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Modern communications are compressing the dimensions of our world.

It's a tough world, where competition is intense, where it is vital to carve out a name for yourself, seize the initiative, hold the lead. This is the world where Saab-Scania belongs.

We develop and produce high technology aircraft and satellites, passenger cars, trucks and buses. Our products are among the most modern on the market.

Today's Viggen fighter and tomorrow's JAS 39 Gripen – the supersonic multirole aircraft for air-defence, air-to-surface and reconnaissance missions – represent the most advanced technology available. The Saab passenger car is synonymous with the concept of the Turbo. And Scania trucks have become a byword for strength and reliability.

We are unique in possessing such a product spectrum. Few companies in the world today, if any, can match our breadth within the area of transport and communications. We are helping to compress the dimensions of the world – on the road, in the air and in space.

Saab-Scania is one of the leaders in specialized transport technology.



Concentration on an advanced product range.

Our products are sold in an environment of international competition. The areas where we compete on the best terms are those where we can make full use of our technical competence and innovative ability. We have therefore chosen to specialize in trucks and buses for heavy transport, passenger cars of high performance and aircraft for regional traffic.

These products are concentrated in the most expanding segments of the market, at those areas which are growing fastest.

High energy costs, expanding international trade and improved road networks underline the importance of heavy transport vehicles which can carry great loads, economically, over long distances. This is where Scania excels.

For those who want high performance passenger cars, there is the Saab 9000 Turbo 16. In the world of aviation there is a strong demand for a new generation of







compact energy-saving aircraft, which can take care of the growing regional traffic. Like our Saab-Fairchild 340.

It is no longer enough, however, merely to specialize and concentrate one's efforts if one is to maintain a competitive edge.

A shrinking world gives us new partners...

Products tend to become more complex, development work is becoming more and more farreaching. The future of an industrial company depends to an increasing degree on its resources for research and development.

Development costs for new aircraft and cars can run into billions of dollars. It is vital that expenditure can be kept low, both on the development side and in production. This can be achieved by co-operation with other international companies. Through the exchange of advanced technology, sharing of research and testing, and the use of specialized suppliers.

Saab-Scania co-operates with Fairchild Industries of the USA on the new regional airliner. Thanks to this co-operation we make use of our own resources in the most efficient way. At the same time we extend the total resources available for development of the Saab-Fairchild 340. In this way we strengthen our competitive ability.

The Saab-Fairchild 340 has a clear lead over its nearest com-



petitors. International co-operation not only benefits development and production. The marketing side also reaps significant rewards. New markets are opened up and, perhaps most important of all, the chances of being first on the market are greater.



The co-operation between Saab-Scania and Fairchild Industries is unique. It is the first time that European and American aerospace industries have united in a joint venture including development, production and marketing of a commercial aircraft.

... and new inspiration.

Through co-operation with companies abroad we gain new inspiration and a broader base from which to determine our future development.

For a co-operative project to succeed, both partners must bear equal technical responsibility, profess similar product philosophies and complement each other.



Products and production with a future.

To hold the lead means continuous planning for the future. Products must be innovative, the production system efficient and the sales organization responsive to the demands of the market.

In the last few years Saab-Scania has invested hundreds of millions of dollars in product development, with the aim of strengthening the technical advantage our products enjoy over our competitors.

The "right product", however, also means offering the right combination of price and quality. These factors depend to a great extent on the efficiency and flexibility of the production system. For this reason, our yearly investments of more than a hundred million dollars in plant and production should also be viewed as long term investments in marketing. They contribute to streamlining, reduction of production costs and, in effect, to making the product more competitive in price.

We have also extended our international organization in step with investments in product development. This is a necessity for a company which is so dependent on export as Saab-Scania. Over half of our sales go to markets outside Sweden.

Abroad we have an extensive network of production and assembly workshops, service installations, subsidiaries, independent importers and dealers. This whole organization is engaged in the promotion of our products.

Saab-Scania is planning for the future. We have maintained investments through both good times and bad. This says a lot about our belief in our products. And in the future.















Saab-Scania brings us closer together — on the road, in the air, in space.

The Scania Division is one of the world's major producers of trucks over 16 tons Gross Vehicle Weight. Scania is among the dominant makes in its class in the Nordic countries, Brazil and Argentina, Nine out of ten Scania trucks are sold abroad. We supply approximately 15 per cent of the total world export of heavy trucks. In recent years Scania has achieved a strong position in Western Europe. From a techncial and quality point of view, it is one of the leading makes in heavy long-distance transportation. Scania is also one of the leading



names in bus production in the Nordic countries, Brazil and Argentina. Our buses have recently been introduced in the USA and the first results are highly promising. The Scania Division also produces industrial and marine engines.

The Saab Car Division initiated the turbo wave. Saab-Scania was first with a series-produced standard car with its output boosted by a turbo charger driven by exhaust gases. An innovation whose time had come, followed hotly by several competitors. The Saab 900, in its turn, arrived at the right moment to elevate Saab into the expanding "exclusive upper-middle class". In the new large Saab 9000 Turbo 16 all the best of Saab-Scania's automotive knowledge is gathered. With the coming of the third generation turbo engines with 16

valves Saab-Scania has further consolidated its hold as a leader in the field of engine technology. Technical innovation and advanced image underlie Saab's success abroad. Three out of four cars are exported, mainly to the North America and Western Europe. New markets have also opened up, especially in Australia and in the Middle and Far East.



The Aircraft Division has long been a member of the exclusive group which produces advanced military aircraft. The "Flying Barrel", the Lansen, the Draken, the Viggen, and now the Gripen, are a family of aircraft which has achieved international renown. The Viggen is one of the world's most effective fighter aircraft. In the beginning of the 1990s the Viggen will start beeing gradually replaced by the JAS 39 Gripen, a multirole aircraft for air-defence, air-to-surface and reconnaissance missions.

This is the first aircraft of its size to be able to perform all these different missions.

Distinctive features of both the Viggen and the Gripen are their canard wing configuration, systems integration, and take-off and landing characteristics. Thanks to the latest generation of lightweight engines, new composite materials and electronic miniaturization, the JAS 39 Gripen will weigh only half as much as the Viggen, and still have better performance and equal load capacity. The Aircraft Division's long expe-

rience within military technology and aircraft production is an invaluable asset in view of Saab-Scania's decision to enter the commercial market. The initial project is the Saab-Fairchild 340, a comfortable, quiet, energysaving airliner and executive turboprop aircraft aimed at the growing regional traffic. The



plane has a 35-passenger capacity.

Saab-Scania Combitech is a company group for technically advanced products and systems outside transport technology. The group contains units within the areas of space, military missile production and training equipment, marine as well as industrial electronics etc. Among the products are the Viking research satellite and the Tele-X telecommunication satellite, the RBS 15 missile as well as computer controlled automation for sawmills, which calculates automatically the most efficient exploitation of each log arriving at the plant. The product range of the Aircraft Division and Combitech within the areas of space, civil and military aviation and missile systems makes Saab-Scania one of the most broad ranging aerospace companies.

Saab-Scania Enertech develops systems and products for energy conservation, heating and ventilation, heat recovery and industrial valves mainly for the process industry and district heating. Enertech comprises companies like NAF, CTC, PARCA, Bentone-Electro Oil and others.



A pleasant working environment, short cycle times and possibilities of building quality into products from the beginning are characteristics of rational production. And rational production methods are just as important as product development itself for price and quality.

Production for a demanding world.

Saab-Scania's more than a hundred million dollars annual investment has made our production facilities well-suited to current demands.

The passenger car factory at Trollhättan, Sweden, and the new aircraft workshop for Saab-Fairchild at Linköping, Sweden, are







- The assembly of Saab-Fairchild 340 at Linköping, Sweden. Wings, nacelles, tail surfaces and engines are shipped from the USA.
- 2. The new commercial aircraft factory at Linköping, Sweden. Building the plant started in January 1981 and in the same year aircraft production could commence.
- 3. The nose cone of the Saab-Fairchild 340 is constructed from composite material.





4. A new Saab-Fairchild 340 being delivered from Linköping, Sweden.

5. Installation of electrical systems in the cockpit.

examples of how new production concepts have been put into practice. Efficient production has been combined with a safe and clean environment. Teamwork and possibilities for individual variation have been incorporated in the initial planning of workplaces. This is important for the recruiting of the right kind of people and for their continued loyalty.



In the production of trucks, rational design and planning have reduced the total number of components in the cab program by almost 70%. A new module system for the complete truck offers clients a wide choice of possibilities in the assembly and equipping of the final vehicle. Standard components can thus be used to custombuild a truck.

The JAS military aircraft project is a striking demonstration of



- 1. The number of components on Scania's cab program has been reduced by 70%.
- 2. Production of the Saab 900 at Trollhättan, Sweden.
- 3. The JAS 39 Gripen will be a multi-role-aircraft for air-defence, air-to-surface and reconnaissance missions. Go ahead decision was taken in 1982 and in 1992 it will be in service.

4. Robot welding of Saab car bodies.



several companies coming together to develop and produce a complete aircraft system. The JAS Industry Group comprises Saab-Scania, Volvo Flygmotor, Ericsson and FFV. The planning of this project is probably the most extensive ever required for a Swedish defence and industrial venture. It provides an interesting example of advanced management methods. Saab-Scaria accounts for 65% of the JAS project.

An unlimited production system.

Saab-Scania has production facilities in 30 locations in Sweden, as well as factories in Western Europe, Latin America, the Middle East and Africa. Saab-Scania has a total of approximately 43,000 employees, 7,000 of them abroad.

With a modest domestic market it has been necessary to establish production and assembly abroad.



5. The Scania factory at Tucumán in Argentina.

6. A Scania truck in Egypt.

As a result we come closer to our international markets and render our production less vulnerable to trade restrictions. In many countries local production or local assembly is also one of the preconditions for entry to the market.

7. The efficient Scania service-organization. Below a modern workshop in Tanzania. Outside Sweden we produce Scania trucks and buses in Brazil and Argentina and assemble vehicles in the Netherlands and Tanzania. Saab cars are produced in Sweden and Finland.

The fuselage of the Saab-Fairchild 340 is built in Sweden. The wings and engine nacelles as well as the tail surfaces are constructed in the USA and transported to Linköping, Sweden, for final assembly. The engines, General Electric's CT 7, are also made in the USA.

The Aircraft Division at Linköping, Sweden, also does work for several international aircraft producers – control surfaces for British Aerospace's BAe 146 and wingflaps and spoilers for the McDonnell-Douglas MD 80 series of airliners (the former DC 9).









Ideas breed ideas in closer co-operation.

Saab-Scania works closely in cooperative projects with foreign companies. But, above all, we work in intimate co-operation with each other within the Saab-Scania Group. Experience and technical innovations are transferred between the divisions within Saab-Scania. The Scania Division develops and manufactures engines and gearboxes for the Saab Car Division. The knowhow in aerodynamics of the Aircraft Division has been employed in the design of our passenger cars and trucks. These are but two of many examples.



1. The J21 fighter plane and the streamlined Saab 92 from the end of the 1940's.

Aerodynamics, an increasingly important economic factor.

Saab-Scania's Aircraft Division has contributed to product development in other divisions, either through direct transfer of technology or through idea-generation.



2. The air flow around the canard wing gives Viggen good low-speed characteristics.

The developments in aerodynamics is a good example of aerospace technology. The Vig-



3. Wind tunnel testing of cabs on halfscale models.

gen's canard wing configuration has created much interest. The relationship of two wings gives extremely good low-speed handling characteristics. This will be useful in those cases, as in Sweden, where normal roads may be used as landing-strips for military aircraft.

As evidence of aircraft ancestry, Saab cars have long been characterized by their aerodynamically-efficient lines. This contributes to low fuel consumption and good driving stability.

The new Saab 9000 Turbo 16 has been designed with even more consideration given to the laws of aerodynamics.

The need for low fuel consumption has also given air resistance a new importance with respect to trucks. Extensive wind tunnel testing in co-operation between aircraft and truck designers lies behind the new Scania cabs. Improved aerodynamic design of



- 4. The instrumentation in the Saab-Fairchild 340.
- Scania's truck cabs have been developed as a workplace through a careful study of the driver's movements.
- 6. The Saab 9000 Turbo 16 instrument panel. Even a seat-belted driver can reach all controls.
- 7. The pilot's view in the supersonic Viggen aircraft.

the cabs and the simultaneous development of air deflectors, mean considerable saving of fuel and thus better transport economy.

Ergonomics, man in harmony with technology.

In a supersonic plane, great demands are made of the pilot. Quick, co-ordinated reactions, and absence of errors. All instruments must be easy to read and all controls suited to man's demands. This is ergonomics at the highest level.

But the demands of modern highway traffic are also important.

The builders of Scania trucks and buses and Saab cars have constant contact with the engineers of the Aircraft Division. Visibility, reach and working position have great significance no matter whether one is taking a trip in the air or on the ground.

The Saab-Fairchild 340 features a flight-deck layout of a new standard in this aircraft category. Color, cathode-ray-tube displays are used as primary flight instruments giving higher reliability and flexibility than conventional mechanical instruments.



6



Among the front-runners in engine design.

Saab-Scania has long been a leader in engine production. We have been making cars since 1897. At an early stage Scania engaged in diesel engine technology, and was a pioneer with exhaust-driven supercharging – turbo – as standard equipment.

Today Scania makes one of Europe's strongest truck diesels with long life characteristics and good fuel economy. The impressive experience with turbo-technique gained on trucks inspired us to adapt the technique for our passenger cars as well.

In 1977, after an intensive development period, Saab-Scania commenced series-production of the first standard car with a turbo-charged engine. Saab-Scania started a veritable turbowave among the world's car producers.



 With APC – Automatic Performance Control – fuel use is optimized (see solid curve). The charging pressure continuously adjusts to the detonation limit according to the fuel/air mixture in the cylinders.





2. Saab-Scania started the turbo wave in 1977. In 1981 the Saab 900 Turbo with Automatic Performance Control (APC), became the first car capable of driving on different octane ratings. Shown here is the new 16-valve version in the Saab 900 Turbo 16.

In 1981 Saab-Scania presented a new important engine innovation. This was the second generation turbo, now with APC – Automatic Performance Control. The APC engine was the first with optimum utilization of fuel, no matter what octane rating is used. In 1983 the third generation Turbo-engine with 16 valves was presented.

Methods and materials for the future.

Saab-Scania conducts extensive development work in the sphere of electronics, in a close cooperation between our divisions and also with outside computer companies and suppliers of electrical components.

The Scania Division's STRASS (Scania Transport Simulation System) and the special program used in the Saab Car Division's sound laboratory are interesting examples of own-produced computer programs with a significance for product development. STRASS controls laboratory truck-driving tests in order to simulate, as closely as possible, driving on real highways.

The Saab Car Division's program analyses sound and vibrations in car bodies. This will result in cars that are quieter despite having lighter sound insulation.

The Aircraft Division's constructors work with the development and practical employment of new materials, for example composites – plastic materials reinforced with carbon fibres – which combine strength with lightness. When these are applied in commercial use in trucks, the loading capacity will be capable of increases in the region of hundreds of kilograms. Testing is presently underway.



 Composite materials are light and strong. Until now they are mainly used in aircraft. In the future they will also be found in cars and trucks.



4. The STRASS computer program helps the truck designers to simulate driving on any road



5. The sound laboratory aims for less vibration and less noise without heavy insulating materials. This reduces the car weight.

Leaders in specialized transport technology.

Saab-Scania's belief in the future shows itself in dynamic efforts in research and development. It is evident in a determined concentration on high transport technology in the fastest-growing market segments.

The concept of co-operation forms a guiding principle on many levels. Co-operation between engineers and researchers in the company's different divisions breeds new ideas. And through international co-operation we strengthen our resources.

It is our aim to maintain our position as one of the leaders in specialized transport technology.

The Saab-Scania Group comprises the Swedish parent company Saab-Scania AB and a number of subsidiaries in Sweden and abroad. The approximate number of group employees is 43,000, of which 7,000 abroad. There are 46,000 shareholders. The Head Office is at Linköping, Sweden, 200 kilometres south of Stockholm. Saab-Scania's products are designed, developed, produced and marketed by the following main units:

The Scania Division makes trucks, buses, industrial and marine engines. Its main location is at Södertälje, Sweden, 30 kilometres south of Stockholm Vehicles are also produced in Brazil and in Argentina and assembled in the Netherlands and in Tanzania. Postal address: Saab-Scania AB Scania Division S-15187 Södertälje,

Tel	ex:
Tel	lephone:

Sweden 10200 scania s +4675581000 Saab Car Division makes Saab cars.

The head office is at Nyköping, Sweden 100 kilometres south of Stockholm Main production units are at Trollhättan in Western Sweden, Arlöv in south Sweden and in Finland. Postal address: Saab-Scania AB

Telex: Telephone: S-61181 Nyköping, Sweden 64018 saabcar s +4615544000

Saab Car Division

The Aircraft Division makes military and commercial aircraft. Main location is at Linköping, Sweden some 200 kilometres south of Stockholm. Postal address: Saab-Scania AB

Telex: Telephone: S-58188 Linköping, Sweden 50040 saablg s +4613180000

Aircraft Division

Saab-Scania Combitech makes military missiles and training equipment, satellites and other space products, marine and industrial electronics. Main location is at Jönköping, Sweden, some 300 kilo-metres south of Stockholm. Postal address: Saab-Scania

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Saab-Scania Enertech makes heating boilers, heat exchangers, heat pumps, hot water heaters, oil and gas burners, brakes for rolling stock valves, regulators and computer systems for process control. The head office is at Jönköping, Sweden, some 300 kilometres south of Stockholm.

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