 version (six-wheeler truck with tandem drive bogie — two powered axles). In the illustrations above, the powered wheels are shown in red.
Performance = Economy.

The Turbo supercharging unit provides an abundance of power from an engine which is moderate in weight and compact in size. It does this by improving engine breathing characteristics, thereby saving fuel and cleaning exhaust gases. The TD 120 consumes considerably less fuel per unit output and hour than a normally aspirated engine of the same output. The TD 120 is purpose-built for Turbo supercharging which ensures the strength and reliability required of a supercharged engine.

The Volvo TD 120 diesel features the Turbo supercharger unit. This is an exhaust powered compressor which forces the induction system. Volvo has pioneered the use of supercharged engines in trucks and introduced its first diesel of this type in 1954.

Each individual component of the driveline is dimensioned to match the power of the TD 120 engine, this being a necessity for maximum performance and staying power.

The SR 61 gearbox has 16 speeds. The basic gearbox is of the range type, incorporating two speed ranges of four speeds each. A toggle switch on the gear lever controls selection of these two speed ranges which are 1-4 and 5-8 gears respectively. A compressed air operated splitter section provides an overdrive ratio for each of the eight basic speeds. The overdrive is pre-selected by means of a switch and its actual engagement takes place when the clutch pedal is operated. At speeds in excess of 20 km/h (12 m/h) only the four upper speeds are normally required. In other words, the SR 61 gearbox is extremely convenient in use.

The overdrive ratios of the splitter section enable exactly the correct engine speed and ratio to be selected at any time.

The F 89's are designed specifically for getting the job done quickly no matter how hard it is. High performance and low operating costs give a pay-off potential which is way above average.

The TD 120 supercharged diesel powering the F 89's enables these trucks to keep running at high average speeds, even where the conditions are tough - and that's important from the viewpoint of economy. A high degree of torque throughout the engine speed range makes this truck a pleasure to drive and a profitable trucking proposition. A thermally controlled cooling fan cuts output losses and the level of noise.
Staying power = Economy.

Volvo has left no stone unturned in the search to find designs and materials which ensure the reliability of its products. Intensive research work, including a great deal of metallurgical analysis, has paid off in the form of materials which ensure truck components of lasting strength. One example is the extremely high torsional strength of the driveshafts. Laboratory tests have shown that Volvo driveshafts can be twisted more than half a turn before failing.

Volvo rear axles are also designed to withstand the wear and tear resulting from high train weights. The three-bearing location of the pinion gives exact meshing, even when road conditions and the load carried comprise a torturous combination.

The Volvo testing facilities, laboratories and experimental workshops work together to create a Volvo truck which symbolizes quality, safety and economy. This is one of the many control panels used in the testing procedures.

In the double reduction unit, the change-down to the driveshafts is carried out in two stages. This allows the final drive to be moderately dimensioned and allows the use of a heavier pinion which means that stress is spread over a larger mesh area.

The hub reduction unit is also a two-stage system, the final change-down being made in epicyclic gears located in the wheel hubs. This reduces the stress on the axle shafts by half.

The F 89's at work
- truck transport at its best.
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F 89 4x2 Artic fuel tanker. Netherlands.

F 89 4x2 Artic for petroleum products. Belgium.

F 89 6x4 Plant transporter. Germany.

F 89 4x2 Artic with platform semi-trailer and tarp. France.

F 89 6x2 Artic for pre-fabricated building sections. Netherlands.

F 89 6x2 Tipper semi-trailer for aggregate. Netherlands.

F 89 4x2 Artic with insulated semi-trailer and refrigerator unit. Switzerland.

F 89 4x2 Artic with tarp superstructure. Netherlands.

F 89 4x2 Rigid with tarp. Germany.

F 89 4x2 Tipper truck and trailer for gravel. Germany.
Comfort = Safety.

Strictly speaking, comfort and safety are two sides of the same thing. A restful driving posture, efficient heating and ventilation, ideally located controls and instruments — these examples of comfort features are also vitally important to safety. The cab of a truck is a place of work, which is why the interior of the F 89 has been designed so carefully with the driver’s requirements in mind. Functional comfort is quite a good description of what these cabs provide. The driving seat and controls are the cornerstones on which the cab layout is based. The carefully designed seat suspension ensures a comfortable ride for any driver, since it can be adjusted to suit his individual weight and height. This is a driving seat which makes long-hauls a pleasure.

The THL-cab is specially fitted out for long-distance runs. It has special upholstery and is equipped ex-works with a radio, a wardrobe and wall-to-wall textile carpeting. Extra noise and heat insulation is used in the wall panels.

To match the overall versatility of the F 89’s they are available with either a sleeper cab (with bunks) or a short cab. The latter is 40 centimeters shorter and 70 kg lighter than the sleeper cab. Apart from the absence of sleeping accommodation, the short cab is specified to the same high levels.
Driving a Volvo F 89 is the kind of job any driver would appreciate. This is due to the well planned layout and the high specification. These are vital aspects from a safety point of view. The gearbox is easily used, indeed it's almost sporty! The brake pedal is large and accommodates even the biggest of gloved fists. The parking brake is easily accessible and all the instruments and controls are read at a glance. There's no need for the driver to bend or stretch to reach the controls most frequently used. This is because their frequency of use and function have determined their location.

The powerful engine, servo-assisted steering and clutch are other design features which contribute to the overall picture of Volvo comfort which is just as much safety.

The suspension of a truck is vital to road safety. The condition of the goods at journeys' end and the comfort of the driver at all times. The F 89 has a suspension which is dimensioned to match its high performance and load carrying capacity. This is a carefully designed system which functions smoothly and efficiently whatever the load.

On the four-wheeler models, helper springs are incorporated to stiffen the suspension under heavier loads. The spring packages also have a progressive action due to their anchorages. The more the springs are loaded, the shorter their active length becomes, thereby stiffening the suspension. This means that the compliance of the springing is always perfect, no matter how the truck is running. Due to the special conditions of load applying to two-axle tractive units, Volvo has introduced a parabolic type of spring for forward control prime movers. These springs improve the ride considerably and reduce the risk of damaging the load. The parabolic type of suspension is combined with telescopic shock absorbers and stabilizers both front and rear.

The six-wheeler versions of the F 89 trucks feature a trailing axle which is suspended from a balance arm. Via a roller mechanism, this balance arm implants its movement to the leaf spring package which considerably improves suspension characteristics and improves traction.

The new parabolic suspension combining shock absorbers and stabilizers. These drop-forged springs have a carefully calibrated thickness which means that the stress applied to the spring is constant throughout its length.

On the tandem-drive bogie, the upper leaf springs are extended to give a soft ride when the truck is running empty and good stability when it is loaded.

Conventional leaf springs with shock absorbers.

Rear suspension, single drive bogie. The balance arm on the trailing axle acts on the spring suspension via a roller mechanism.

Progressive rear suspension with helper springs, four-wheeler truck.

The rear suspension on a tandem drive bogie. A balance arm is mounted between the axles to improve ride and traction.
The Swedish traffic safety norms state that a truck cab must withstand three different tests without failing or being extensively deformed to an extent which could cause injury to the driver or passengers. The photos shown here illustrate one of these tests: A one-ton pendulum is dropped from a height of three meters onto the upper leading edge of the cab.

As in many other aspects of trucking, Volvo is somewhat of a pioneer in safety. A great deal of the joint research resources of Volvo are employed in the development of new safety features. At Volvo, safety is a tradition.

Volvo cabs, for instance, are impact and pressure tested to conform with the stiffest safety requirements in the world. These tests are arranged to simulate what actually takes place in an accident.

Part of the inherent safety of the F 89 is its compressed air braking system — designed and dimensioned for the highest speeds and loading capacity of these profit-making trucks. The large friction area of the brakes and the various independent brake circuits combine to give a very wide safety margin. The service brakes, for example, are of dual circuit type and both circuits also feed the trailer brakes. The powerful fail-safe handbrake is of spring type and is released by compressed air. The trailer can also be braked by means of a separate hand control on the steering column. On long downhill stretches, the brake linings are saved from wear by using the exhaust brake.

Due to the different regulations of various countries, the brake system for your market may differ from that shown above.
Regular maintenance is a necessity if a truck is to operate economically. And this is why every single component used in an F 89 is designed to facilitate repair and simplify maintenance.

The engine has separate heads for each individual cylinder. Since the cab is quickly tilted forwards (assisted by torsion springs) all the main ancillaries are easily accessible. Trucks with the sleeper cab can be specified with a hydraulic cab tilting system. Routine checks and topping-up of lubricant or coolant are done from the front and do not require the cab to be tilted.

The engine breathes through an air cleaner with a large area paper insert. Fuel and lubricating oil are cleaned in highly efficient filters of full-flow type. These measures ensure that the engine runs on clean air, clean fuel and clean oil which means better economy and less wear.

Lubricating oil is cleaned in highly efficient filters of full-flow type. An oil cooler ensures that the lubricant is kept at the most suitable working temperature.
The F 89 is not only a truck suited to most types of hard work, it also has a chassis which body builders appreciate. The chassis is the backbone of the truck and its design must in no way hinder the specialized superstructure work called for by the road transport of today.

By means of its constant width and smooth upper surfaces, the chassis considerably simplifies body building work. The height of the web makes the attachment of a platform, fifth wheel coupling or tanker body much easier. The location of the fuel tank and the run of the piping and cables is arranged so that they do not disturb superstructure work. Another advantage is the large number of wheel bases which suit most ranges of use.
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F89

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