VOLVO

F88


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ELUMAHO
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VOLVO
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YGI-74
TIR

It is primarily the fuel-thrifty and utterly reliable engine in combination with a robust and correctly adapted power transmission system which provides daily profit. Furthermore, the forward control model 88 trucks have exceptionally good characteristics as far as driver environment is concerned.

This brochure clarifies the constructional characteristics of the F 88 which provide both good overall economy and working comfort. As far as measurements and data are concerned, we refer you to the special data sheet and for a more detailed presentation of the engine, gearboxes and rear axles, see the separate technical brochures.

Forward control Volvo 88 trucks are designed and built for transportation which requires both a large load capacity and good operating economy. They are primarily intended for different types of long-distance operation and also timber transportation.

The F-series is available in two-axle and three-axle versions. The corresponding models are also available in a G-series which has the front axle 30 cm (12 in.) further forwards.

The cover picture shows the FB 88 used as a tractor unit for a refrigerated semi-trailer designed for TIR transport (Finland).

This spread shows the FB 88 with a three-axle trailer for refrigerator transport (Sweden).

Trouble-free transportation

Through a well thought out programme of alternative equipment, you can choose an 88 truck which is custom-built for your particular transportation requirements. And no matter which equipment you select, you have at your disposal components which have shown their durability in thousands and thousands of miles of hard work. This concerns the model 100-engine. It applies to the gearboxes and clutches. It applies particularly to the renowned durability of the Volvo rear axle system with double reduction final drive or —for extremely heavy duty operation—single reduction final drive with hub reduction.

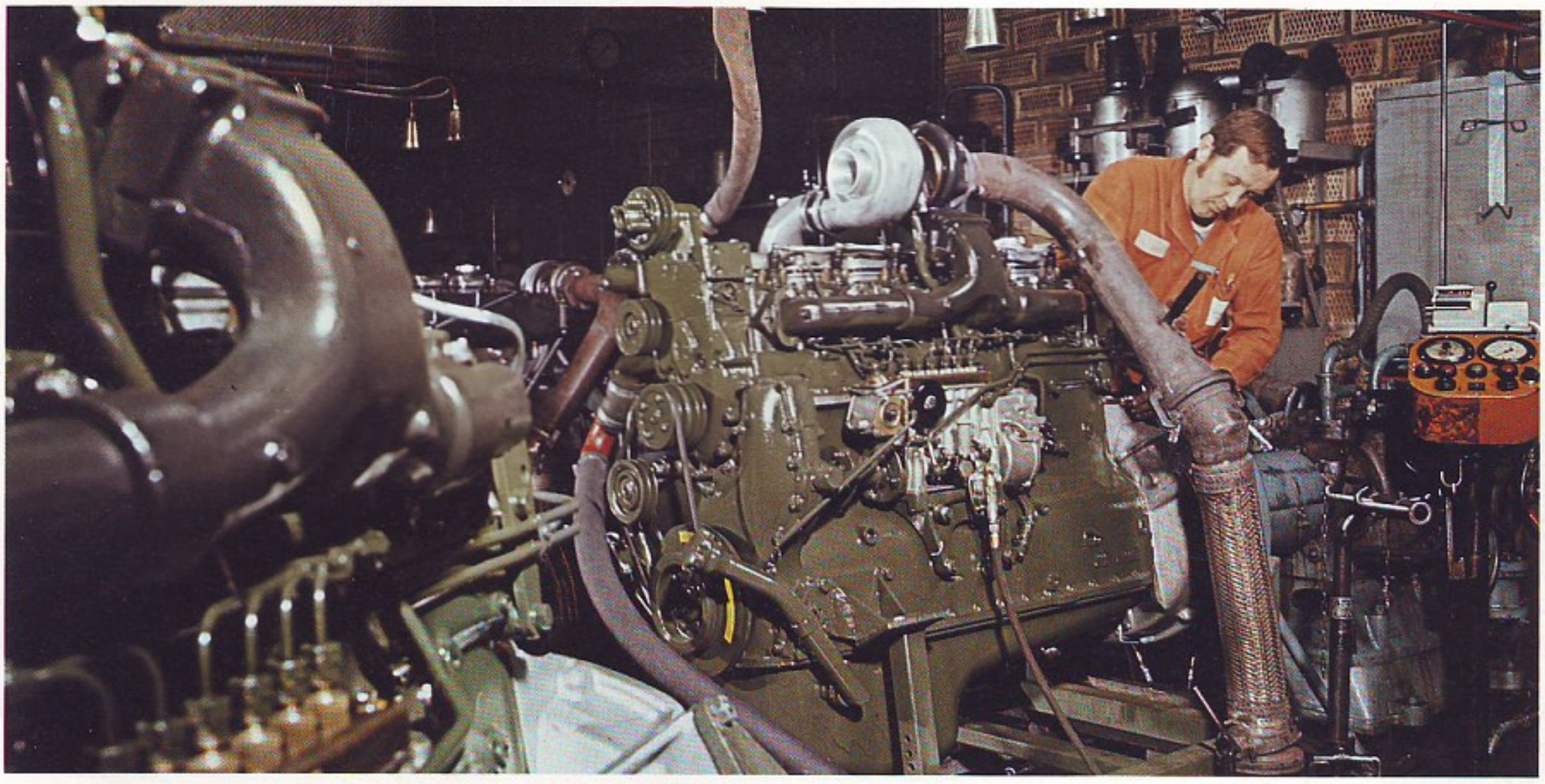
A perfectly combined power package of tested components—this is where you find an important part of the overall economy.

FB 88 with three-axle trailer for long-distance transportation of mixed goods (Sweden).

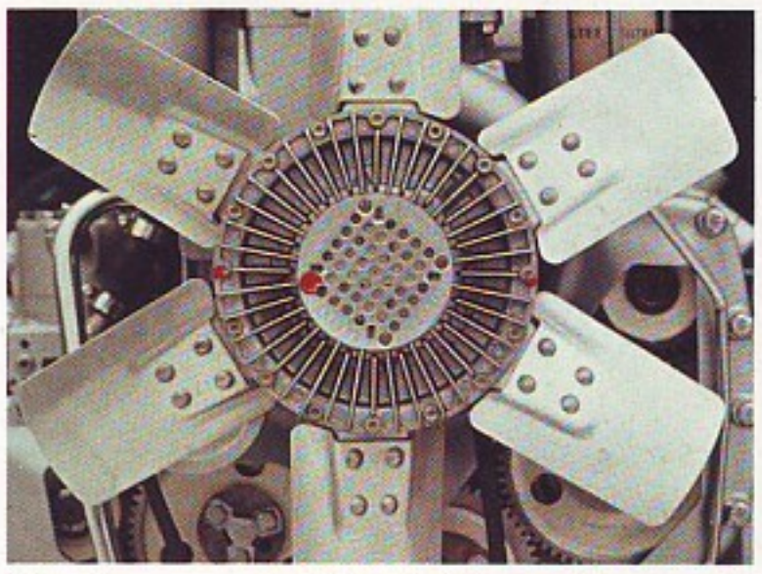
Engine

As a result of supercharging, the TD 100 engine which is fitted with Turbo develops 260 b.h.p. DIN from a displacement of 9.6 litres The torque is 96 kpm DIN. Volvo has more experience of Turbo supercharging than any other truck manufacturer. This explains why Volvo engines provide a higher output than other truck engines per litre cylinder displacement. The TD 100, for example, produces 26 h.p./litre. This, in its turn, is one of the explanations as to why the Volvo 88 trucks are so fuel-thrifty.

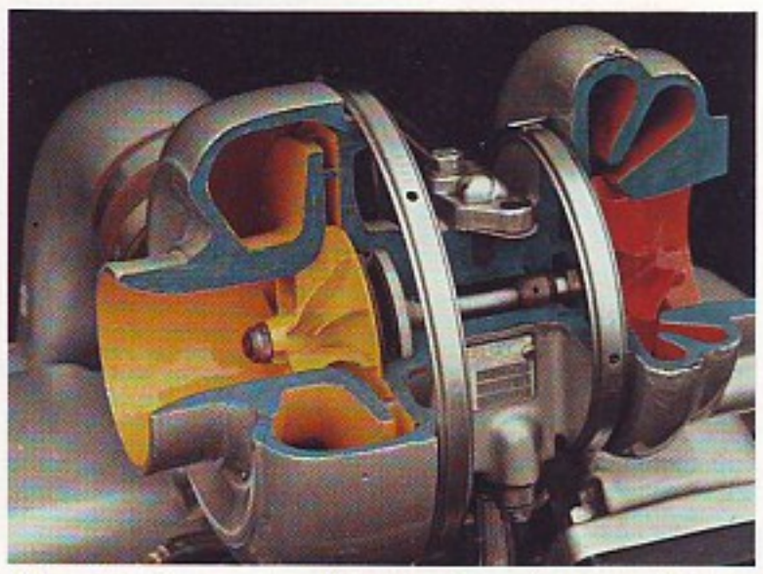
The high output delivered does not prevent the 100 engine from being extremely durable and reliable in operation and right from the very start this engine has been dimensioned for supercharging. A separate cylinder head on each cylinder, steel gaskets with pressed step edges, seven-bearing crankshaft and seven-bearing camshaft, oil cooling and liberally dimensioned paper filters of the expendable type—the TD 100 engine is well equipped to satisfy demands on sturdy construction, freedom from leakage, cooling and cleaning of oil, fuel and air.



The TD 100 engine being test-run.



The thermostat-controlled fan only operates when necessary. This means that the net output of the engine is higher and the noise level is lower.



The Turbo supercharger is exhaust driven and supplies a large surplus of air to the cylinders. This greatly improves breathing characteristics and gives higher output, smooth running, low noise level, cleaner exhaust gases and also lower fuel consumption in relation to output.

Gearboxes

For its 88-series trucks, Volvo has developed two fully synchronized gearboxes of its own with 8 and 16 speeds respectively. The 8-speed R 60 gearbox has its ratios evenly divided between the lowest gear 10.6:1 and the highest gear 1:1. Gear-changing is taken care of by means of one single lever plus a convenient toggle switch in the gear lever itself.

The SR 61 gearbox consists of an 8-speed basic gearbox plus an overdrive for each of the 8 gears. The overdrive ratios are arranged so that the 16 speeds obtained are evenly distributed. The overall reduction range is 26 % greater for the SR 61 than for the R 60. This can be utilized for particularly large tractive effort when starting or particularly high top speeds, depending upon the choice of final drive ratio.

Both gearboxes can be fitted with three alternative power take-offs.

Rear-axles

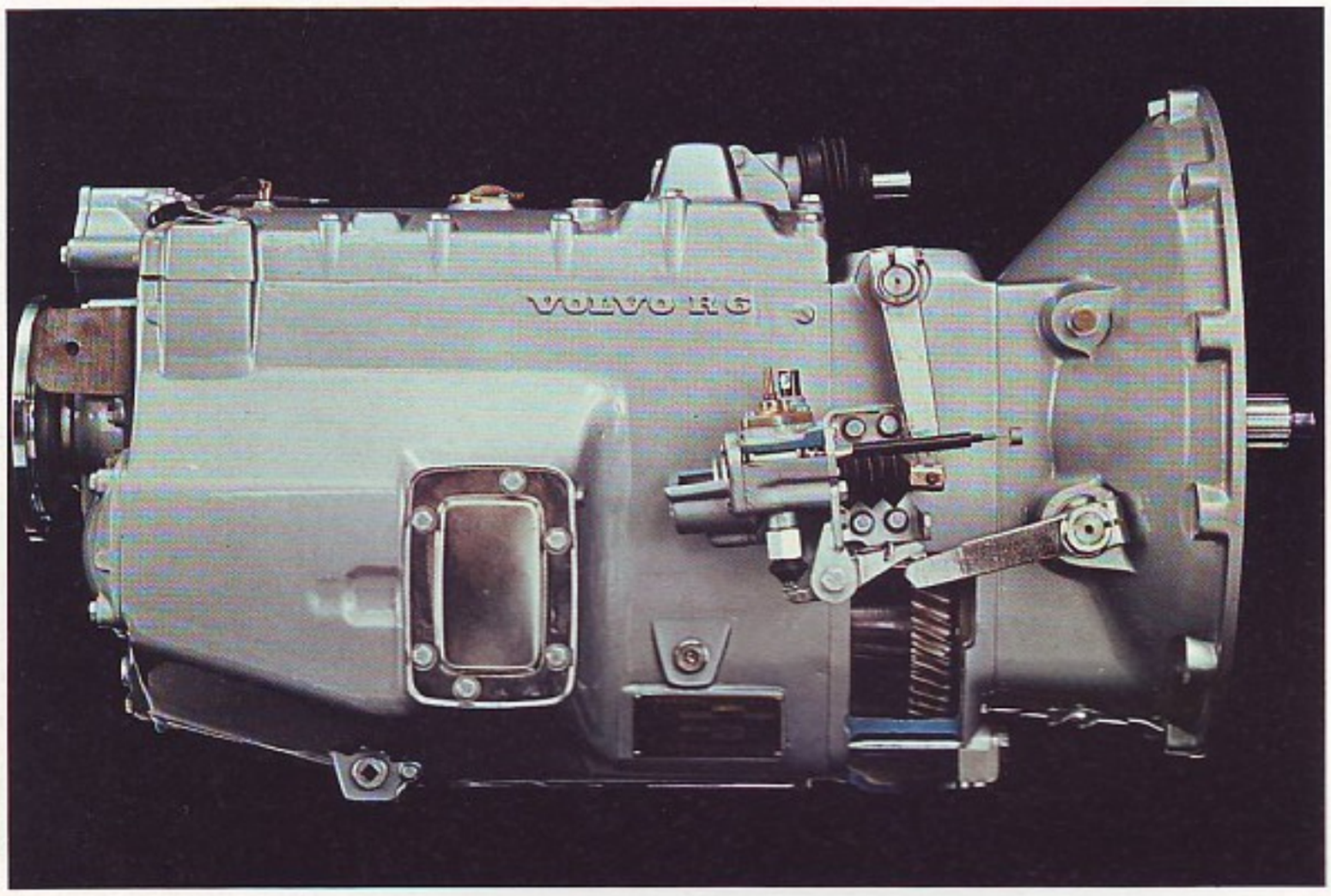
The Volvo 88 trucks are available with two different types of final drive, both of the hypoid type and with several alternative reduction ratios. In both cases reduction is carried out in two stages. This limits the loading in each stage and also means that the pinion can be manufactured in the form of a very robust unit. The pinion is carried in three bearings and has perfect mesh even under extreme conditions of loading.

One of the final drives is a double reduction unit, dimensioned for train weights of up to about 50 tons.

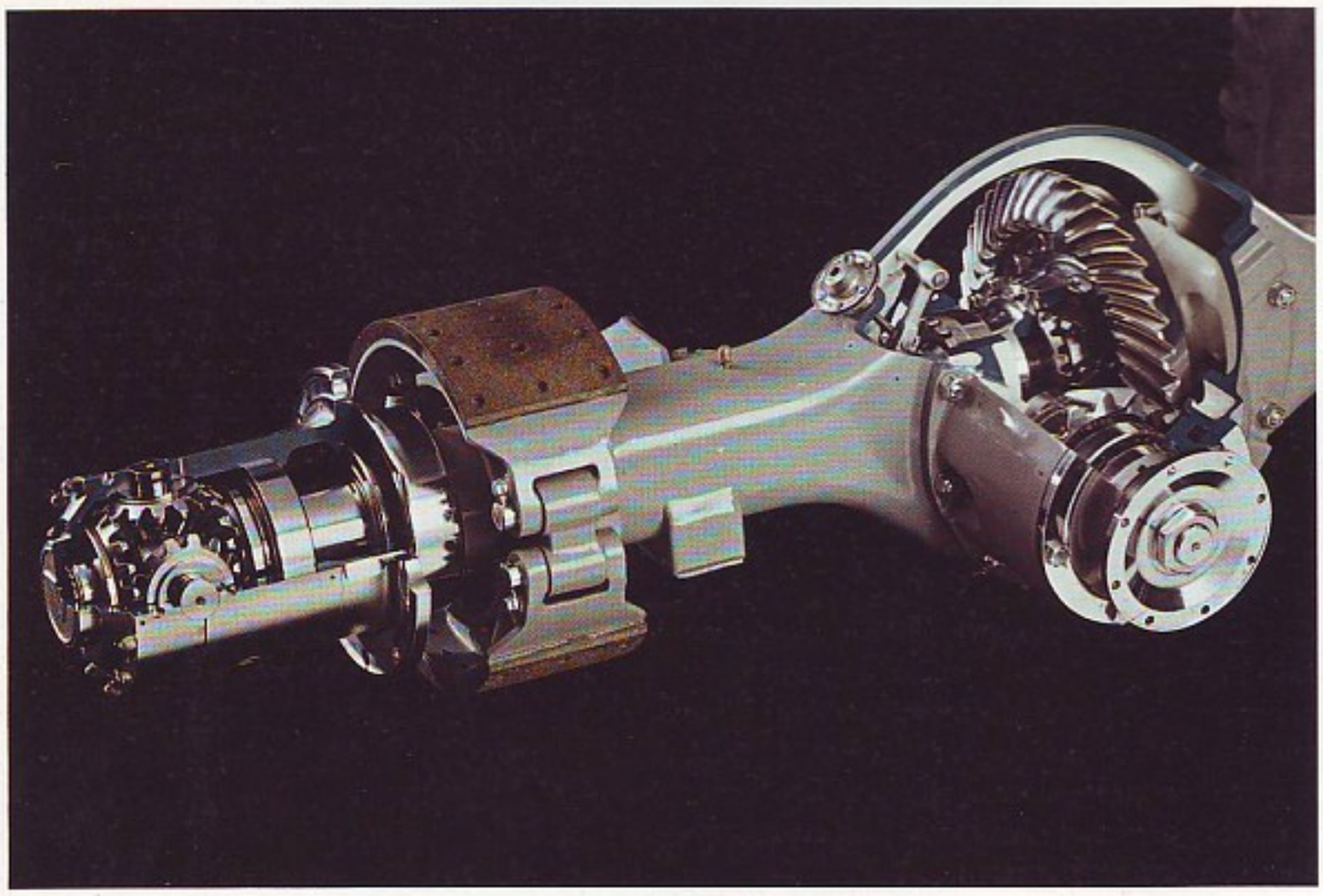
The other unit is a single reduction final drive with hub reduction for extremely demanding operating conditions and for high train weights. Hub reduction is a compact bevel epicyclic gear patented by Volvo which is built into the driving wheel hubs. Since reduction is carried out at the wheels themselves, this reduces stresses on the axle shaft to half.

Both final drives are designed and built by Volvo and are renowned for their exceptionally high operational dependability. Particularly hub reduction has been found to stand up to extremely uneven loading on, for example, forest roads, in gravel pits and on building construction sites.

The axle shafts themselves are also extremely durable. They are so flexible that they can be twisted almost one complete revolution without failing.



SR 61 gearbox.



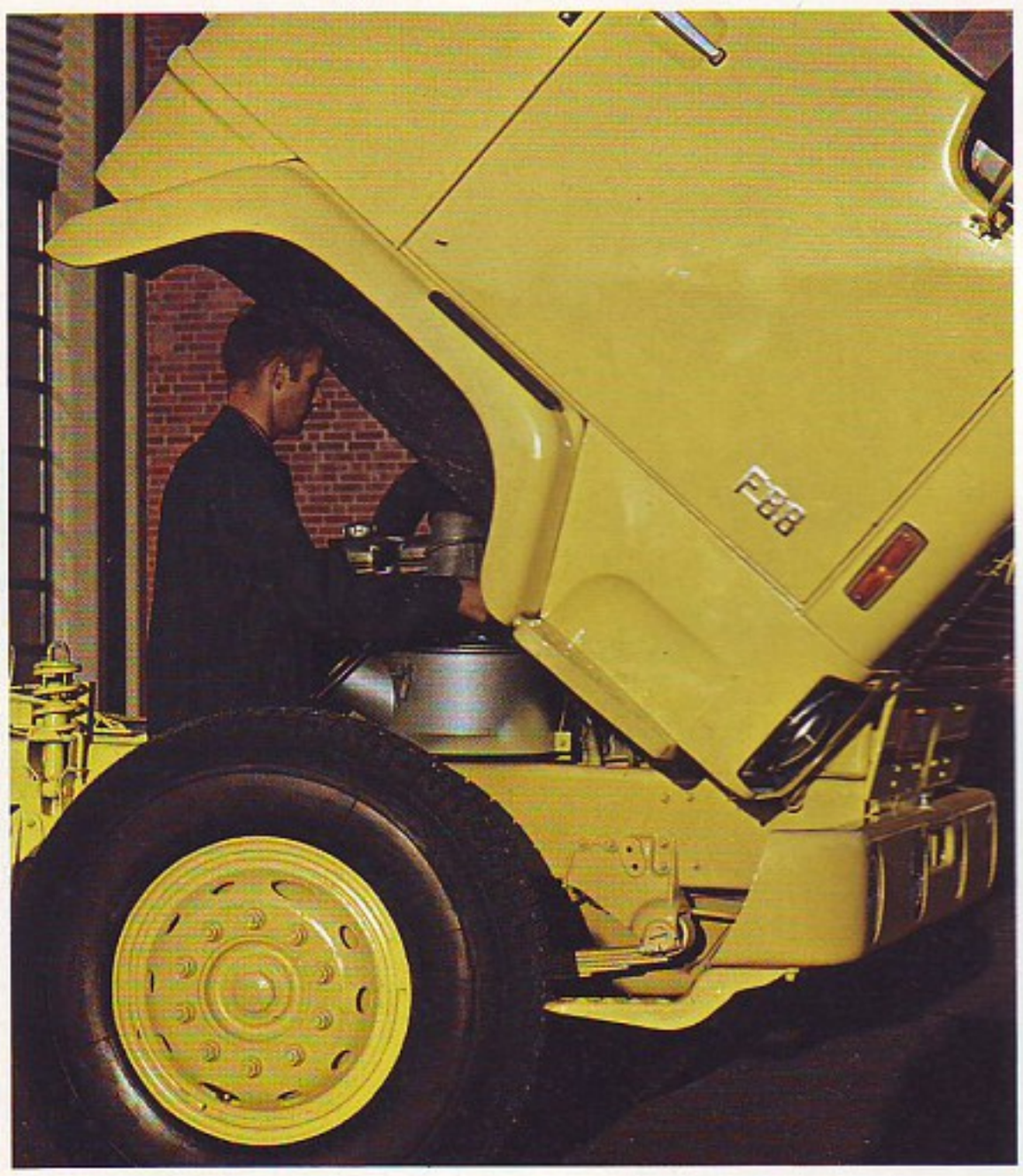
Double reduction final drive.

Single reduction final drive with hub reduction.

FB 88 with rear-mounted crane and three-axle trailer for timber transport (Sweden).

Service economy built in right from the start

Two things provide low servicing costs: design which is suitable for servicing and also the accessibility of rational workshop facilities. You never have far to go to a specially equipped Volvo workshop. The technical resources of Volvo workshops are kept completely up-to-date through continuous training of service personnel.



When the cab is tilted out of the way, the engine, gearbox and front end are readily accessible. The robust torsional springs facilitate tilting of the cab. In the case of the sleeper cab, extra equipment available includes a hydraulic tilting device.

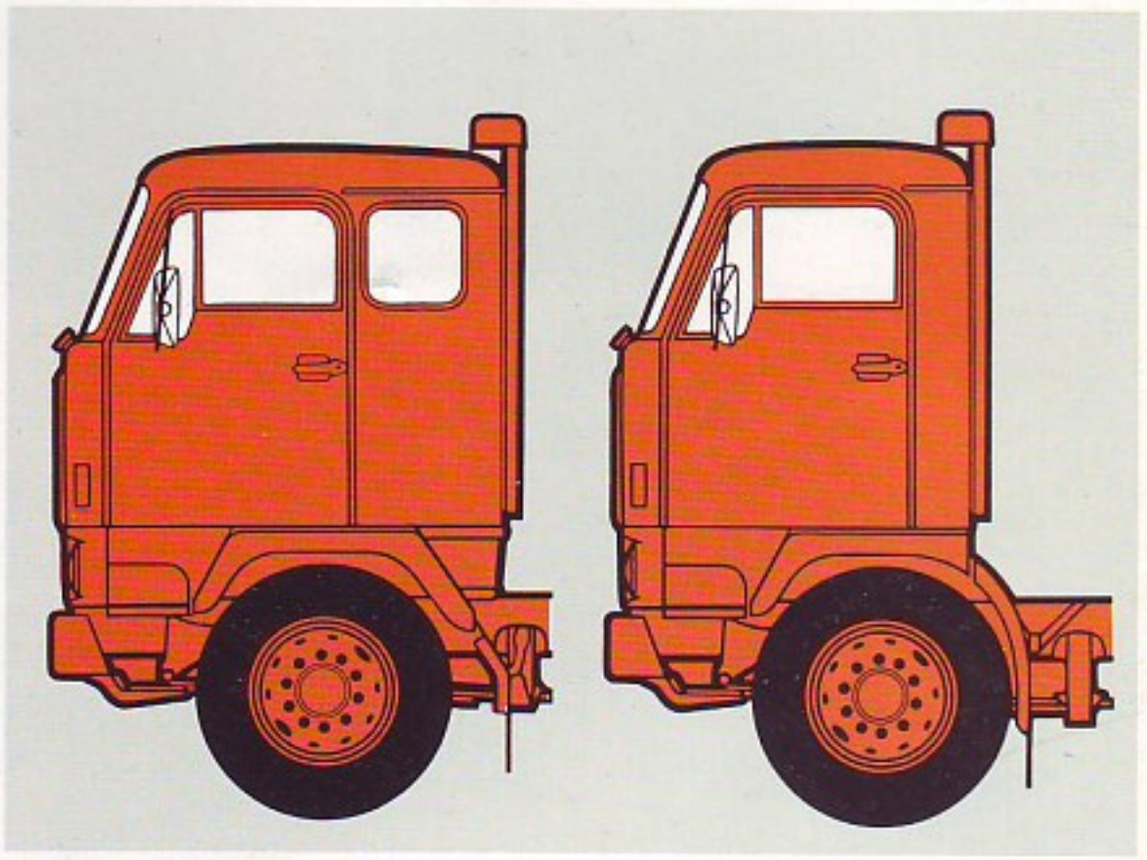
Daily checking can be carried out without it being necessary to tilt the cab. The oil dipstick and oil filler, for example, are readily accessible through a servicing cover in the front of the truck.

FB 88 with two-axle trailer for wood chip transport (Finland).

Efficient and comfortable working environment

The technical equipment and the practical design of the driving environment co-operate to make the forward control 88-trucks very pleasant to drive. All the control organs have been designed to create flexible co-ordination between the truck and its driver. This also applies to the driving position, power steering, gearbox, clutch and brakes. Volvo engines are renowned for quiet running and the effective insulation of the cab damps the sound even further. The large glazed surfaces provide light, space and perfect all-round vision.

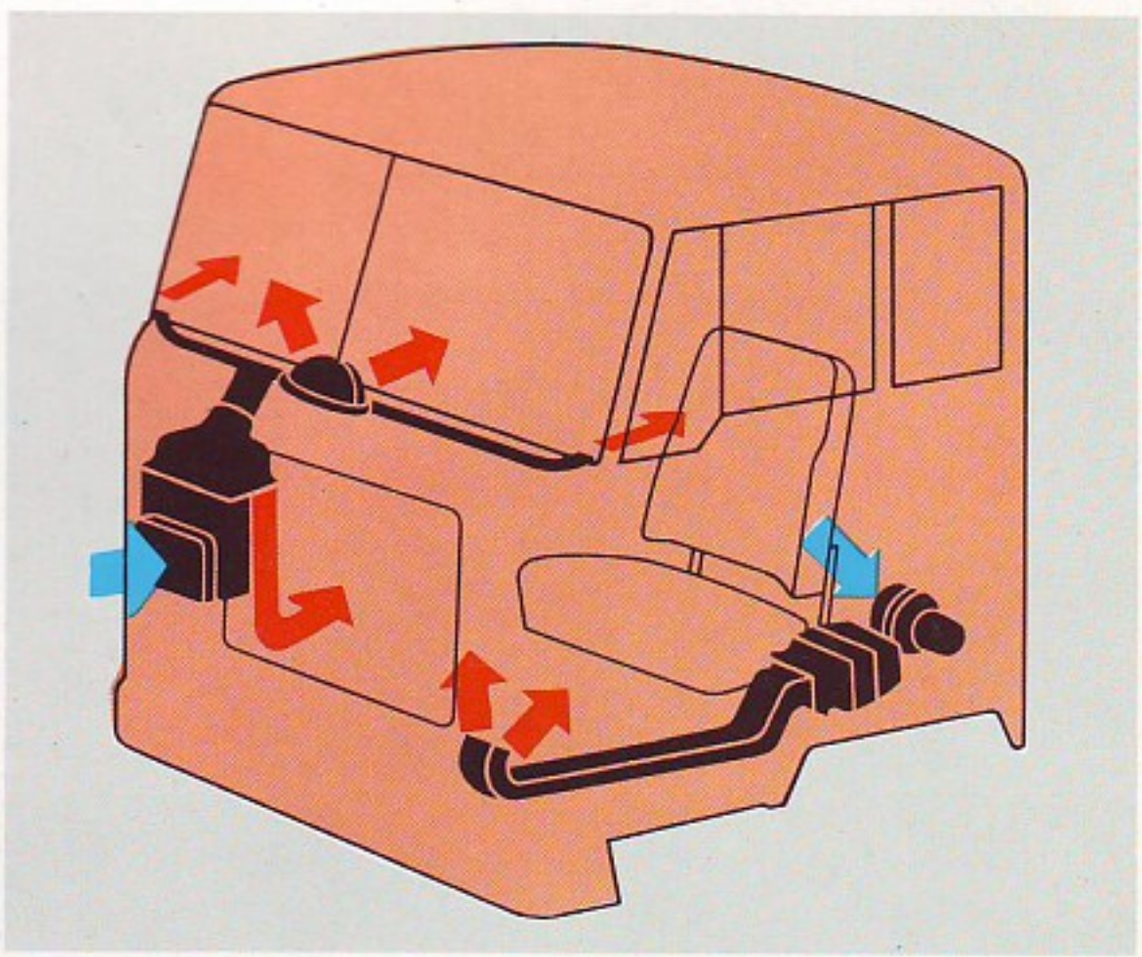
The seats have a suspension which efficiently absorbs impact and vibrations. The seats can be adjusted to suit individual weight. A hydraulic shock absorber smoothly damps spring movement.



The cab is available in two versions, a sleeper cab with one or two berths and extra room for luggage and a 40 cm (16") shorter version without any sleeper berth.

The cab is made up of all-welded sheet-steel on a framework of robust profile members. It more than satisfies the demands made by the Swedish authorities concerning strength.

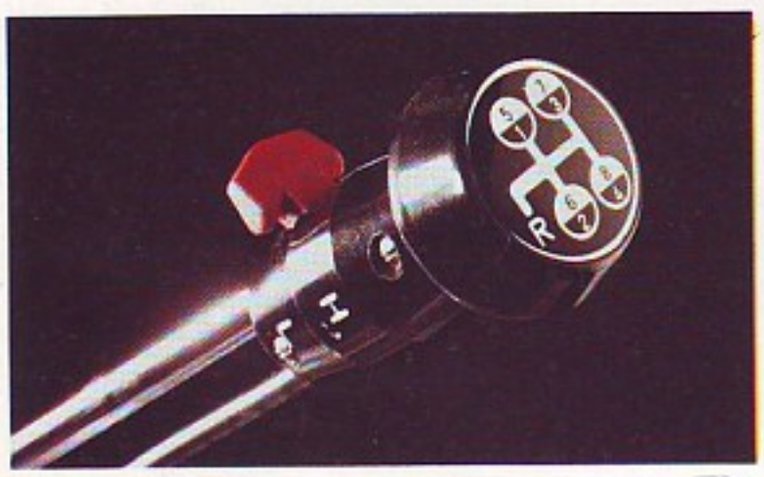
The double heater has sufficient capacity for severe Scandinavian winters. During the summer the fan feeds fresh air. Large defroster nozzles keep the windscreen free from misting.

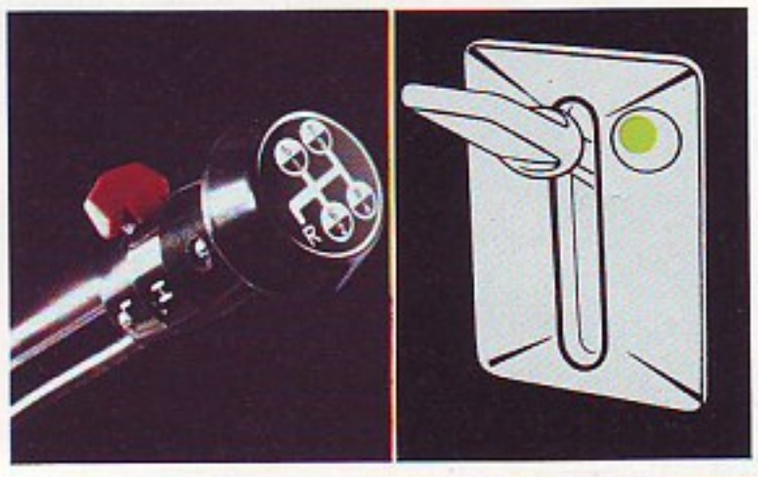


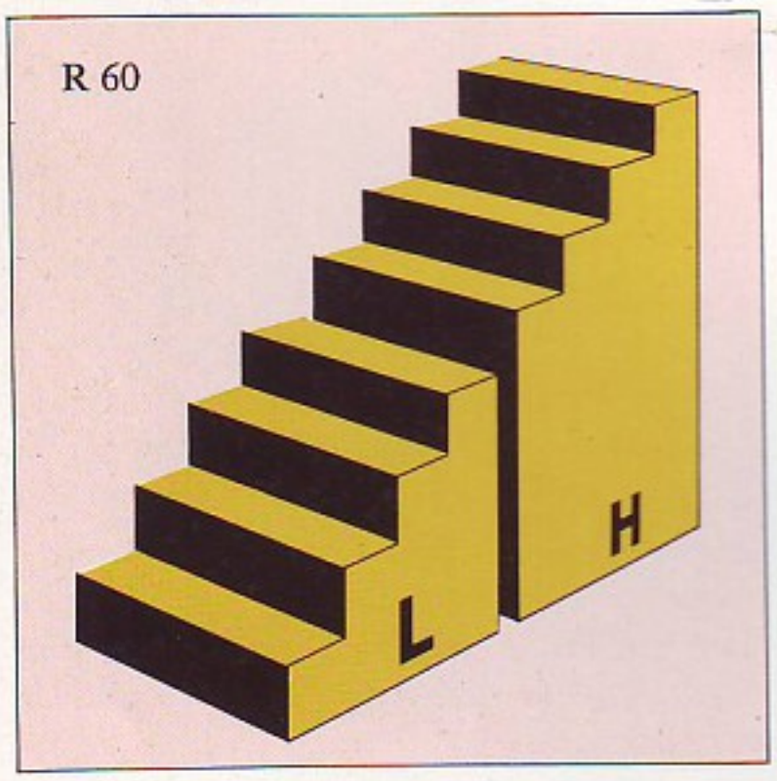
In order to utilize the full output of the engine the whole time and maintain high average speeds, the driver needs a gearbox with closely spaced ratios. The Volvo F 88 has an alternative of 8 or 16 gears. And all the gears are efficiently synchronized and easy to find. Particularly from the viewpoint of road safety, gear-changing should make as little demand on the attention of the driver as possible.

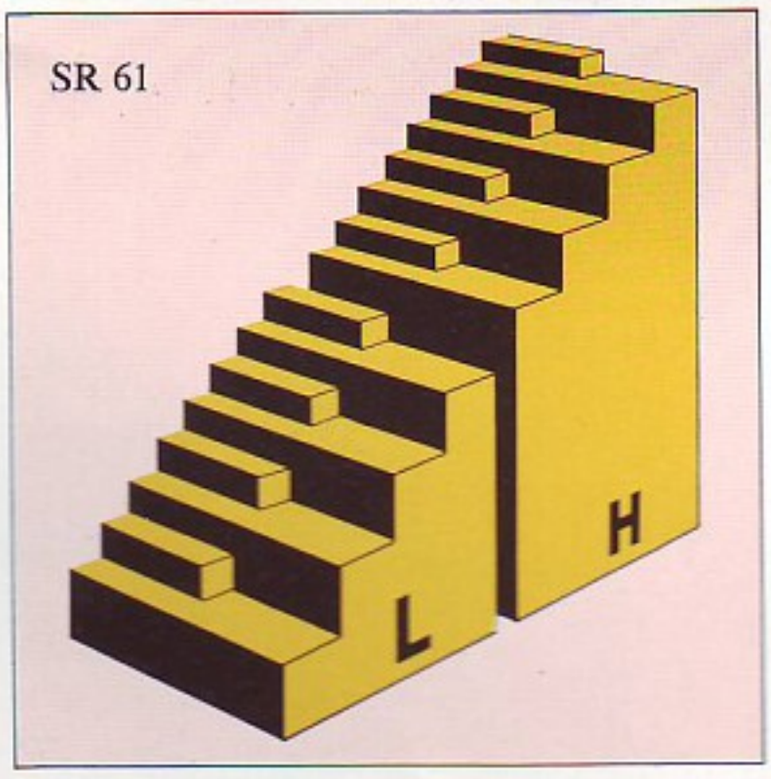
The 8-speed gearbox R 60 has two speed ranges: 1—4 and 5—8. Both ranges utilize the same gear lever positions. Changeover between the speed ranges is taken care of by means of a convenient toggle switch in the gear lever—the gear-changing work itself being carried out by means of compressed air. The toggle switch thus only needs to be operated when going over from one speed range to the other.

In the 16-speed SR 61 gearbox, each of the 8 speeds has an overdrive. The overdrive is operated by means of a special toggle switch located within easy reach. Even in the case of the 16-speed gearbox, gear-changing occurs very quickly and speed losses during gear-changing on upgrades are minimal. It is naturally not necessary to change up or down through all the gears. The advantage with the large number of gears is that there is always a gear available which provides maximum tractive effort.

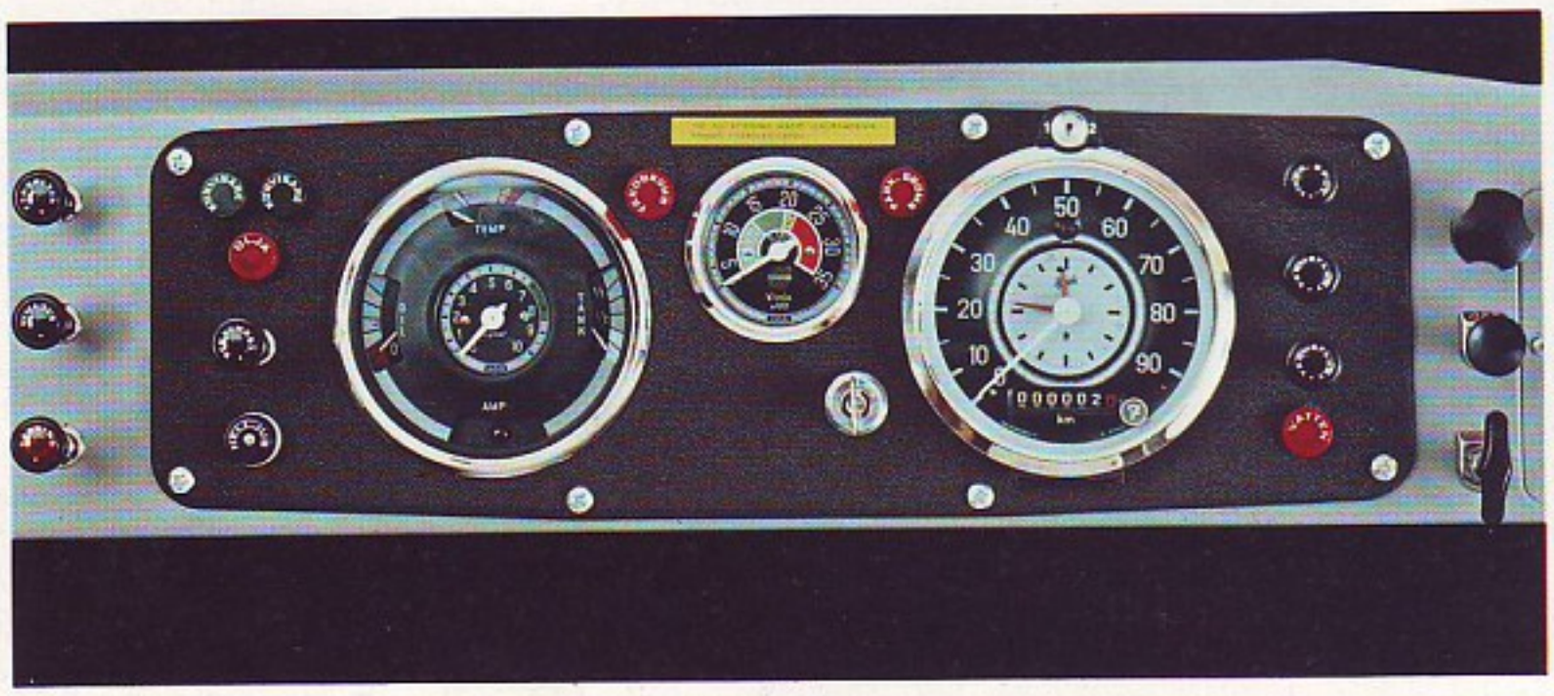








The instruments and warning lamps are compactly arranged in a black dashboard. The lip at the top prevents windscreen reflections.



Large mirrors provide good rearward vision. The mirror glass is convex in order to provide an extra large field of view without making judgment of distance difficult.

FB 88 as tractor unit for use with bogie semi-trailer for container transport (Holland).

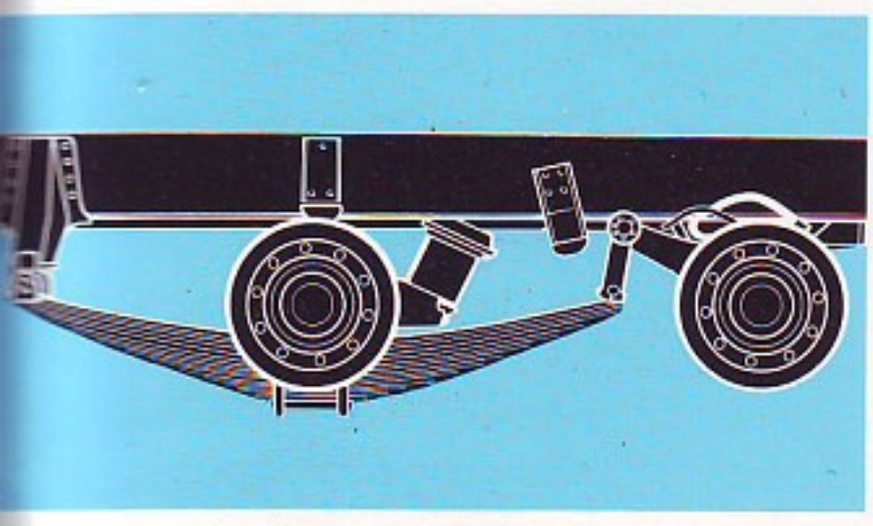
Empty or fully-loaded — the F 88 runs smooth

When operating at full load, a truck requires considerably stiffer suspension than when running empty. This problem has been solved on the F 88 in two ways. Firstly, the rear axle suspension includes a soft mainspring and a stiffer helper spring which comes into operation at a certain degree of loading. Secondly, the springs are progressive and have slipper type contact points. The more the spring is loaded, the shorter the active spring length becomes and thus the stiffer the suspension. This gives the two-axle F 88 extremely good suspension characteristics at various degrees of loading.

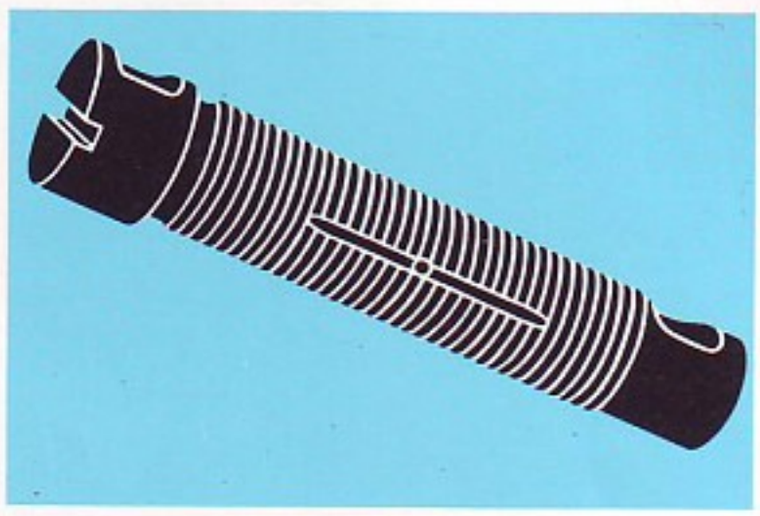
There are also possibilities of fitting the F 88 with special spring systems. For example there is a special optional suspension for semi-trailer tractor units. For vehicles used for tipping, there is a reinforced spring system with hollow rubber springs.

F 88 tractor unit for use with two-axle refrigerated semi-trailer (Holland).

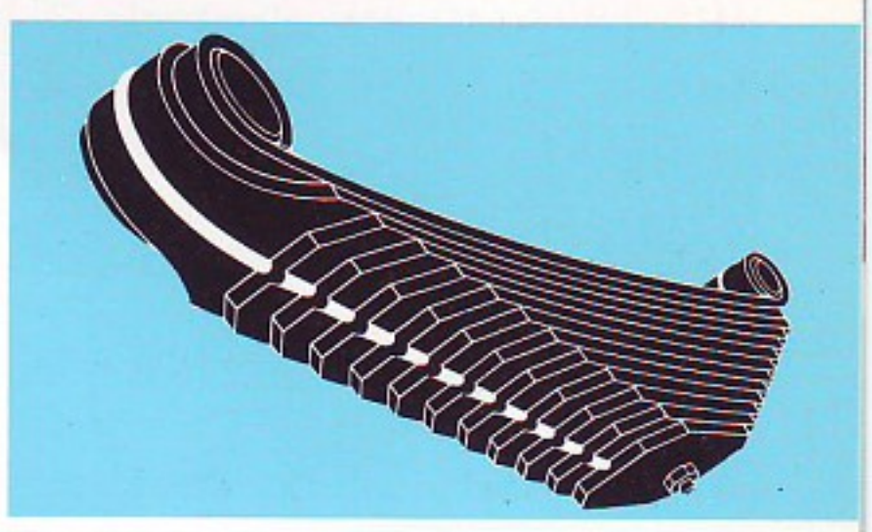
Springs with slipper-type contact points provide progressive spring effect.



On the three-axle FB 88 6×2 the trailing axle is carried in a balance arm. During acceleration, loading on the driving axle increases, this providing particularly good road adhesion for the driving wheels. The frame is reinforced with extra members above the bogie.



The threaded spring bolts provide an extra contact surface. The threads also retain lubricating grease.



Slots in the rear spring leaves prevent the leaves from sliding laterally.

Several brake systems provide a greater margin of safety

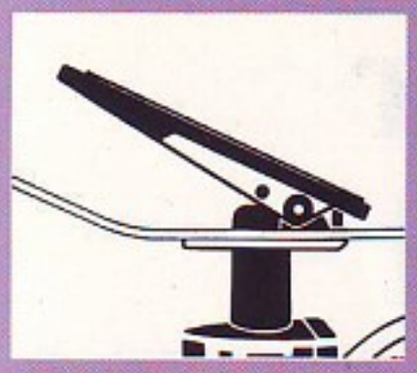
The brake friction area is no less than 4,685 cm² in the case of two-axle vehicles and 6,695 cm² in the case of three-axle vehicles. The running brakes operate with compressed air. For increased operational dependability, the compressor is not belt-driven but gear-driven. The running brakes have two independent circuits.

A load-sensing valve registers the distance between the platform and the rear axle and adapts the braking force on the rear wheels according to the degree of loading. This decreases the risk of rear wheel lock-up.

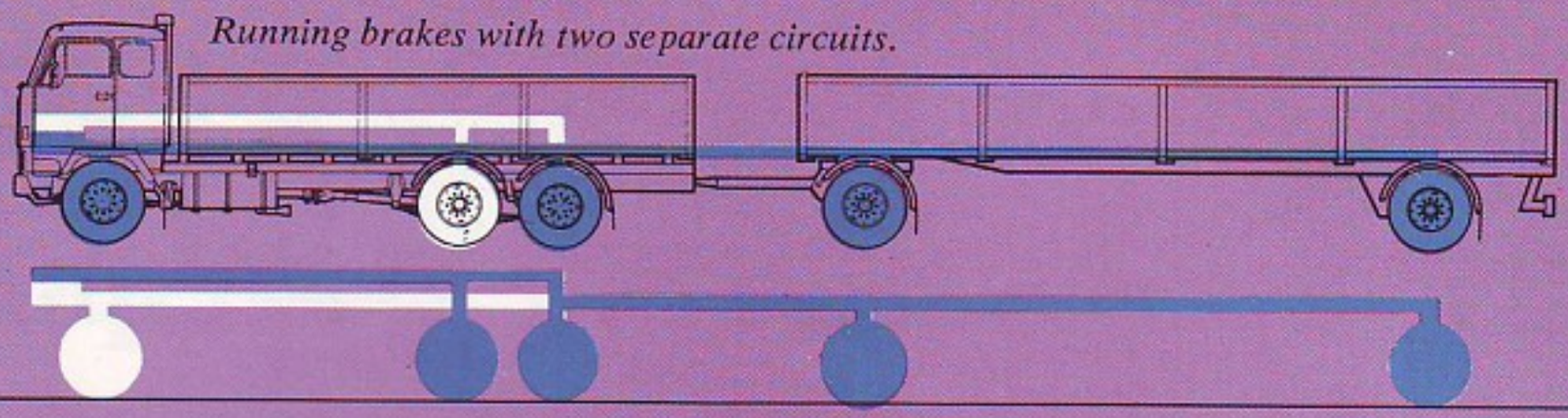
The parking brakes also utilize compressed air. The brakes are held applied with the help of robust coil springs and disengaged with the help of compressed air. Application is infinitely variable and is regulated by the driver.

The exhaust brake provides particularly strong engine braking. By using a foot-operated switch the driver closes a shutter in the exhaust pipe at the same time as fuel injection is cut off. The exhaust brake thus operates completely independent of the wheel brakes and decreases brake lining wear, primarily on long down-grades.

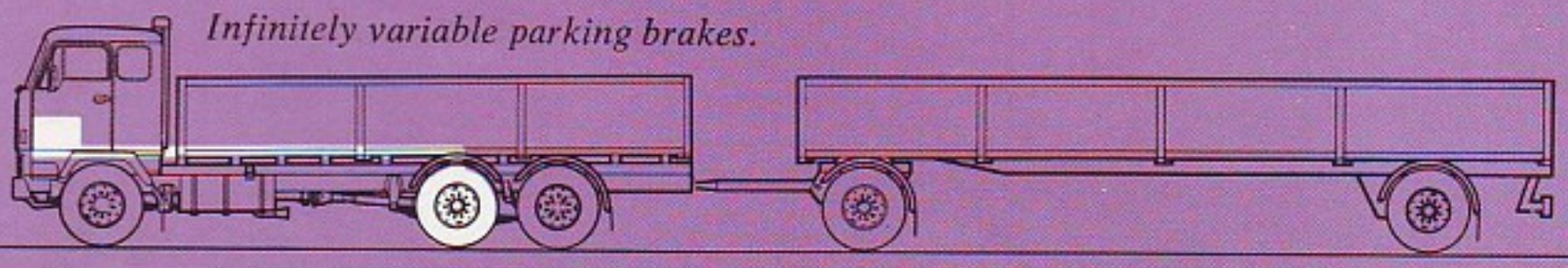
F 88 with two-axle trailer built with insulated van body for the transport of flowers (Sweden.)

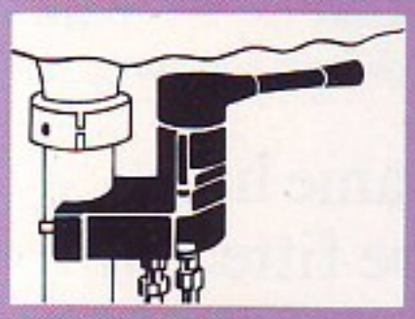


Running brakes with two separate circuits.

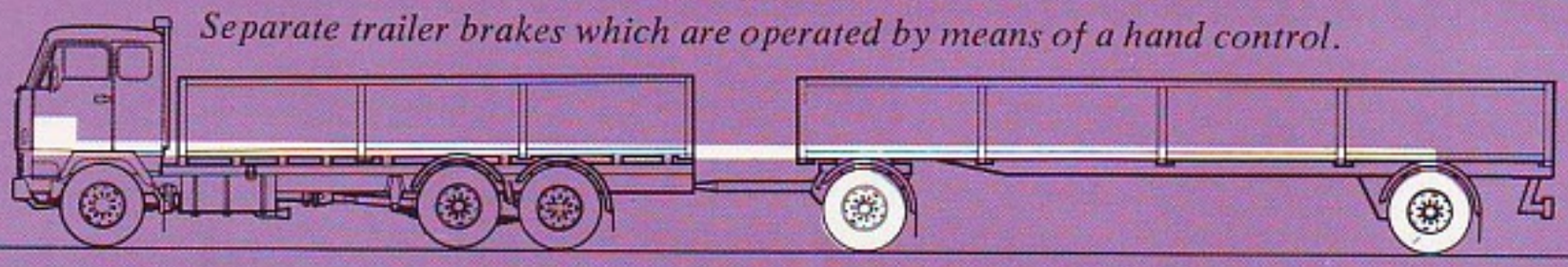


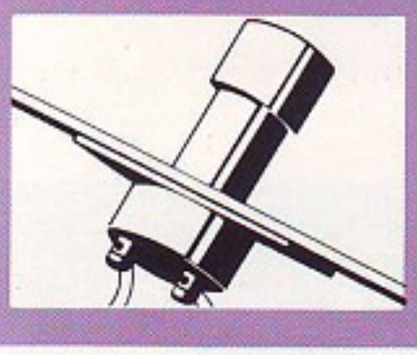
Infinitely variable parking brakes.



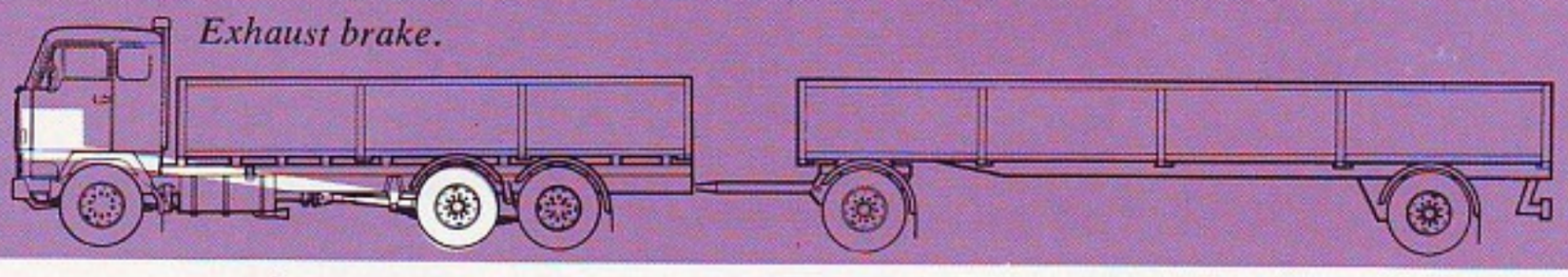


Separate trailer brakes which are operated by means of a hand control.





Exhaust brake.



Forward control 88-trucks for heavy long-distance transport

88-trucks are found primarily to be used in heavy highway rigs and forestry combinations. It is here that the high tractive effort of the engine and the durable power transmission system can be utilized to their full capacity. The illustrations on this page provide some examples.

The fitting of superstructures is facilitated by the fact that the frame has a constant width and a smooth upper surface. The gearbox can be fitted with power take-offs, both side mounted and rear mounted, the last mentioned in two alternative versions.

FB 88 with two-axle trailer for petroleum transport (Sweden).

FB 88-42 with three-axle trailer for bulk transport. TD 100 engine, SR 61 gearbox, double reduction final drive.

F 88-32 as tractor unit for use with semi-trailer designed for container transport. TD 100 engine, R 60 gearbox, double reduction final drive.

F 88-32 as tractor unit for use with semi-trailer. TD 100 engine, SR 61, double reduction final drive. (France)

F 88-49 with van body and two-axle trailer. TD 100 engine, SR 61 gearbox, double reduction final drive.

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F 88 as tractor unit for semi-trailer for use in TIR traffic (Holland).

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