

= NSB Class 93 =

NSB Class 93 (Norwegian : NSB @-@ type 93) is a tilting two @-@ carriage diesel multiple unit used by Norwegian State Railways (NSB) for passenger trains on non @-@ electrified stretches of the Norwegian railway network . Used on the Nordland Line , the Røros Line and the Rauma Line , they were purchased to replace the aging Di3 locomotive @-@ hauled trains . The Class 93 was produced by Bombardier , and is part of the Talent family . Fifteen units were delivered between 2000 and 2002 .

Powered by two Cummins diesel engines with a combined output of 612 kW (821 hp) , the trains are capable of speeds of 140 km / h (87 mph) . The trains entered service as part of the Agenda regional train concept . However , the technical problems to which the units have been prone and a cramped interior design have made them unpopular among riders . In 2007 , the units were replaced by locomotive @-@ hauled trains on some services on the Nordland Line .

= = History = =

During the mid @-@ 1990s , NSB had initiated a program to replace the traditional locomotive and carriage trains with new , tilting multiple units . This had led to the order of sixteen Class 73 four @-@ car units for the three mainline routes on the Bergen , Dovre and Sørland Lines . To supplement this , on 14 November 1996 the board of NSB decided to purchase seven tilting diesel multiple units for the Røros and Rauma Lines . In particular , the aging Di3 locomotives would be retired within five years , and NSB was reluctant to purchase new diesel locomotives for passenger trains . The failure of the Di6 , which were returned to the manufacturer Siemens , further motivated NSB to avoid locomotive @-@ hauled trains .

Three bids were submitted by the deadline of 1 April 1997 , and the contract with Talbot , which had just been bought by Bombardier , was finalized on 27 November 1997 . By this time the order had been extended to eleven units , which are variations of the Talbot Talent . Before delivery a further four units were purchased , so the trains could operate all the services on the Nordland Line , replacing most of the locomotive @-@ hauled day trains . Only the night train would remain locomotive @-@ hauled .

The Class 93 was put into service as part of the Agenda regional train concept . Along with the Class 70 InterCity Express trains in Eastern Norway , the Class 93 would serve the regional services of NSB . Trains were initially put into service in 2000 on the Nordland Line , followed by the Rauma and Røros Line . The trains had several operational problems , some related to humidity , creating situations where the both engines would stop . This caused NSB in 2002 to demand an interior and technical reconfiguration by Bombardier . One year after delivery , six of eleven trains were out of order . To solve the problem , NSB had to rent back used Di3 locomotives from Ofotbanen . NSB had chosen to sell the old locomotives for less than market price , but Ofotbanen demanded that NSB pay the entire purchase price for the short @-@ term rental back . The brand name Agenda failed , since customers were dissatisfied with the new stock , and NSB chose to discontinue the branding , just calling all former Agenda and Signatur trains regional trains .

On the Rauma Line , the units are used as feeders between the Oslo ? Trondheim express trains on the Dovre Line , connecting Dombås to Åndalsnes . On the Røros Line , the trains are used both on the Hamar ? Røros and the Røros ? Trondheim section . On the Nordland Line , the Class 93 serves both the Ole Tobias service between Trondheim and Mo i Rana . The unit was considered for use on the Meråker Line as well , but this has continued to be operated by Class 92 units . The initial plan was that eight of the eleven units were needed for daily operations . Four on the Røros Line , two on the Nordland Line and two on the Rauma Line . The additional four units were needed for operating the Trondheim ? Bodø trains on the Nordland Line , of which three would be used at any one time . Double units (four cars) are sometimes operated on the Trondheim ? Mo i Rana train , as are the Friday and Sunday afternoon trains on the Rauma Line , for exchange of equipment , and to handle the increased traffic on these days . In addition , NSB uses the trains on the commuter services Bodø ? Fauske ? Rognan and Mo i Rana ? Mosjøen .

In 2007 , the Trondheim ? Bodø service was again operated by Di 4 locomotive @-@ hauled trains . This is the longest rail service in the country , and customers were dissatisfied with the comfort of the Class 93 , despite the higher permitted speeds .

During May and June 2012 all NSB Class 93 trains were fitted with free wireless Internet access for passengers

= = Specifications = =

The Class 93 is a double @-@ car diesel multiple unit with a built @-@ in tilting mechanism to allow faster speeds on conventional track . A double @-@ car is 38 @. @ 21 m (125 @. @ 4 ft) long , 2 @. @ 92 m (9 @. @ 6 ft) wide and 3 @. @ 97 m (13 @. @ 0 ft) high . Empty weight is 77 t (76 long tons ; 85 short tons) . The body is built in modular stainless steel , with the bottom , sides and top bolted together .

There are two Cummins N14E @-@ R diesel engines , with a combined power of 612 kW (821 hp) . The displacement is 14 l (850 cu in) ; full power is achieved at 1 @, @ 500 revolutions per minute . There is a five @-@ stage gear box , and a fuel capacity of two tanks each of 1 @, @ 140 l (250 imp gal) . There are three bogies (sets of wheels) , of which the ends are powered . Maximum speed is 140 km / h (87 mph) . The tilting mechanism allows 5 degree tilting of the entire frame .

The interior is in red and wood . The central part , including both doors on each side , are on a low @-@ floor section , while the area at the front is higher . The original seating configuration was for 88 seats , but due to customer complaints about lack of seat pitch , NSB has reconfigured the trains in 2006 to 76 seats . Trains are equipped with vending machines for simple refreshments . Garbage is recycled in three categories .