



The Arlanda Express rail link

ALSTOM

The Arlanda Express rail link



Arlanda Express

In 1994, the Swedish Government set up a new State company, ARC (Arlanda Rights Company), to award the Stockholm air-rail link project to a construction consortium on a concession basis. Specifically, the project called for a high speed link providing a frequent, reliable shuttle service between Stockholm's city centre and the international airport at Arlanda, 40 km to the north. The Arlanda station would also serve main line trains carrying passengers from all parts of Sweden.

The consortium named ALC (Arlanda Rail Link Consortium), of which ALSTOM was a member, won the contract for the 45 year concession.

ALC was responsible for the design, construction, operation and maintenance of the system, while ARC maintained responsibility for supervising the construction project and, in particular, the system's operation.

- **Client:**
Swedish Government:
ARC (Arlanda Rights Company).
- **Partners:**
NCC and John Mowlem together with ALSTOM in ALC (Arlanda Link Consortium).
- **Length of the line:**
40 km, involving extensive civil works (9.2 km of tunnels, 3 underground stations and the modification of part of Stockholm central station).
- **Performance:**
The system is designed for trains running at 200 kph with a capacity of 6 express trains every hour in both directions, between Stockholm and Arlanda.
- **Construction period:**
1995-1999.

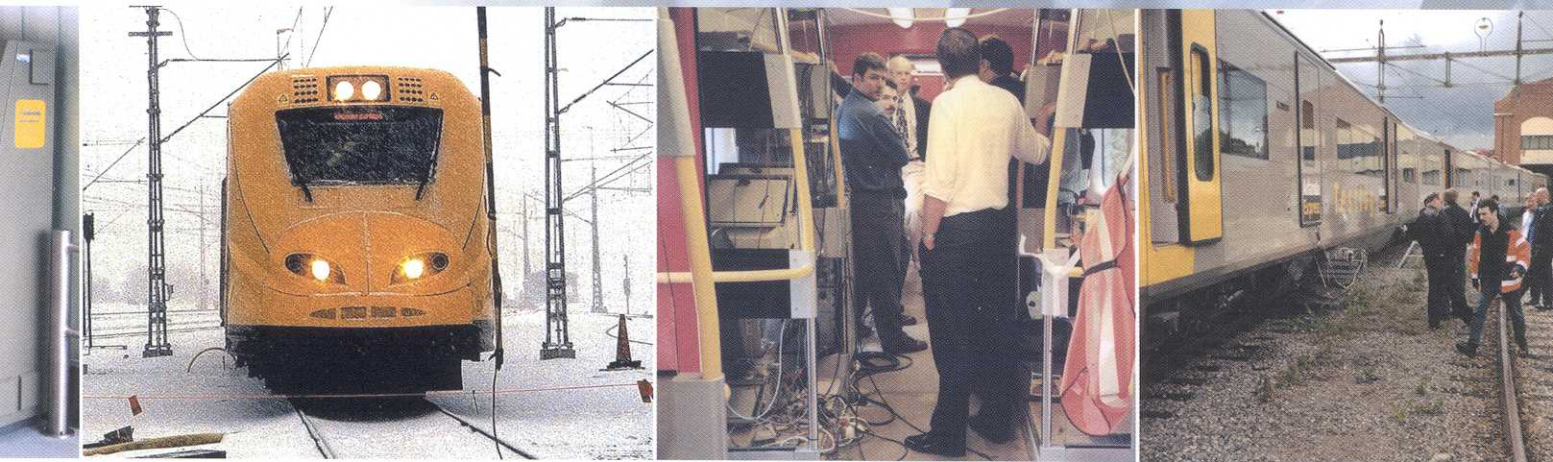
The shuttle service, which began commercial service in November 1999, is known as the "Arlanda Express".

The concession

The finance conditions were highly complex to set up and involved a contribution (equity) from each of the consortium partners, a state contribution, government loans and rolling stock leased from a Swedish bank.

The construction phases

- 1989: the Government asks the national railways administration to examine the possibility of using private finance to build the link between Arlanda airport and the central station in Stockholm.
- 1991: design team concludes that financing was impossible without Government contribution.
- 1994: ALSTOM submits its proposals together with John Mowlem, NCC and SIAB in a consortium (A-Train AB).
- July 1995: financing is finalised and work begun.



- Winter 1999: rolling stock is tested for endurance, particularly in northern Sweden in temperatures as low as -42°C .

Rolling stock

ALSTOM supplied 7 4-car trains capable of running at 200 kph. The trains are 93 metres long and each carry 190 seated passengers.

Electrification

The power supply is provided by the body that manages the railway network for transformation into single phase current at 16 kV, 16 2/3 Hz.

The catenary and the auxiliary power supply systems were installed by NCC.

Track laying

As part of the civil works package, the construction, the laying of ballast and the points were carried out by John Mowlem.

ALSTOM was responsible for all other aspects of the fixed electromechanical equipment

including the telecommunications, signalling, depot and ticketing equipment.

Maintenance workshops

ALSTOM and NCC built the depot for the stabling and maintenance of the fleet of seven express trains. The equipment supplied includes, washing and de-icing machines and the fitting out of two wings in the workshop, one for light maintenance and the other with heavy lifting equipment, workshops and offices.

The communication systems

The communication systems were supplied to ALSTOM by Alcatel. They perform the functions for the new infrastructure whilst providing the interface with the existing infrastructure.

The systems supplied include the following:

- the traffic radio system,
- the mobile telephone system,
- emergency radio services,
- the tunnel radio system,
- a radio service for passengers,
- a telephone network,
- a closed circuit television and video system (CCTV),
- a ticketing system (AFC).

The signalling system

The signalling system was supplied to ALSTOM by ADtranz to comply with the standards of the Swedish railways to integrate the system fully with the existing infrastructure.

Centralised traffic control is provided from the Stockholm control centre.

A back up control centre was also installed in the depot near Arlanda airport.

ALSTOM

TRANSPORT - 48, rue Albert Dhalenne, 93482 Saint-Ouen Cedex - France
Tel: 33 (0)1 41 66 90 00 / Fax: 33 (0)1 41 66 96 66 - www.transport.alstom.com