

ARCHIVED REPORT

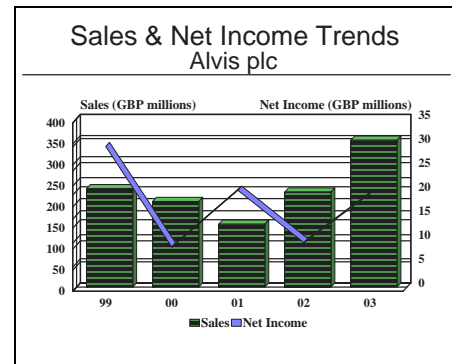
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Alvis plc - Archived 12/2005

Outlook

- BAE Systems beat a rival offer from General Dynamics to buy Alvis for GBP355 million in mid-2004
- BAE has combined Alvis with RO Defense into a new Land Systems unit
- This report will be merged with BAE Systems in 2005 and will no longer be separately updated



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Alvis Industries Ltd, the largest operation of Alvis plc, is a major player in the world military vehicle market. The company was established in the 1920s as a manufacturer of high-quality motor cars. In 1935 the firm became involved in the aviation powerplant market. Its initial program was the license-manufacture of the Gnome-Rhone 14K engine. Later, Alvis became widely known as a developer and manufacturer of aviation engines through a successful line of indigenous products, most notably the Leonidas radial engine. Alvis continued in the aviation powerplant business into the 1960s, concentrating on the overhaul of Leonidas engines, which were in service throughout the world.

Alvis first became involved in the military vehicle market in 1939. The company became a major supplier of a wide variety of military vehicles and components throughout World War II. With the end of the war, Alvis continued its development and manufacturing

efforts. Its most notable program is the FV600 series of wheeled vehicles, better known as the Saracen. In 1967 the highly successful Scorpion program started. This program, along with the Stormer, generates the company's principal products today. In 1981, Alvis became a component of the United Scientific Holdings group, now known as Alvis plc.

In 1997, Alvis acquired Hägglunds Vehicle AB, a Scandinavian manufacturer of light and medium armored vehicles. This was followed in 1998 by the merger of the armored vehicle business of GKN plc, in a transaction in which GKN became a shareholder (about 30 percent) in the enlarged Alvis.

In 2002, Alvis acquired Vickers Defence Systems (VDS) from Rolls-Royce. The addition of VDS will transform Alvis into a major armored vehicles manufacturer with a broad portfolio of systems.

In mid-2004, BAE Systems beat a rival offer from General Dynamics by agreeing to buy Alvis for GBP355 million. BAE has combined Alvis with RO Defense into a new Land Systems unit.

Alvis plc employed approximately 2,600 in 2004. The company's auditors are Ernst & Young LLP.

Structure and Personnel

(prior to BAE acquisition)

Nicholas Prest
Chairman and Chief Executive

Martin Greensdale

Finance Director

Product Area

Alvis subsidiaries are engaged in the design, manufacture, and sale of electro-optical equipment, tracked fighting vehicles, transmissions, simulators, and numerous other components for the defense industry. With the acquisition of Vickers Defence Systems, the company is believed to manage its operations as follows:

1. Alvis Vickers Limited
 - 1.1 Alvis Bridging Limited
2. Alvis Hägglunds AB
 - 2.1 HB Uveckling (joint venture)
 - 2.2 Patria Hägglunds Oy (joint venture)
3. Alvis South Africa (Pty) Limited
 - 3.1 Alvis OMC
 - 3.2 Alvis Gear Ratio

Alvis Vickers Limited designs, develops, and supplies armored fighting vehicles and turrets. The company also supplies upgrade packages for fighting vehicles and specialist fabrication services in aluminum and steel for defense and other industries. With the addition of VDS,

the product line was expanded to include the Challenger 2 main battle tank, as well as a variety of tactical wheeled and armored engineering vehicles.

Alvis Bridging Limited designs tactical bridging systems such as the BR90, which is tank launched, and general support bridges capable of spanning gaps from 9 to 60 meters.

Alvis Hägglunds AB. In 1997 Alvis acquired Hägglunds Vehicle AB, a major Scandinavian manufacturer of light and medium armored vehicles. Major products include the Bv206 all-terrain family of vehicles.

Alvis South Africa (Pty) Limited. Through Alvis OMC this unit is the primary military vehicle manufacturer in South Africa. It is the main supplier and maintainer of armored vehicles for the South African National Defence Force, Police Service, and security companies. Key products include the RG31 and RG32 Scout wheeled tactical vehicles. Alvis holds a 75 percent stake in this company.

Facilities

Alvis Vickers Ltd, PO Box 106, Hadley Castle Works, Telford, Shropshire, TF1 4QW. Telephone: (44 1952) 22 45 00. Web site: <http://www.alvisvehicles.co.uk>

Alvis Hägglunds AB, 891 82, Örnsköldsvik, Sweden. Telephone: (46 660) 800 00. Web site: <http://www.alvishaggglunds.se>

Alvis Vickers Ltd (former Vickers Defence Systems site), Armstrong Works, Scotswood Road, Newcastle-upon-Tyne, NE99 1BX, U.K. Telephone: (44 191) 273 8888.

Alvis Vickers Ltd (former Vickers Defence Systems site), Leeds Valley Park, Leeds, LS10 1AB, U.K. Telephone: (44 113) 272 4200.

Alvis Bridging (formerly Vickers Bridging), PO Box 37, Spring Road, Eттingshall, Wolverhampton WV4 6YN, U.K.

Alvis OMC, 12 Barnsley Road, Benoni 1500, South Africa. Telephone: (27 11) 747 3300. Web site: <http://www.alvisomc.co.za>

Corporate Overview

With the successful acquisition of Vickers Defence Systems, Alvis is now Great Britain's largest developer and producer of military transport and combat vehicles.

In an effort to keep the company British owned, BAE Systems beat out a rival offer from General Dynamics to acquire Alvis in mid-2004.

New Products and Services

FCLV. In July 2003, Alvis Vickers was selected as the winner of the competition to supply the Future Command and Liaison Vehicle (FCLV) for the British Army. The initial contract, valued at approximately GBP140 million for the supply of 401 Alvis Vickers Multirole Light Vehicles (MLVs), and includes options

for up to 400 additional vehicles, was awarded in November. The total value of the project is likely to be enhanced significantly by the support arrangements, the details of which have not yet been finalized.

The MLV is a 4x4 high mobility light armored vehicle providing protection against small arms fire and mines. The MLV is based on the Iveco LMV vehicle that has been developed for a major Italian Army program. For the FCLV program, Alvis Vickers will install U.K. mission equipment comprising a weapon station, armor pack, and communication systems. The MLV is a complete family of vehicles around 7 tons incorporating the latest automotive technology. It will be used in a wide range of command and liaison roles in the British Army, replacing a variety of older vehicles. The

demonstration phase of the program will run until 2005, and series deliveries will take place between 2006 and 2009. This extends the firm U.K. order book of Alvis Vickers, the principal current element of which is the Engineer Tank System, which will be delivered between 2005 and 2007.

PBISA. In June 2003, Alvis Vickers signed a contract with General Dynamics U.K. (GD U.K.) Ltd for the supply of the Platform Battlefield Information System Application (PBISA) for Challenger 2 worth GBK25 million. PBISA is part of the Digitization of the Battlespace (Land) Program that provides a battlefield management system for Challenger 2 main battle tanks, as well as for Warrior and Scimitar vehicles. The PBISA solution for Challenger 2 will be delivered from 2004 to 2006. Additionally, Alvis Vickers is contracted to support the system until December 2008.

Trojan and Titan. In February 2003, Alvis Vickers revealed the prototype vehicles Trojan and Titan. These represent the first armored engineer vehicles specifically designed (rather than adapted from battle tank chassis) for their role and incorporate the very latest mobility and survivability features, many of which are planned for Challenger 2. The demonstration and manufacture contract to deliver 33 production Trojans and 33 production Titans, worth GBK250 million, was awarded in March 2001.

CV90120-T. In September 2001, Alvis' Hägglunds Vehicle unveiled the CV90120-T, a lightweight main battle tank. Based on the CV90 chassis, the system's low signature is further enhanced by radar-absorbing track skirts. The stealth turret, armed with a 120mm high-pressure, low-recoil tank gun, gives the complete vehicle system excellent detection avoidance.

SEP. In September 2001, Swedish defense industries delivered a modular multirole vehicle system demonstrator, known as SEP (Splitterskyddad Enhets-Plattform, or shrapnel protected standard platform), to the Swedish Defense Materiel Administration (FMV). Partners in the project include Hägglunds Vehicle, which provides chassis, electro-optical outlooks, and project coordination; Bofors Defence (with Bofors Missiles, now part of Saab Bofors Dynamics), providing turret and weapon; Saab Barracuda, which provides surface treatment and rapid camouflage system; and Saab Tech Systems, which provides sensor systems. The demonstrator is the result of the SAT/Mark program (SignaturAnpassningsTeknik/Mark, or Signature Management Technologies/Ground). The new vehicle system has been developed with adaptations to achieve extremely low signatures in all wavelengths.

Hägglunds CV9030. In January 2001, the Swiss Ministry of Defense signed a contract for GBK300 million (SEK4 billion) to purchase 185 Hägglunds Vehicle

CV9030 CH combat vehicles. The Swiss CV9030 CH fleet of 186 vehicles (including the verification vehicle previously delivered) is composed of 32 command variants, with the balance being infantry fighting vehicles. Deliveries of the CV9030 CH to Switzerland began in 2002 and will run to mid-2005. The contract includes a logistics support package of training, spares, and technical publications. The agreement between the Swiss MoD and Hägglunds Vehicle also contains options for a further 55 to 135 vehicles.

Plant Expansion/Organization Update

BAE Systems Creates Land Systems Unit. In September 2004, BAE Systems announced the creation of a new Land Systems business by bringing together Alvis and RO Defence. This new business will be under the leadership of Ian King, Group Managing Director, Customer Solutions & Support (CS&S) and Land Systems.

Alvis Moelv Closed. In June 2004, all business activities ceased at the Alvis Moelv site. According to management, the business had suffered operating losses over a considerable period and had a limited forward order book. Further, no significant new orders were expected in the foreseeable future. More than 100 employees were affected by the plant closure.

Layoffs at Telford. In January 2004, Alvis implemented a plan to reduce engineering personnel at its Telford site. According to management, this was not foreseen at the time of the Vickers Defence Systems acquisition, but has been made necessary by the U.K.'s withdrawal from the MRAV program.

BAE Systems Becomes Largest Shareholder. In August 2003, BAE Systems purchased a 29 percent stake in armored vehicle manufacturer Alvis plc from GKN for GBK73 million in cash. Completion of the acquisition remains conditional upon BAE Systems receiving regulatory clearance in Germany. GKN acquired its stake in Alvis in 1998 when it injected its armored vehicle activities into Alvis in exchange for 31,882,534 new ordinary shares in Alvis. GKN became the largest shareholder in Alvis, holding 29 percent of the enlarged business, and was represented on the Alvis board. GKN is expected to use the proceeds from the sale to pay down debt.

New Leeds Facility. In June 2003, Alvis signed an agreement with international office and business park developer Akeler Developments Limited for a 30,000 square foot new development at Leeds Valley Park. The new company has focused on its Leeds site as the center of excellence for electronic systems and technology. This new center of excellence is expected to house up to 250 military vehicle and engineering specialists, including those from the former Vickers

Defence Systems Barnbow factory in Leeds, as well as from other sites within the group, notably Telford and Newcastle. This continues the long heritage of defense work in the Leeds area, which dates back almost 90 years.

Units Renamed. In order to strengthen the identity of the Alvis Group following the acquisition of Vickers Defence Systems (see below), all Group companies were renamed in October 2002 to include the Alvis name. The U.K. bridging company is now Alvis Bridging Limited (formerly Vickers Bridging) and will report to Alvis Vickers Limited. Alvis South Africa (Pty) Limited (formerly Vickers OMC [Pty] Limited), trading through its two divisions Alvis OMC and Alvis Gear Ratio, will report directly to Alvis plc.

The Scandinavian companies in the Alvis Group were also renamed. In Sweden, Hägglunds Vehicle AB became Alvis Hägglunds AB, and in Norway Hägglunds Moelv AS became Alvis Moelv AS.

Mergers/Acquisitions/Divestitures

BAE Systems Buys All of Alvis. In June 2004, BAE Systems beat a rival offer from General Dynamics by agreeing to buy Alvis for GBP355 million (\$651 million). General Dynamics, which had just received permission from the European Commission to buy Alvis, refused to revise its \$575 million offer for the U.K. tank maker. General Dynamics had postponed a deadline until June 7 to allow shareholders to back its deal after just 17.35 percent of investors had backed the offer. The offer for each Alvis share will be 320 pence in cash, and values the existing issued share capital of Alvis at approximately GBP355 million (\$651 million).

BAE Systems currently holds 31,882,534 Alvis shares, representing approximately 28.7 percent of the existing issued share capital of Alvis. In addition, BAE Systems has received an irrevocable commitment to accept the offer in respect of 10,210,469 shares and further irrevocable commitments in respect of up to an additional 7,719,152 shares from certain investors who hold contracts for differences or other similar arrangements in respect of those shares, giving total irrevocable commitments over up to 17,929,621 shares (representing up to approximately 16.2 percent of Alvis' total issued share capital).

Alvis Acquires Vickers Defence Systems. In October 2002, Alvis completed its acquisition of Vickers Defence Systems (VDS) from Rolls-Royce in a transaction valued at GBK16.2 million. Alvis now owns the main VDS facilities in Newcastle upon Tyne, Vickers Bridging in Wolverhampton, and a 75 percent stake in Vickers OMC armored vehicle facilities in South Africa.

These operations have been merged with those of Alvis' U.K. armored vehicle unit, Alvis Vehicles Ltd, in a combined U.K. business. In order to benefit from the heritage and reputation of both Alvis and Vickers, Alvis has decided to call the combined U.K. company Alvis Vickers Limited.

VDS customers comprise mainly the U.K. Ministry of Defence and overseas governments. The main product in recent years has been the Challenger II Main Battle Tank for the U.K. MoD and the Oman government. Both contracts have been material to the financial performance of VDS and are now effectively complete, with only minor deliveries outstanding. In 2001, VDS recorded sales of GBK160 million, profit before tax of GBK37 million, and net assets of GBK47 million. The VDS order book amounts to GBK253 million, including an order for Engineer Tank Systems for the U.K. MoD with an outstanding value of GBK218 million.

VDS had been part of Rolls-Royce plc since 1999 following the acquisition of Vickers plc.

Avimo Group Stake Sold. In January 2001, Alvis completed the sale of its subsidiaries' remaining shareholdings in Avimo Group Limited, Singapore. Alvis' proceeds from the sale of the 18,211,518 ordinary shares amount to approximately GBK25.7 million.

EOD Unit Sold to Northrop Grumman. In April 2000, Northrop Grumman acquired the Coventry, U.K.-based explosive ordnance disposal business of Alvis plc for approximately \$2.2 million. Northrop Grumman intends to operate Alvis Logistics at its existing site in Coventry. The acquisition includes Alvis plc's 50 percent holding in Alvis De-Mil Systems Ltd, which makes water-jet cutters used to demilitarize high-explosive bombs and munitions.

Armored Vehicle Unit Merged with GKN. In September 1998, Alvis and GKN announced plans to form a leading European armored vehicles business. GKN was to inject its armored vehicle activities into Alvis in exchange for 31,882,534 new ordinary shares in Alvis. GKN would become the largest shareholder in Alvis, holding 29.9 percent of the enlarged business, and would be represented on the Alvis board. In addition, GKN Defence was expected, at completion, to have net working capital liabilities of GBK15 million, which would be assumed by Alvis. The merger was completed in November 1998.

Teaming/Competition/Joint Ventures

Future Rapid Effect System (FRES). This is a preliminary program for a new family of rapidly deployable armored vehicles that could be transported by C-130 aircraft. The FRES vehicles would replace aging Saxon and FV430-series vehicles in APC, command and control,

medical, and support roles. Alvis Vickers and BAE Systems have teamed to pursue this program.

FNSS. In September 2001, Alvis Vehicles Ltd and FNSS Defense Systems Inc signed an agreement to form a partnership for the production of Piranha 8x8 light armored vehicles in Turkey that will meet the Turkish armored wheeled vehicle requirement. Alvis and FNSS originally formed a partnership in early 1997. Subsequently, a successful 12-month, 20,000-kilometer trial period for the Piranha was completed in Turkey.

Iveco. In July 2003, Alvis Vickers Limited and Iveco DVD signed a marketing cooperation agreement to allow Alvis Vickers to sell the Multipurpose Light Vehicle (MLV) in worldwide markets. In the event of Alvis Vickers being successful with MLV on the U.K. Future Command and Liaison Vehicle (FCLV) program, Alvis Vickers will have the rights to promote and sell the MLV to a number of markets in the Middle East and Far East, as well as to a number of other undisclosed countries. The MLV would be built by Alvis Vickers in the U.K. in parallel with manufacture in Italy for their national requirements. Under a unique technology transfer arrangement, all of the modular armor panels would be manufactured in the U.K. for the British, Italian, and export programs. This cooperation will ensure that in excess of 100 percent offset will be achieved for FCLV (the Italians will purchase 2,500 armor kits), and through the marketing agreement the opportunity exists to provide further work for Alvis Vickers and other U.K. suppliers, supporting and creating employment in the U.K.

ARTEC GmbH. ARTEC (Armored Technology) is a joint venture company that was formed to replace the earlier Eurokonsortium. ARTEC is composed of Alvis Vehicles Ltd, Rheinmetall Landsysteme GmbH, and Krauss-Maffei Wegmann GmbH. ARTEC will be

producing a new family of armored utility vehicles, known in the U.K. as the Multi-Role Armored Vehicle (MRAV), and in Germany as Gepanzertes Transport Kraftfahrzeug (GTK). In February 2001, the Dutch company Stork PWV, a subsidiary of the Stork NV Group, joined the venture. The addition of the Netherlands increases the value to ARTEC of the MRAV development contract by GBK50 million and increases the likely value of the production phase of the program by at least GBK400 million. In July 2003, the U.K. MoD pulled out of the MRAV program, saying that the vehicle is no longer considered suited to the changing requirements of the British Army.

Patria Hägglunds Oy. In April 1999, Alvis Hägglunds Vehicle and Patria Industries Oyj of Finland created a new joint venture company, Patria Hägglunds Oy, to cooperate exclusively in offering the Hägglunds CV90 vehicle to meet the Finnish Ministry of Defense's stated requirement for a new Infantry Fighting Vehicle. Patria Hägglunds Oy will act as a prime contractor for the development and production of the new Advanced Mortar System (AMOS), on which Patria and Hägglunds have cooperated as a private venture development since 1995 (a funded development contract is expected shortly). It will in addition address all future requirements of the new vehicle and turret systems projects in the Nordic countries.

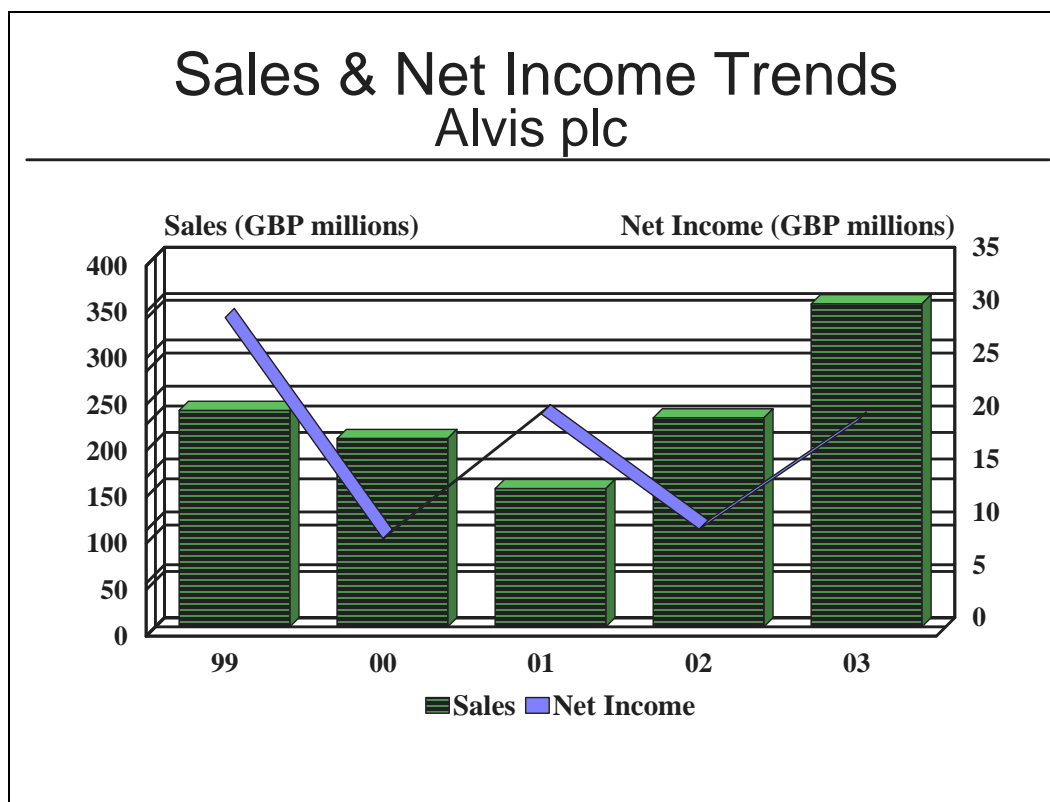
At the same time, Alvis plc entered into an agreement with Patria Industries under which the parties will seek to identify cooperation opportunities between Patria and other Alvis subsidiaries, particularly Alvis Vehicles in the U.K.

HB Utveckling. This is an equally owned joint venture company between Alvis Hägglunds and Bofors Defence. The Swedish CV90 project is handled through this company.

Financial Results/Corporate Statistics

Alvis' 2003 sales rose to GBP348.8 million from GBP225.7 million in 2002. The company posted income of GBP20.3 million in 2003, compared with income of GBP10.1 million for 2001. The lower income in 2002 was attributed to charges associated with the Vickers Defence Systems acquisition. The 2001 drop in sales was due to reductions in sales and operating profits at Hägglunds Vehicle, as well as a lower contribution from a former associate company, Avimo Group, which was sold in early 2001. Latest year statistics are provided below. U.S. dollar figures translated as of December 31, 2003, at the rate of GBP1 = USD1.7779

Y/E December 31	1999	2000	2001	2002	2003	2003
(GBP millions)						USD
Net Sales	233.8	203.5	149.4	225.7	348.8	620.1
Net Income	30.1	9.2	21.0	10.1	20.3	36.1
Order Book	293.2	610.5	562.6	781.1	892.6	1586.9

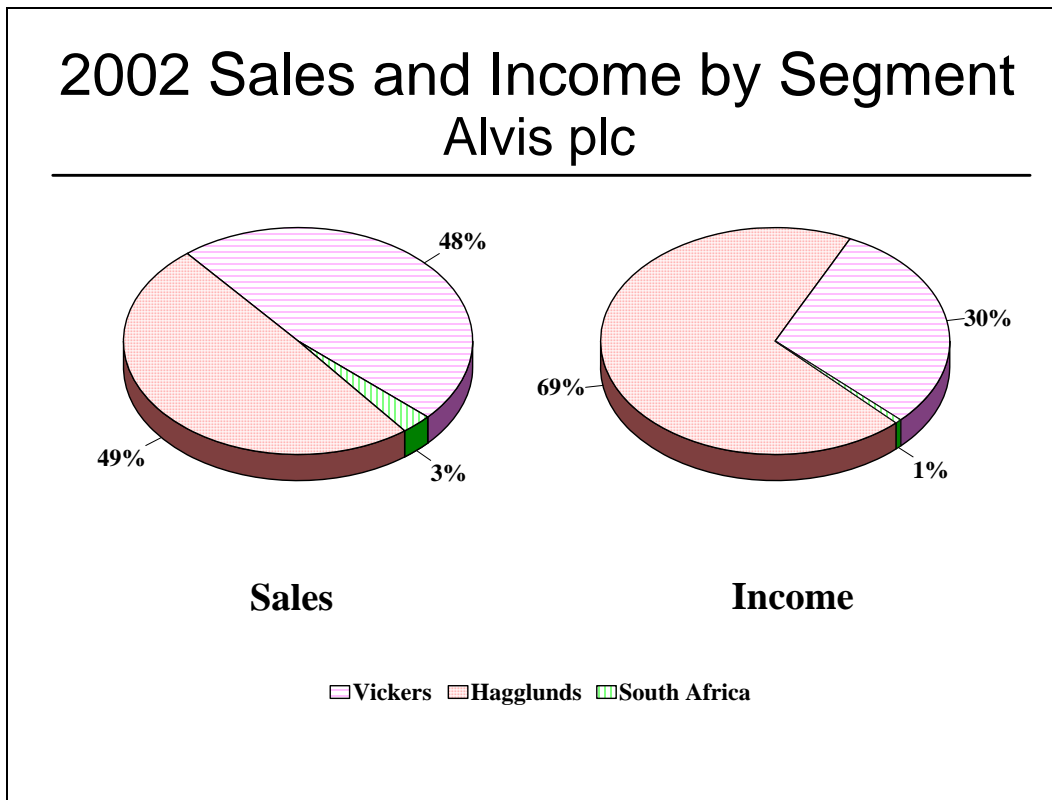


Industry Segments

Below is a breakdown of Alvis' sales by major market segment for 2001-2002. Details for 2003 were not published due to the company's acquisition by BAE Systems.

SALES	2001	2002
(GBP millions)		
Alvis Vickers	69.6	107.4
Alvis Hägglunds	79.8	111.7
Alvis South Africa	-	6.6
TOTAL	149.4	225.7

OPERATING INCOME	2001	2002
(GBP millions)		
Alvis Vickers	2.2	4.9
Hägglunds Vehicle Group	5.8	11.2
Alvis South Africa	-0	0.1
TOTAL	8.0	16.2



Strategic Outlook

Europe now has a new land-systems giant, following BAE Systems' acquisition of Alvis in June 2004. In an eleventh-hour bid, BAE Systems beat a rival offer from General Dynamics of the U.S., keeping what is the Europe's largest medium and light armored vehicle builder on their side of the pond.

The acquisition by BAE Systems further bolsters the company's land systems operations, which had until this point been almost an afterthought. Now BAE Systems has combined its RO Defence operations with the newly acquired Alvis into a formidable land-systems operation.

The Land Systems unit is expected to focus its efforts on building a strong support-services base in the land sector. According to BAE's management there are very large equipment bases that present business opportunities for growth and cost reductions.

One aftereffect of the deal is that it halted General Dynamics expansion into the European land systems market. General Dynamics had been on a buying spree in Europe over the past few years, picking up firms such

as Austria's Steyr, Spain's Santa Barbara, and Switzerland's MOWAG. Had the company been successful in acquiring Alvis, it would have had a dominating presence in the fractured European land system market.

Now with Alvis in British hands, the armored vehicle makers on the Continent have some breathing room to try and get some type of pan-European armored vehicle consolidation effort rolling. Of all the aerospace and defense industries, armored vehicles has been the slowest to consolidate. And even with this wake-up call, not much effort is expected to be expended in this regard.

The issue of consolidation remains a highly political one with both Germany and France reluctant to give up their indigenous manufacturing capabilities, despite the extremely low number of vehicles that are being produced. Until these parochial issues are resolved, consolidation of Europe's armored vehicle manufacturers is expected to remain a distant dream.

Prime Award Summary

Unavailable

Program Activity

Business Interests. Some important aerospace and government programs currently under way at Alvis are listed below. The briefs are intended to provide a list of programs of major importance to the company. For detailed information or analysis of specific aerospace and defense programs or equipment, please refer to the appropriate Forecast International binder (for example, *Aircraft, Military Vehicles, Warships, Missiles, Electronic Systems, and Gas Turbines*). The following are the company's business interests:

- Aerospace Equipment
- Military Vehicles
- Unmanned Vehicles

Military Vehicles

Bv206

The Bv206 All-Terrain Vehicle is a family of multi-purpose amphibious tracked vehicles. Developed by Alvis Hägglunds AB, the system is in production for both military and civilian customers. Military variants of the Bv206 include troop carriers; weapon carriers (mortar carriers, anti-tank carriers, mine-laying carriers); command and communications vehicles; radar and fire control vehicles; and ambulances.

BvS10. The latest member of the Bv206 family is the improved armored version called BvS10. In March 2000, the Royal Marines selected the Hägglunds BvS10, dubbed Viking, to meet their requirements for a new All Terrain Vehicle (Protected) (ATV(P)). The BvS10 was specially adapted to meet British requirements. Series deliveries of 108 vehicles began in 2002 and will conclude in 2005. Hägglunds' sister company, Alvis Vehicles Ltd, based in Telford, was a partner on the program, designing and manufacturing the armored hulls. Hägglunds' daughter company, Hägglunds Moelv in Norway supplied the recovery module for the vehicle. The BvS10 is a new all-terrain vehicle with splinter-proof protection and improved load capacity that has been privately developed by Hägglunds.

Centurion

Production of the Centurion main battle tank ended in 1962, and the tank is in service with a number of nations. A number of modernization and retrofit programs are under way. Vickers (one of the original producers of the Centurion) and Marconi Radar Systems have worked together to develop a number of modernization packages for the Centurion. A new electrical system and fire suppression apparatus are offered, and the vehicle can be modified for greater fuel capacity. In addition, a new commander's cupola can be fitted.

Challenger Armored Repair and Recovery Vehicle (CARRV)

In 1984, the Ministry of Defence requested bids for the development and production of an Armored Repair and Recovery Vehicle variant of Challenger. Previously, Royal Ordnance and Vickers Defence Systems had bid on the contract, which was awarded to Vickers Defence Systems in June 1985. The GBK60 million contract covered the development and production of the first 30 vehicles; a subsequent order was placed in 1989 for the last 47 vehicles. Each vehicle is fitted with towing gear including a winch, an Atlas hydraulic crane, shears, a dozer blade, and four additional seats. A complete set of tools can be carried along with the three-man crew. Total inventory requirement was placed at 80 vehicles. The first of six preproduction vehicles was delivered in August 1987, and the remaining five were completed in 1990. Two of the vehicles are being used by the British Army for trials. The total value of the 80-vehicle production contract is about GBK150 million.

FBRV

In January 2000, the British Ministry of Defence selected Alvis to supply four Future Beach Recovery Vehicles (FBRVs) for the Royal Marines. Under the \$12.9 million contract, Alvis subsidiary Hägglunds will develop an FBRV capable of recovering disabled vehicles in up to 9.7 feet of water. The use of the FBRV will ensure that disabled vehicles and beached landing craft do not impede the buildup of forces to the beachhead.

FV101 Scorpion

This light reconnaissance vehicle with heavy armament is the basis of a family of military vehicles, including the Stormer armored personnel carrier. Alvis develops and manufactures the Scorpion family of vehicles. British Army procurement has been completed.

FV721 Fox

The Fox armored car is the follow-on to the Ferret scout cars, which were developed from the 1940s-vintage Daimler scout car. The Daimler vehicles were extensively used in a variety of roles (internal security, reconnaissance, patrol) and proved to have unmatched reliability in "brush fire" conflicts and wars of national liberation. The Fox is no longer produced, but it remains in service in the United Kingdom and several other nations. The British Army FV721 Fox vehicles are being retired, but some of their turrets are being integrated with the FV101 inventory.

FV4034 Challenger

In July 1980, Britain's Secretary of State for Defence, Francis Pym, officially announced that a new tank, known as the Challenger, was to be ordered for the British Army. The Challenger would meet the short-term needs of British forces within NATO. Subsequently, the Ministry of Defence approved an initial order for 240 Challengers to equip one armored division of the British Army of the Rhine by 1985. The Challenger incorporated several of the technical features that were planned for MBT 80 vehicles in a program that had been discontinued. These advances were incorporated in the second and third production runs. The production of the FV4034 Challenger has been completed, with a total of 427 tanks produced.

FV4034 Challenger Training Tank

In February 1988, the Ministry of Defence placed an order with Vickers for 17 Challenger training tanks. This variant replaced the standard Challenger turret with a non-rotating turret-like structure that accommodates an instructor and four students. Dual instrumentation and rollover protection are provided. The other hull components remained the same. The first Challenger training tank was delivered in November 1989, and production of the remaining 16 vehicles was completed in 1990.

Challenger 2

The Challenger 2 was developed in the mid-1980s to meet the British Army's need for an interim tank to replace the 900-odd Chieftain tanks then in Europe. This tank would fill the need until the advent of the next generation of main battle tanks. Nine prototype tanks were fabricated for the initial demonstration phase, which ran through September 1990. Following evaluations, the Ministry of Defence awarded Vickers Defence Systems a \$158 million contract in January 1989 covering 21 months for the demonstration phase of Challenger 2 development. The first contract was awarded for the production of 127 Challenger 2 tanks – a much lower number than the original requirement for 600 tanks. But in December 1993 it was announced that an additional 259 Challenger 2 tanks would be ordered. A contract with Vickers Defence Systems was signed in July 1994.

Oman became the first export customer for the Challenger when it ordered 18 Challenger 2 tanks in June 1993, with an option for 20 more (which it has since ordered).

Production of the Challenger 2 for both domestic and export orders has been completed.

FV4201 Chieftain

Production of the Chieftain main battle tank has been completed, and it is in service in the United Kingdom

and a number of other nations. A variety of modernization and retrofit programs are under way, and several types of new armor have been developed that enhance the armor suite of this tank. Enhanced Chobham appliqué armor has been fitted to most of these tanks, providing protection for the turret front and hull top to the rear of the driver's position. Stillbrew, the secret driver, was developed and is being produced by Vickers Defence Systems Leeds (formerly Royal Ordnance Leeds). All Chieftains in the British Army are expected to receive the Stillbrew armor retrofit.

Multi-Role Armored Vehicle (MRAV)

The now-designated Multi-Role Armored Vehicle program is a private development effort funded by the contractors in anticipation of German, Dutch, and British requirements. The new armored vehicle to meet the Multi-Role Armored Vehicle requirements is being developed and will be manufactured by ARTEC (formerly Eurokonsortium), a consortium consisting of Alvis Limited (U.K.), Krauss-Maffei Wegmann, Rheinmetall Landsysteme GmbH (Germany), and Stork Group (Netherlands). In November 1999, a contract was signed between the German and U.K. ministries of defense and Eurokonsortium for the development of the MRAV. The value of the development contract is approximately GBK70 million, and it contains a production option for an initial procurement of 600 vehicles. With the Netherlands now fully involved, each country will have its own production line and receive an initial lot of 200 vehicles.

However, in July 2003, the U.K. MoD pulled out of the MRAV program, saying that the vehicle is no longer suited to the changing requirements of the British Army. Any longer term role for Alvis in MRAV will depend on the plans of the German and Dutch partners. In any event it would be a small role in comparison to the work that would have been involved in building vehicles for the U.K.

Piranha

In several configurations, Piranha wheeled armored vehicles serve as armored personnel carriers, reconnaissance and internal security vehicles, command and control vehicles, and mortar carriers. Alvis is a major subcontractor on this program.

FV601(C) Saladin

The FV601(C) Saladin is a light armored vehicle or armored car designed for a variety of patrol, escort, and reconnaissance missions. Although production of the Saladin ended in 1972, hundreds of these vehicles remain in service worldwide. A number have been subjected to various modernization or retrofit programs. The Saladin was partially developed and manufactured by Alvis.

Stalwart

Stalwart High Mobility Load Carriers are currently in service with the British Royal Army and the armies of Sweden and Austria. The British fleet is being phased out and will be replaced by Medium Mobility Load Carriers and parts of the DROPS (Demountable Rack Offload and Pickup System).

Stridsfordon 90 (Combat Vehicle 90)

This is a family of tracked combat vehicles based on a common chassis (also referred to as the Combat Vehicle 90 or CV90). The Stridsfordon 90 family of vehicles is produced by HB Utveckling AB, a joint venture company formed to address the Swedish requirement and owned by Hägglunds Vehicle AB and Bofors Defence AB. The Stridsfordon 9030 was selected to fill Switzerland's lucrative Schützenpanzer 2000 contract to supply 310 new mechanized infantry combat vehicles. The Stridsfordon 90, available in several versions, is rapidly becoming a European standard system, similar to the Leopard 2 or Panzerhaubitze 2000.

FV510 Warrior

This is a tracked mechanized infantry combat vehicle. Following a heated competition in the 1970s, the GKN Defence Mechanized Combat Vehicle-80 was selected to meet the British Army requirement. Serial production of the Mechanized Combat Vehicle-80, designated the FV510 Warrior in 1985, began in January 1986. The last of the 789 British Army Warrior vehicles were delivered in 1995. Vehicles were also produced for Kuwait. The final deliveries of the FV510 Warrior were made in 1997, and the vehicle is no longer produced.

Saxon

This wheeled vehicle, originally known as the AT-105, was developed in the early 1970s, with serial production beginning in 1976. About 500 vehicles have been ordered by the British armed services, and about 500 more vehicles could be required in the future. In addition, about 200 Saxon vehicles have been sold on the export market. Alvis continues to improve the Saxon and to develop new variants. For the standard Saxon vehicle, a new Cummins diesel engine has been integrated with an automatic gearbox. A new Saxon Internal Security vehicle is one of the most recent variants to be offered.

Shadow

In June 2000, Alvis Vehicles unveiled the Alvis Shadow at Eurosatory 2000. According to Alvis, the new vehicle is designed for special operations use, where both high mobility and high-accuracy firepower are critical for mission success. The vehicles are easily transportable – two Alvis Shadows will fit inside a

CH-47, ensuring that they can quickly be inserted into strategic locations. With a choice of weapons to mount onto the fully traversing weapon ring, Shadow features substantial firepower, combined with high mobility, high performance, and a 4x4 drive platform (based on the Hummer extended capability vehicle).

Simba

Simba is a family of 4x4 wheeled vehicles developed in the 1980s. From the outset, the Simba, also known as the FS100, was designed to be a versatile yet rugged and easily maintained vehicle, ideal for the developing nations of the world. Following extensive trials, the Simba was selected by the Philippines in 1990 to fill a requirement for a light patrol and reconnaissance vehicle.

Vickers Armored Bridgelayer

The VAB, or Vickers Armored Bridgelayer, is an armored-vehicle-launched bridge based on the Vickers Mk 3 chassis. It can span gaps up to 12 meters at load class 60. The bridge is in service only with the Nigerian Army. Six bridges were ordered in 1981 and a further six in 1985. Under contract to Hyundai Precision and Machine, Vickers Defence Systems has developed an armored-vehicle-launched bridge for the Type 88 tank. In August 1993, Hyundai awarded Vickers Defence Systems a contract worth \$34.47 million for the manufacture of eight bridges and 41 bridge-launching mechanisms. These were integrated with the Type 88 chassis in the Republic of Korea by Hyundai. The rest of the 56-unit requirement was manufactured by Hyundai in the Republic of Korea.

Vickers Main Battle Tanks

Realizing that the high weight and high cost of the Chieftain would place it out of the reach of many potential customers, Vickers began the development of a smaller, less expensive tank in the late 1950s. This work was accelerated by the acceptance of the Vickers design for production in India in August 1961. The original design, the Mark 1, went into production in India as the Vijayanta at the Avadi facility near Madras in January 1965. One of the two original prototypes was kept in the United Kingdom for further development. Avadi produced a total of 1,527 Vijayanta (Mark 1) tanks. In addition, Kuwait purchased 70 Mark 1 tanks from Vickers, which were delivered between 1970 and 1977. There are currently more than seven models of the Vickers Main Battle Tank in service throughout the world.

Military Vehicle Turrets

Alvis currently offers the Alvis 90mm turret, Alvis 76mm turret, and Alvis 30mm turret for new applications, and for modernization and retrofit

programs. Other turret programs include the Advanced Crew Station and the Internal Security Turret.

AMOS

AMOS is a mortar system comprising a turret with two 120mm breech-loading mortar barrels mounted side by side. AMOS has been created through a cooperation agreement between Alvis Hägglunds AB and Patria Vammass Oy, of Finland. Alvis Hägglunds is

developing and manufacturing the turret, while Patria Vammass is developing and manufacturing the weapon system. AMOS can be mounted on most wheeled or tracked vehicles, such as the CV90 or Light Armored Vehicle (LAV). The AMOS (Advanced Mortar System) Naval Application Demonstrator (NAD) was successfully tested on a Swedish Combat Boat 90 in September 2003.

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