SBB RAe 4/8 at Göschenen in 1957. Reclassified from RBe 4/8 in 1956, it was renumbered 1023 in 1959.
Photo: Courtesy Bahnbilder von Max ©Frau Ruth Hintermann

The Double Units

Double-unit 1021

RAe4/8 1021, a so-called "*Red Double Arrow*" was built for the Swiss National Exhibition in 1939. In 1946 it was used to transport Winston Churchill as a Swiss state guest and is now known as the "*Churchill Arrow*". It is recognizable by its bright red colour in contrast to the dark red of the single car Red Arrows.

1021 was designed as an excursion set rather than a 'normal' passenger train. As such, it had a small bar installed and the seats, laid out in fours totalling 112, were intended to be comfortable (initially classified second class in the days of three classes, but first class once third was abolished).

As a prestige unit, it had a designed top speed of 150kph although that was unattainable in Switzerland. In its current guise, top speed has been limited in the name of comfort to 125kph but usually cruises at 100.

1021 had an extensive rebuild in 1968-69 but was withdrawn after a fire in 1979 very soon after a further overhaul. It was thought it might go to the VHS but this fell through and it was sold in 1985 for its scrap value to German company Intraflug.

Intraflug was sold to the travel agency subsidiary of the Mittelthurgaubahn (MThB) in 1994. In 1996 the MThB relaunched RAe4/8 1021 after a rebuild by the SOB works at Samstagern – by this time with a UIC number of 506605. When the MThB became bankrupt, 1021 passed, along with much else, to the SBB in 2002.

At the end of 2004, it was completely overhauled and renumbered RAe 591 021 and has subsequently been available as a charter vehicle for journeys throughout Switzerland. Today, it belongs to the SBB Passenger Traffic Division and is marketed by the subsidiary RailAway.

Double-units 1022-1023

In 1953, two additional "*Red Double Arrows*", RBe4/8 No. 661-662, were put into operation. These differed from the "*Churchill Arrow*" mechanically (including a lower speed of 125kph), electrically and, above all, visually as they lacked the characteristic nose. However, interiors were similar to 1021. They were renumbered to 1022-3 in 1959.

661 was handed over to the SBB in July 1953 and allocated to Lausanne. 662 followed in August 1953 and was allocated to Luzern. Both were used for excursion traffic.

In November 1955, No. 661 was moved to Bern as it was required for use by head office, including for State guests.

SBB faced a major shortage of vehicles to cover the large number of extra trains required for EXPO64. This meant that every vehicle that was reasonably suitable for carrying passengers needed to be used, including the two

SBB RAe4/8 1021 at Arth-Goldau in the early 1970s.
Photo: Bryan Stone

RAe4/8 railcars. They were therefore re-classified RBe4/8 and used on scheduled trains. 1022 was sent to Lausanne and 1023 was transferred to Bellinzona operating between Chiasso and Airolo. After EXPO64, they returned to excursion and hire trips, based in Lausanne and Zürich.

No. 1022 was involved in an accident in Schmitten in January 1977. The level of damage ensured the unit was withdrawn, formally in December 1979, and parts were used to support No. 1023. No. 1023 continued on excursion traffic from Zürich although it was in generally poor condition. However, as refurbishment would be expensive and road coaches were taking over the excursion traffic, it was agreed to sell the train to the Oensingen Balsthal Bahn (OeBB) after the 1985 season.

However, an insulation defect in the ventilation system caused a short circuit leading to a fire which broke out in Rotkreuz in November 1985 creating sufficient damage that the unit was scrapped.

Type	Number	Built	Builders	Details	Withdrawn
RAe4/8	1021 Churchill Pfeil	1939	SLM/SWS/ BBC/MFO/ SAAS	93t, 835 kW, 150kph, 118 or 112pl, 46.2m	Stored 1979, W 1985 Re-instated 1996
Numbering and Classification History *Re4/8 301 (1939)* *RBe4/8 651 (1944)* *RAe4/8 651 (1956)* *RAe4/8 1021 (1959)*					
RAe4/8	1022-1023	1953	SWS/BBC/ SAAS	88t, 1015 kW, 125kph, 123pl	1979 /1985
Numbering and Classification History *RBe4/8 661-2,* *RAe4/8 661-2 (1956)* *RAe4/8 1022-3 (1959)*					
RABDe4/8	1031	1941	See text	84t, 835 kW, 125kph	1962 Rebuilt ex RABDe8/12 Parts used in RABDe8/16 1041
Numbering and Classification History *501 -> 311 -> 671 -> 1031*					

Longer Units SBB Re8/12 501–502

The original Red Arrows were very popular with the public but their capacity was very limited. The economic recovery in the second half of the 1930s increased demand, giving a need for new vehicles with sufficient capacity for the traffic on offer.

There were two possibilities – lightweight loco-hauled express trains or lightweight railcars / multiple-units. However, lightweight loco-hauled trains only really succeeded with the introduction of the Re4/4¹ plus Leichtstahl coaches in 1946.

SBB decided to look at 'high-speed trains' based on the technology of the Red Arrows and in 1936 ordered two BCLe8/12 units (delivered in 1938 as Re8/12), consisting of two bogie, all-axle powered end cars and a non-powered, bogie centre car. The unit was specified as having 30 second-class seats and 168 third-class seats, as well as 24 so-called "emergency and helm seats" in the boarding areas, plus a luggage compartment at one end of the centre car. Multiple control was not possible, even with each other.

The car bodies were made of steel with aluminium used for the outer roof. The drivers' cabs were the same as the single unit Red Arrows, but were separated from the passenger space by a glass wall. A low floor was installed between bogies to reflect the low platform heights of the time. However, this meant the use of stairs to reach the floor over the bogies. The sections between bogies had face-to-face seats but the sections behind the driver had forward facing seats. Some longitudinal seating was also installed. Seats were moquette covered in second class, leather in third; lino floor in third, carpet in second.

No. 502 entered service in October 1937, 501 following in February 1938, the delay allowing for any necessary changes and rework resulting from the trial operation of 502. The units were nicknamed Tatzelwurm (a mythological part worm part dragon creature from Germanic/Nordic legend, also seen in Wagner's 'Ring' cycle of operas).

Their top speed of 150kph allowed higher speed testing although such trips were made ensuring several blocks ahead of the train were always free.

In the May 1938 timetable, it was planned to use them on express services between Genève and Zürich and Basel and Lausanne. However, there were problems as they did not provide enough capacity for some of the services; nor could they haul the required post vans – and there was no buffet. Instead, one was used on a circuit involving Rorschach, Biel,

Basel and Bern. The other train ran regular charter trips between the Bodensee and Ticino. The units proved popular with the public but their success also meant some services had to be replaced by, or duplicated with, loco-hauled stock.

The experience gained from this first phase of operation led SBB to consider this option as being of limited use and decided against buying any further vehicles of this type.

No. 501 caught fire in Rorschach depot in August 1939 where it suffered serious damage, such that only a two-car train could be rebuilt at a reasonable cost. A newly built driver's cab was added to the middle car at the end of the small passenger compartment. The motor bogies were installed under the two driver's cabs creating two identical coaches. The top speed was reduced to 125kph. Because of the wartime scarcity of materials, the train could not be put into operation until September 1941 as Re4/8 311. The old

seating was replaced by seats with reversible backrests so that travellers could always sit in the direction of travel.

From 1939, 502 was used mainly for charter traffic as the limited seating capacity made it unsuitable for scheduled traffic.

No. 1041 suffered considerable damage in a fire in August 1961 in Pfungen. Because the upcoming EXPO64 would require the use of all available rolling stock - even of old two- and three-axle passenger coaches – it was decided to rebuild the unit at minimum cost, combining two coaches each from 1031 and 1041 into a four-car set. Rotation of one of the intermediate coaches ensured the two luggage compartments were adjacent in the middle of the train. Parts of train 1031 had to be substantially rebuilt, the motor bogies were again placed under the driver's cabs and one car was rebuilt as an intermediate trailer with its cab replaced by normal bodywork. The combined unit, now RABDe8/16, with maximum speed restored to 150kph, was assigned to Winterthur.

In late 1967 1041 went into works with defective traction motors. However, given that a number of other pieces of equipment were also proving troublesome, e.g., the automatic doors, the cost of overhaul could not be justified for a single unit. The train was withdrawn in June 1968. Reusable parts were recovered and the train transferred to the main workshop in Chur where it was scrapped.

SBB RABDe8/16 1041 at Winterthur in June 1967 operating a fast service to Basel via Laufenburg / Koblenz / Bülach, a journey no longer possible as the line between Laufenberg and Koblenz has subsequently closed. *Photo:* Bryan Stone

Type	Number	Built	Builders	Details	Withdrawn
RABDe8/12	501, 502	1937	SLM/BBC/. MFO/SAAS	127t, 1670 kW 150 kph	1964 Rebuilt – see above & below
Numbering and Classification History *Railcar 1031:* *1936 (order) BCLe8/12 501* *1938 (delivered) Re8/12 501* *1941 Re4/8 311* *1947 RBCFe4/8 671* *1956 RABF4/8 671* *1959 RABFe4/8 1031*					
RABDe8/16	1041	1964 Rebuilt from RABDe8/16 1041 plus RABDe8/12 1031	See text	164t, 1670 kW, 150 kph	1968
Numbering and Classification History *1936 (order) BCLe8/12 502* *1937 (delivered) Re8/12 502* *1945 RBCFe8/12 502* *1948 RBCFe8/12 691* *1956 RABFe8/12 691* *1958 RABFe8/12 1041* *1964 RABDe8/16 1041*					

Other Arrows

NOTE – The BLS built some similar vehicles and called them Blue Arrows / Blauer Pfeil. These were single units 691–692, 701, 706, 727 and 787 and articulated two-coach sets 711, 731, 736-737 built 1935–1939, plus 2-car sets 741-743 of 1945. 736 is preserved as BCFe4/6 by the BLS and 727 by the VHS.

References

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Links

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https://de.wikipedia.org/wiki/SBB_Ce_2/4
https://de.wikipedia.org/wiki/SBB_Re_8/12_501–502
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