FROM STEAM TO ELECTRICITY: THE EVOLUTION OF LOCOMOTIVES

History of Locomotives

Locomotives appeared at the beginning of the 19th century with the development of the steam engine, marking the start of modern railway transport. The first steam locomotives enabled fast and reliable transportation of people and goods over long distances, significantly reducing travel time compared to traditional means of transport. Their introduction played a crucial role in the Industrial Revolution by supporting mass production and large-scale distribution. Later, with continued industrial and technological development, diesel and electric locomotives were introduced, offering greater efficiency, higher power output, lower operating costs, and reduced environmental impact. In recent decades, further innovations such as digital control systems and energy-efficient technologies have modernized locomotive design and operation.

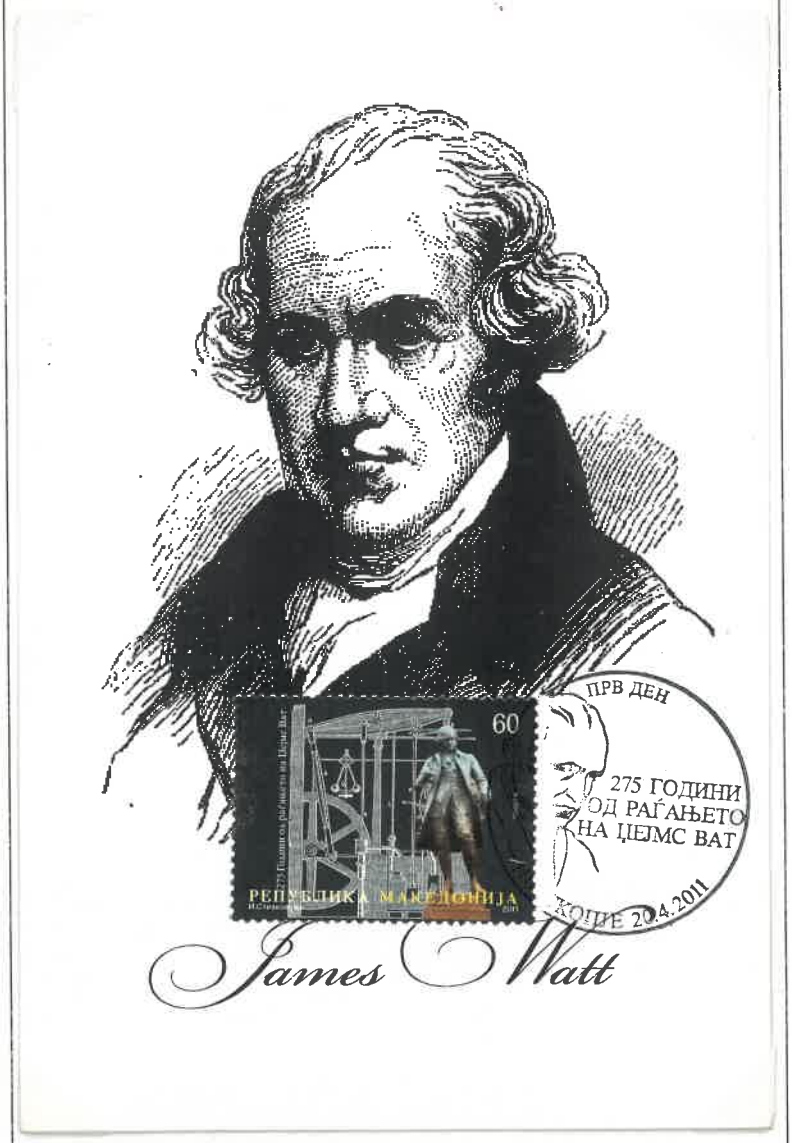
Characteristics and Purpose

Locomotives differ according to their type of propulsion (steam, diesel, electric), power output, axle arrangement, and maximum speed. Their main purpose is the hauling of passenger and freight trains, as well as performing shunting operations in railway stations, depots, and industrial facilities. They are engineered to provide high tractive effort, operational reliability, and durability, allowing continuous operation under demanding weather and infrastructure conditions. Modern locomotives are also equipped with advanced braking, signaling, and safety systems that enhance overall railway efficiency and safety.

Role and Importance

Locomotives have played a fundamental role in industrial, economic, and social development, connecting cities, regions, and entire countries. They have facilitated mobility, trade, and cultural exchange, contributing to urbanization and regional integration. Furthermore, railway transport has supported sustainable development by offering a high-capacity and energy-efficient alternative to road transport. Today, locomotives remain a vital component of global transportation systems and continue to evolve in response to environmental, economic, and technological challenges.

PLAN



James Watt played a crucial role in the development of locomotives by significantly improving the steam engine. Although he did not invent the first locomotive, his innovations—especially the separate condenser—greatly increased engine efficiency. These improvements made steam power practical for transport, enabling later engineers to develop steam locomotives that transformed railway transportation and fueled the Industrial Revolution.

Issued:
20.04.2011
Canceled:
20.04.2011
Card:
Amart, Plovdiv

George Stephenson played a key role in the development of steam locomotives in the early 19th century by building some of the first practical and reliable railway engines. His work helped establish railways as a major mode of transport during the Industrial Revolution

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30.05.2014
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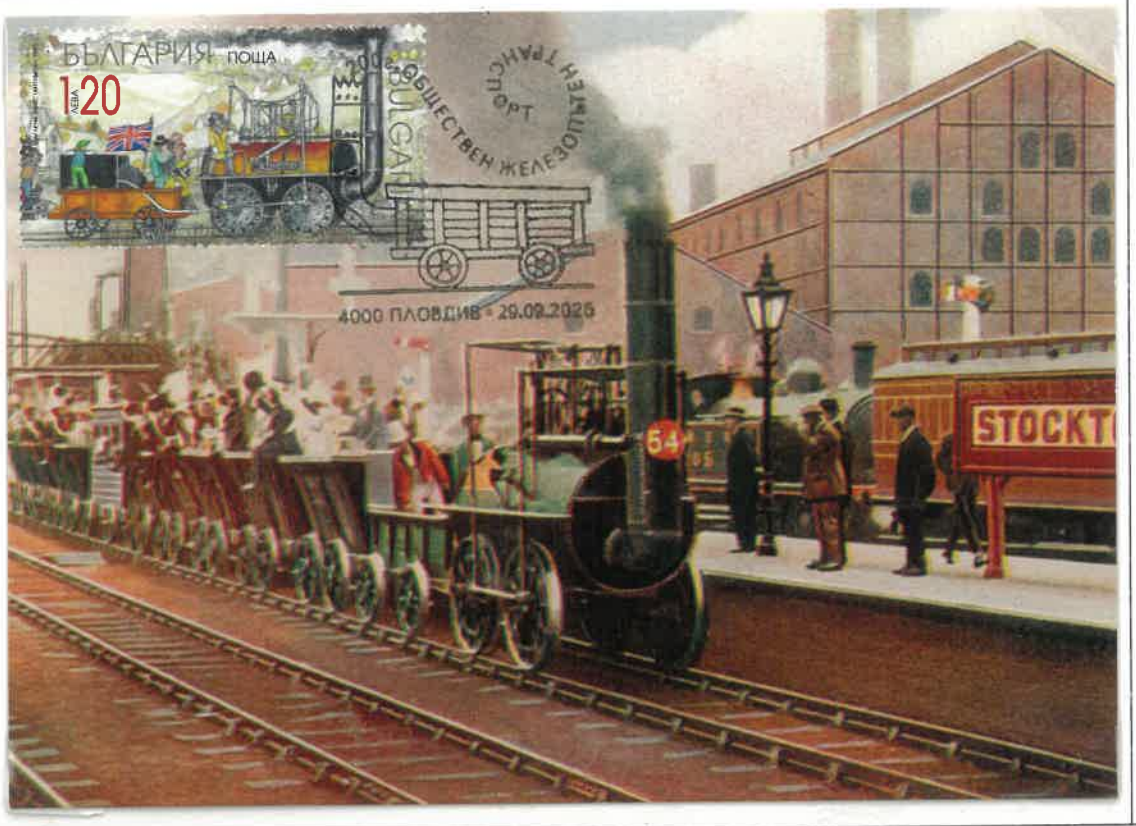
Rojal Art, Skopje



Issued:
25.09.2025
Canceled:
25.09.2025
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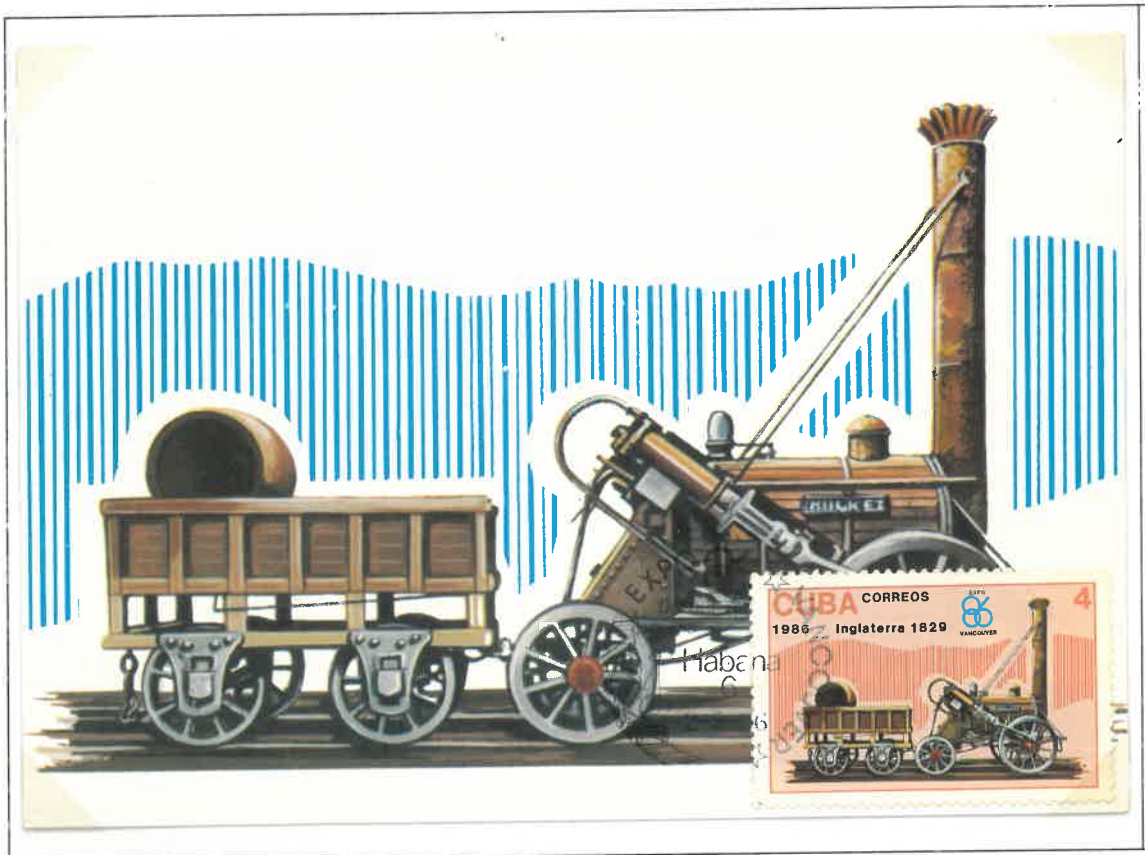
Unknown

Bulgarian stamp honoring Stephenson's *Rocket*, an early steam locomotive of 0-2-2 wheel arrangement. The locomotive was built for and won the Rainhill Trials of the Liverpool and Manchester Railway (L&MR), held in October 1829 to show that improved locomotives would be more efficient than stationary steam engines.

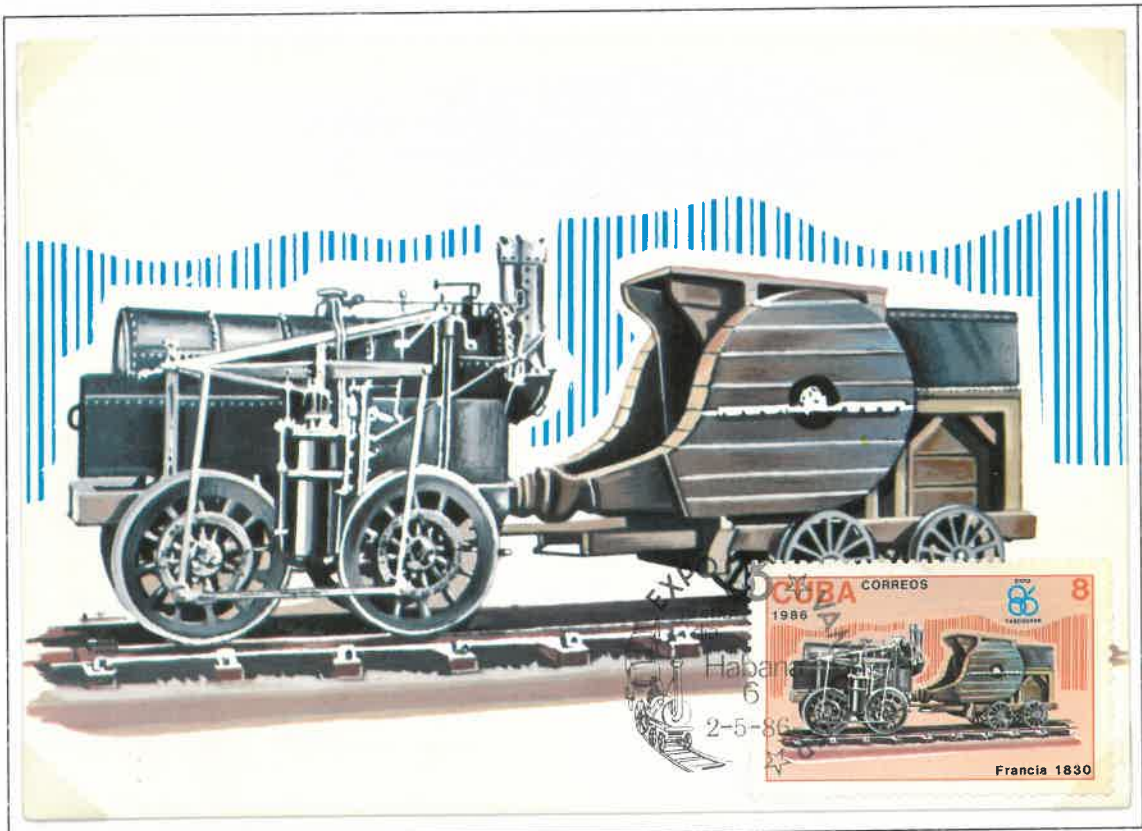
Issued:
31.12.2000
Canceled:
31.12.2000
Card:
ZELNID-ZTP

Yugoslav stamp honoring Stephenson's *Rocket*, first locomotive to bring together several innovations that produced the most advanced locomotive of its day, the most famous example of an evolving design of locomotives by Stephenson, and became the template for most steam engines in the following 150 years.



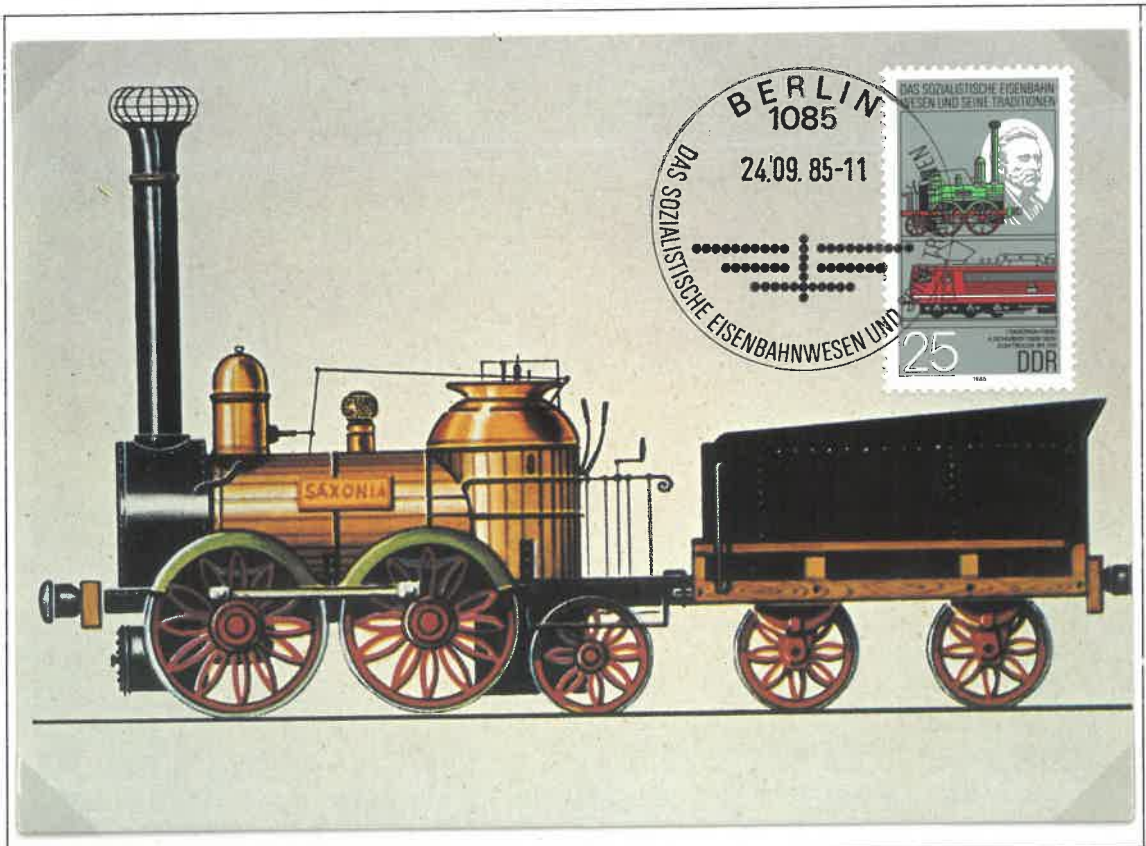
Issued:
12.05.1986
Canceled:
12.05.1986
Card:
E.C.P.Philatelichs

Cuban postal stamp from 1986 issued to commemorate the international philatelic exhibition EXPO'86, depicting Stephenson's locomotive "Rocket" that operated on the first modern inter-city railway line Liverpool-Manchester in the early 19 century.



Issued:
12.05.1986
Canceled:
12.05.1986
Card:
E.C.P.Philatelichs

Cuban postal stamp from 1986 issued to commemorate the international philatelic exhibition EXPO'86, depicting on of the first steam locomotives from 1830 used in France. French manufacturers built Stephenson "Patentee" and long-boiler types under license. William Buddicom took with him the so-called Crewe Type when he set up works at Sotteville to supply the Paris – Rouen and Le Havre railways.

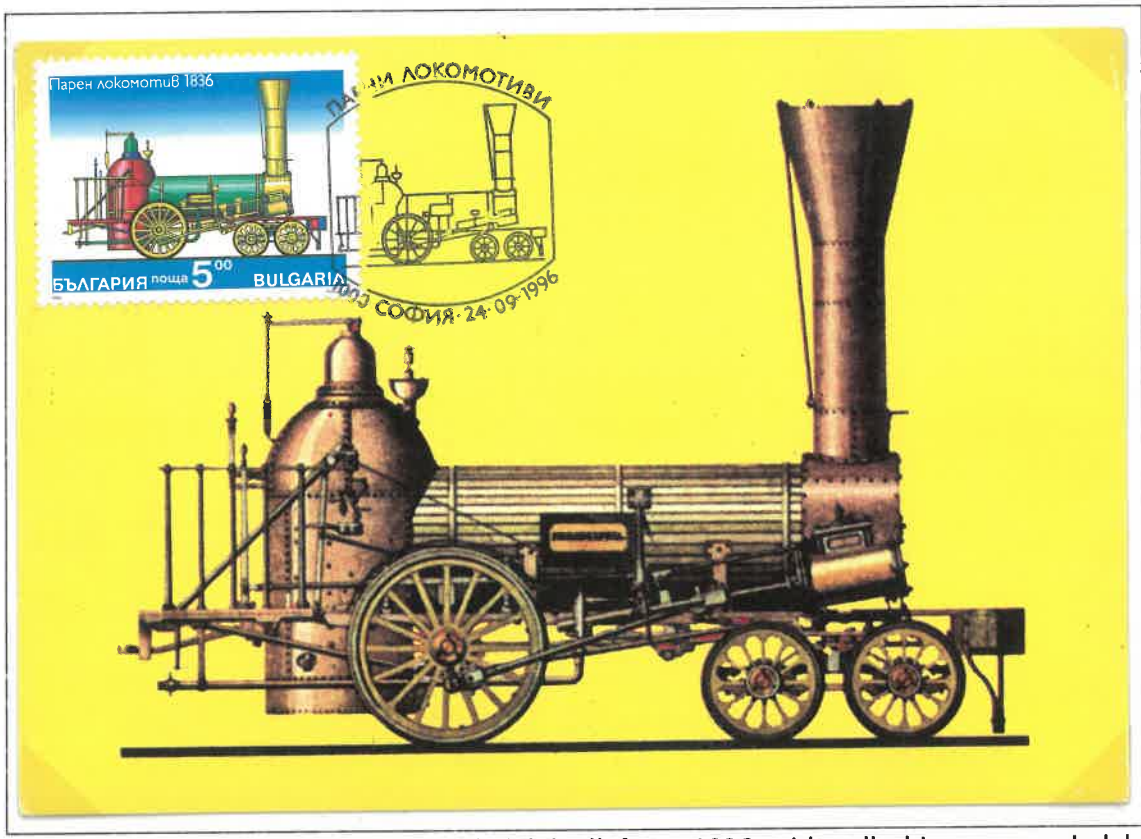


Issued:
24.09.1985
Canceled:
24.09.1985
Card:
WEB Philatelie
Wermsdorf

Early German steam locomotive "Saxonia" from 1838, created by Johann Andreas Schubert, operated by the Leipzig–Dresden Railway Company - *LDE* and was the first practical working steam locomotive built in Germany.

Issued:
30.11.1991
Canceled:
30.11.1991
Card:
CH.ST.Stoickov

Steam locomotive BDZ No.148 purchased in Manchester, England in 1866. This two-cylinder steam locomotive, with single-steam system and boiler for saturated steam of 8mpa, was used for puling passenger trains with speed of 50km/h.



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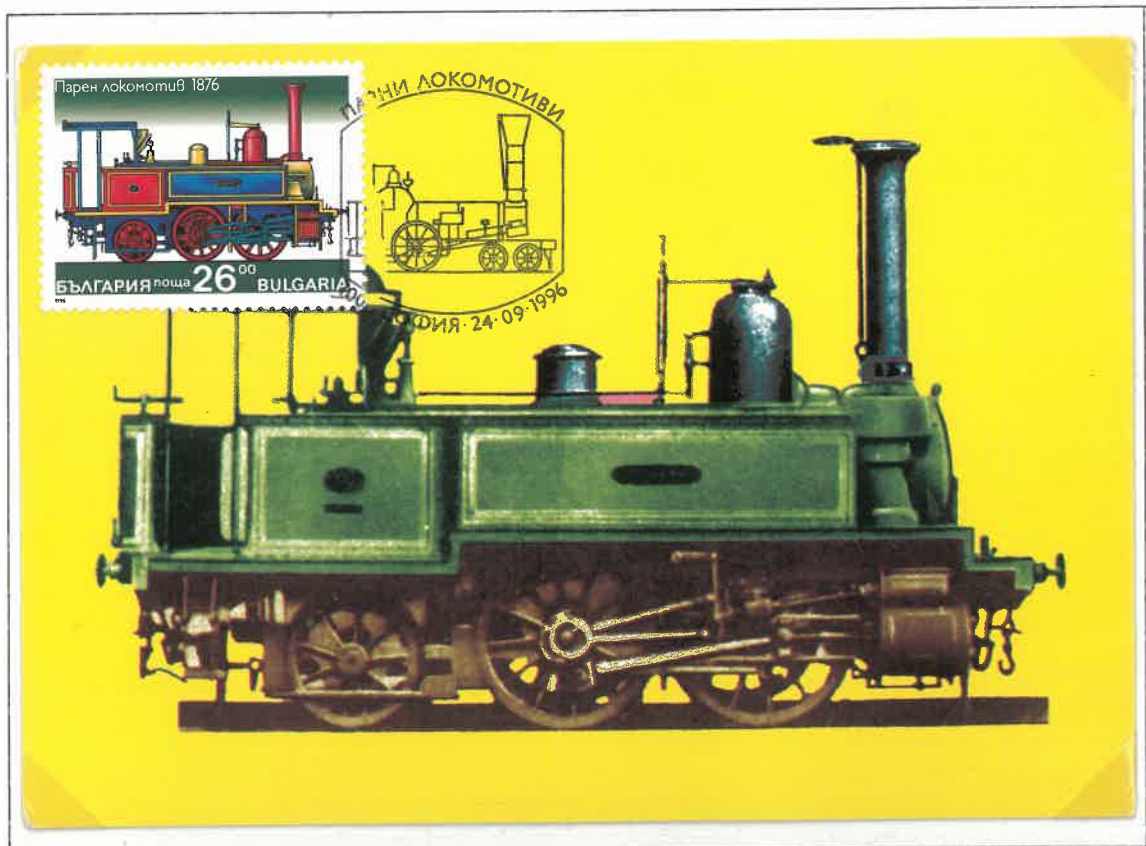
24.09.1996
Canceled:
24.09.1996
Card:
Bulphila, Bulgaria

Early tender steam locomotive "Philadelphia" from 1836 with tall chimney, needed because early coal burned inefficiently and separate tender behind the locomotive for coal and water used for long-distance passenger or mixed traffic. Manufactured in Norris & Co. that produced nearly one thousand railroad engines between 1832 and 1866 and was the dominant American locomotive producer during most of that period and the first major exporter of American locomotives.



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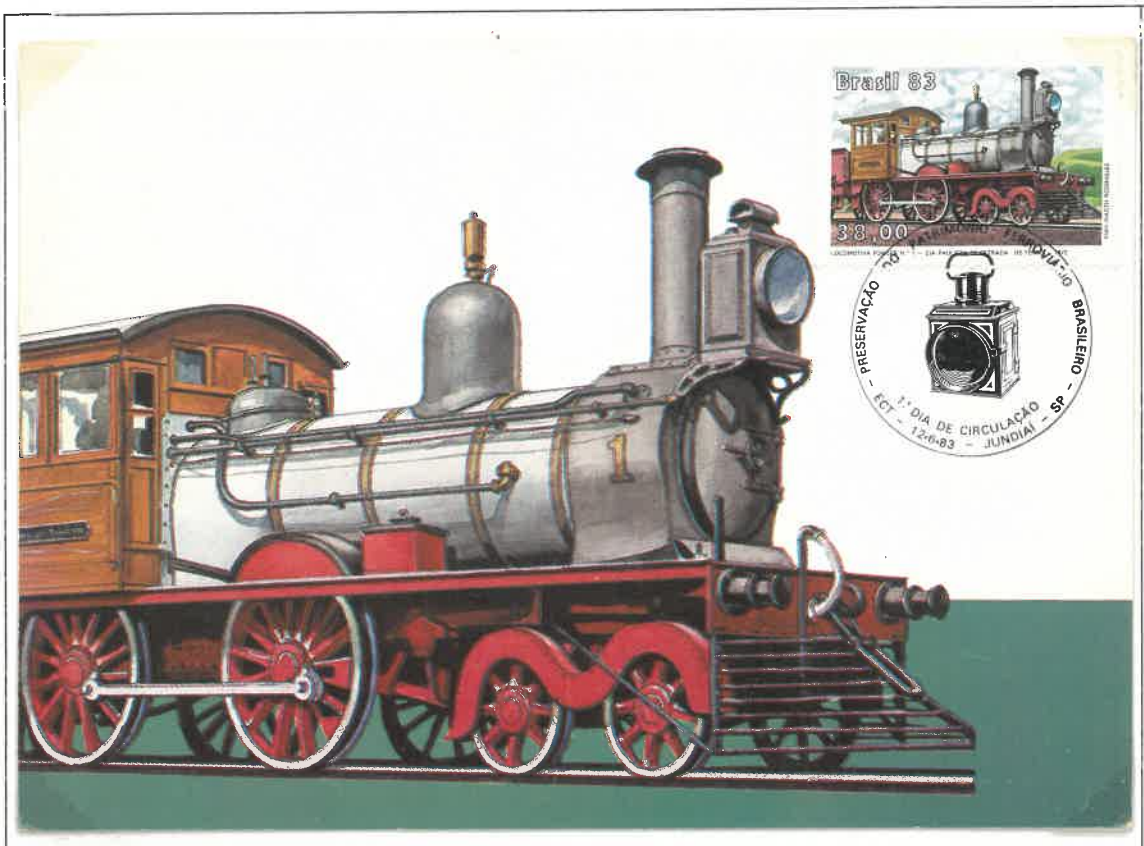
24.09.1996
Canceled:
24.09.1996
Card:
Bulphila, Bulgaria

"Mallet" steam locomotive from 1876 with unique design that was a type of articulated design which used compound steam. Named after the person who invented it, Anatole Mallet of Switzerland, with more compact boiler, better weight distribution, lower more controlled chimney, used for passenger services.



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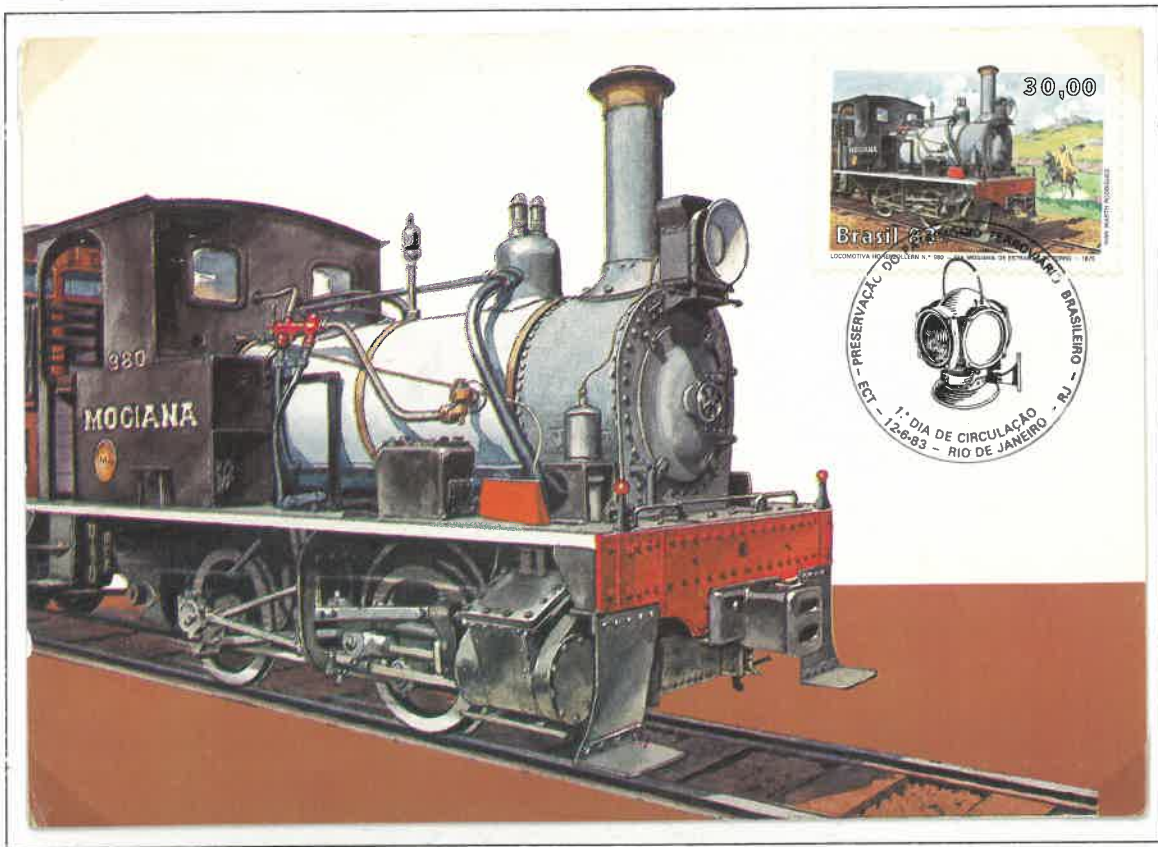
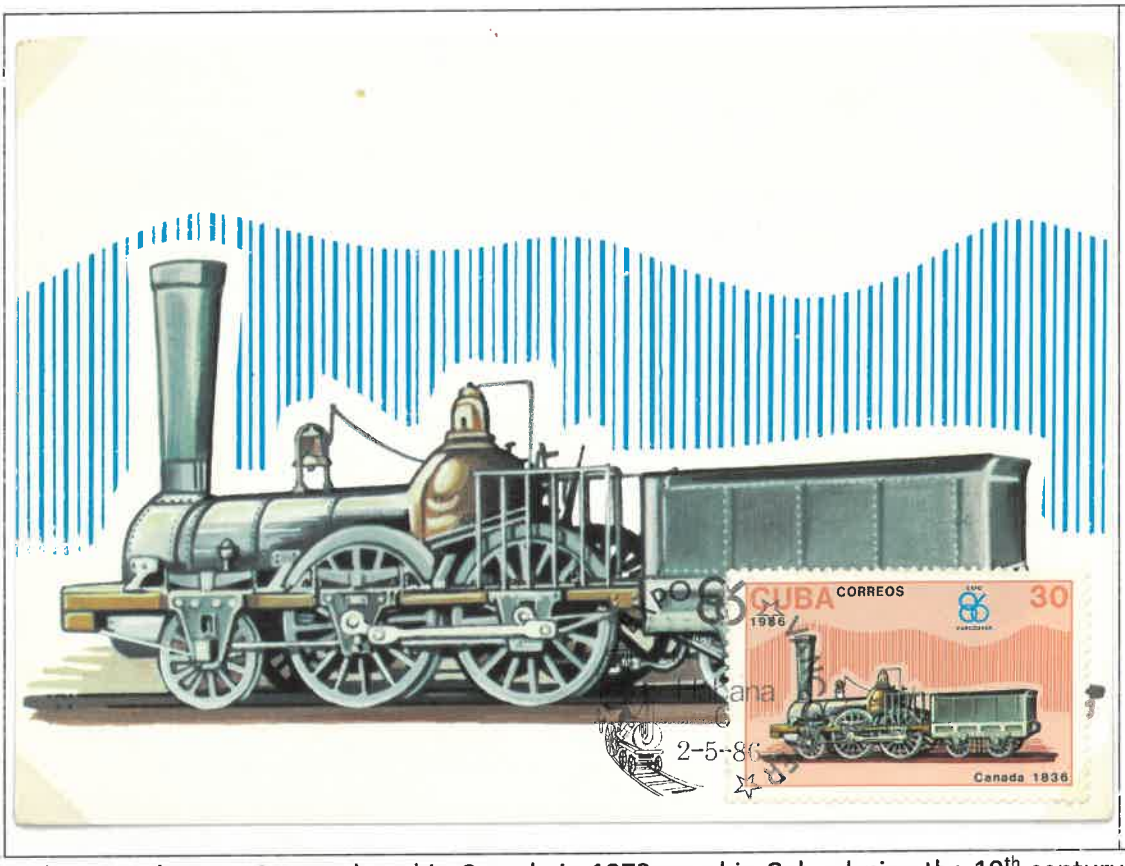
12.06.1985
Canceled:
12.06.1985
Card:
Braziliera Coreios
Telegrafos

Early Brazilian steam locomotive (Fowler No.1 British-build design) from 1872. Brazil imported most of its locomotives from Britain. They were with small driving wheels, large headlamp and simple mechanical layout. These engines were adapted to hot humid conditions for short regional railway lines.



Issued:
12.06.1985
Canceled:
12.06.1985
Card:
Braziliera Coreios
Telegrafos

Mogiana railway steam locomotives from late 19th century. This locomotive belonged to the Companhia Mogiana de Estradas de Ferro for coffee transport, with strong pulling power build for freight rather than speed. Railways connected inland plantations with costal ports.



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12.05.1986
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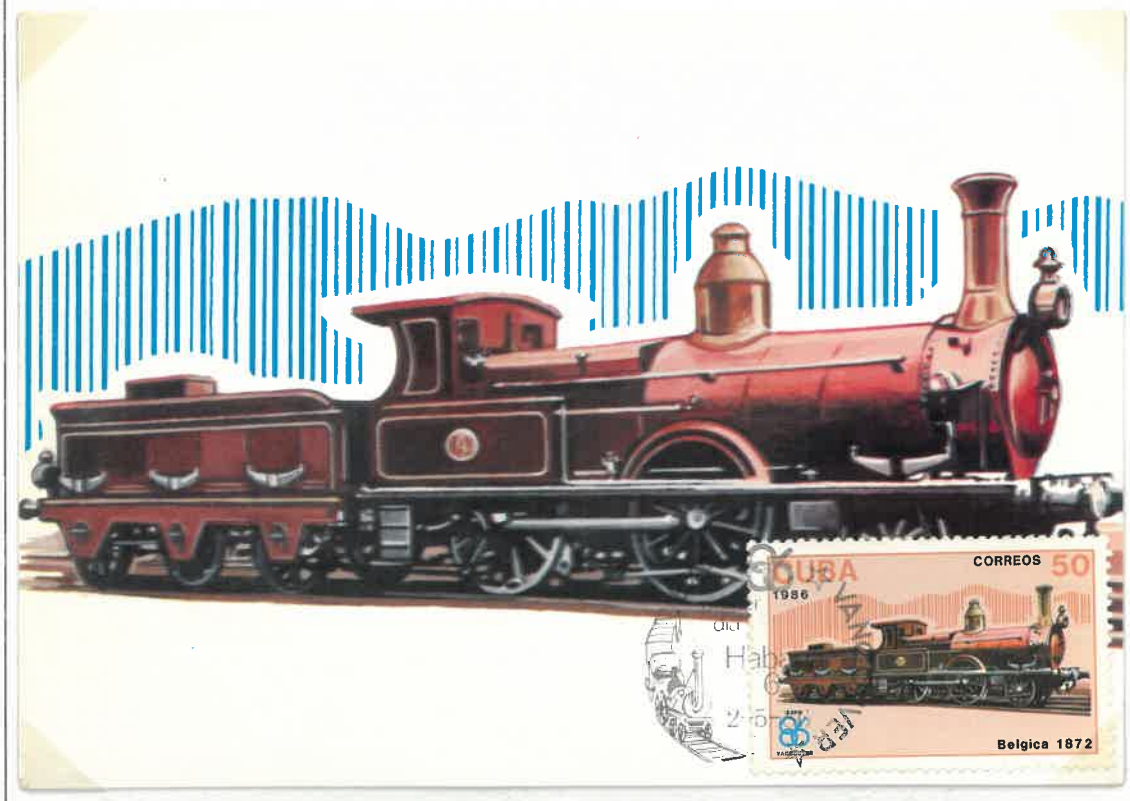
12.05.1986
Card:
E.C.P.Philatelichs

Early steam locomotive produced in Canada in 1873, used in Cuba during the 19th century, primarily on industrial and sugar plantation railway. Such locomotives were essential for transporting sugarcane and goods, playing a major role in Cubans economic development.



Issued:
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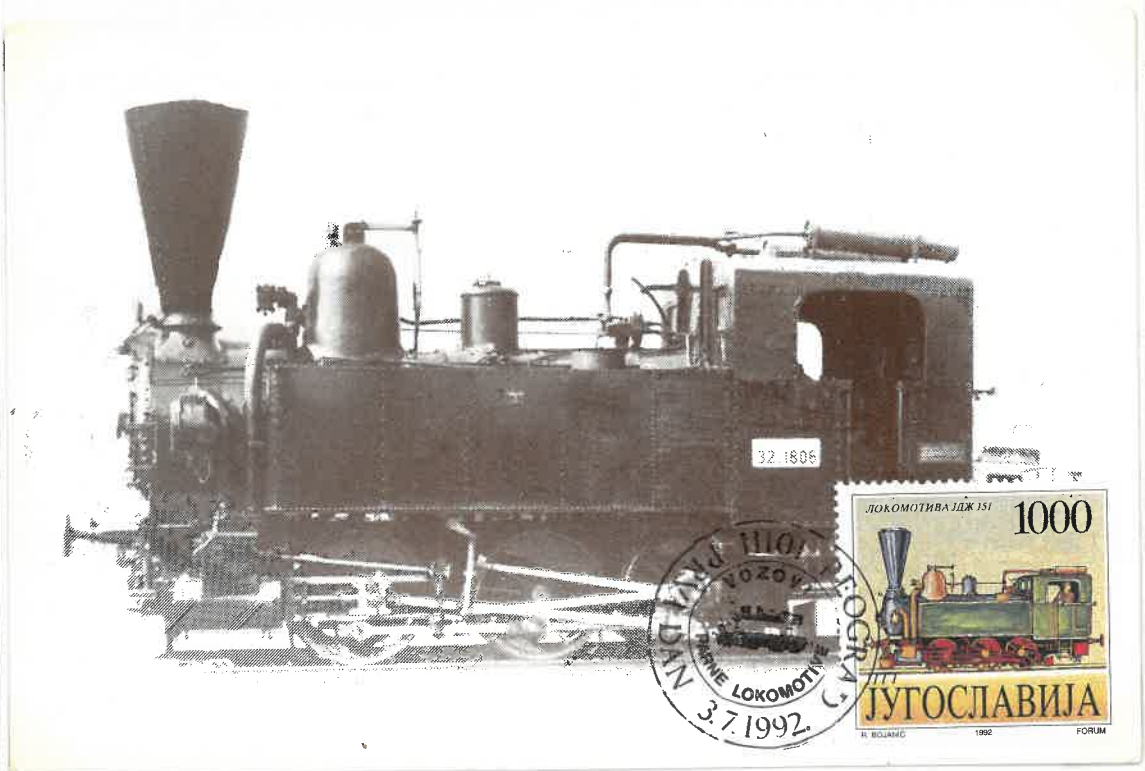
Card:
E.C.P.Philatelichs

Steam locomotive of Belgian origin dating from 1872. Locomotives of this type were exported from Europe to Latin America and widely and used in industrial and regional railway networks especially in sugar production areas.

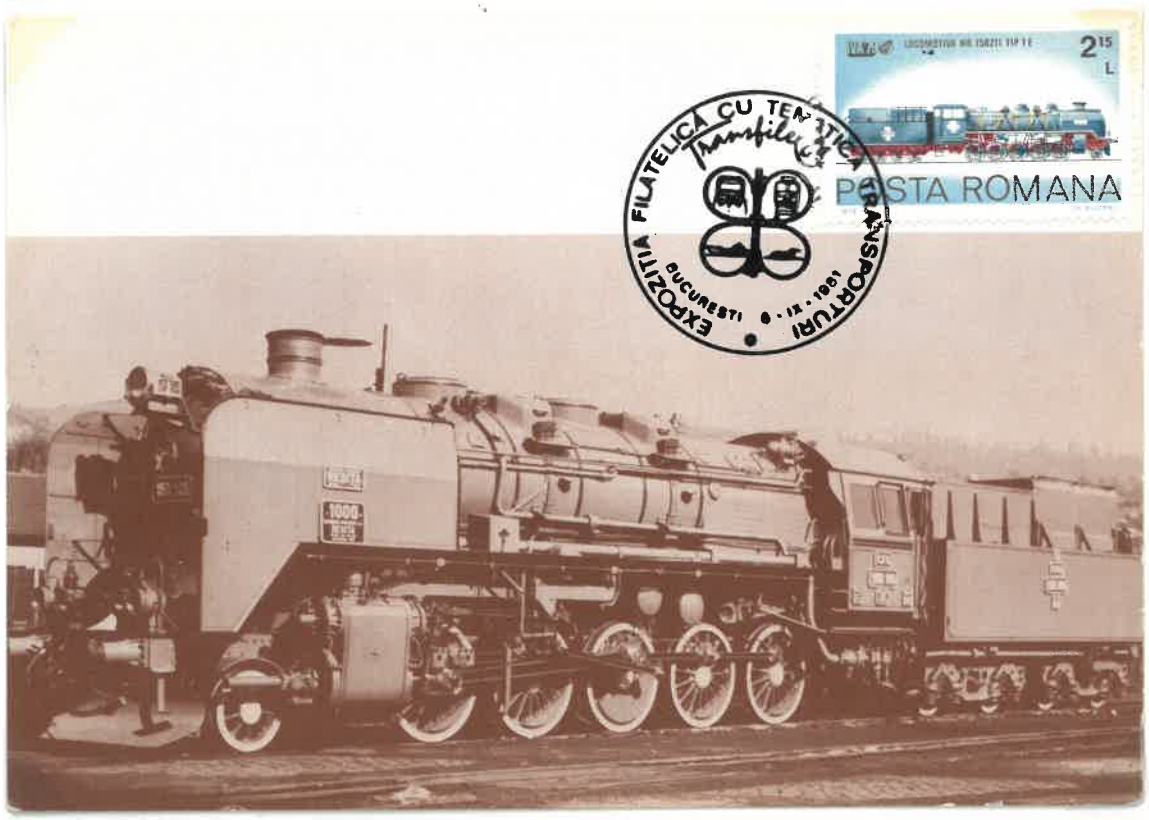
Issued:
03.07.1992
Canceled:
03.07.1992
Card:
Yugoslav Realways

Early steam locomotive Series JDZ 162 from 1880, used on industrial or narrow gauge railways in Yugoslavia, known for their simple construction, reliability and suitability for short-distance and industrial transport.



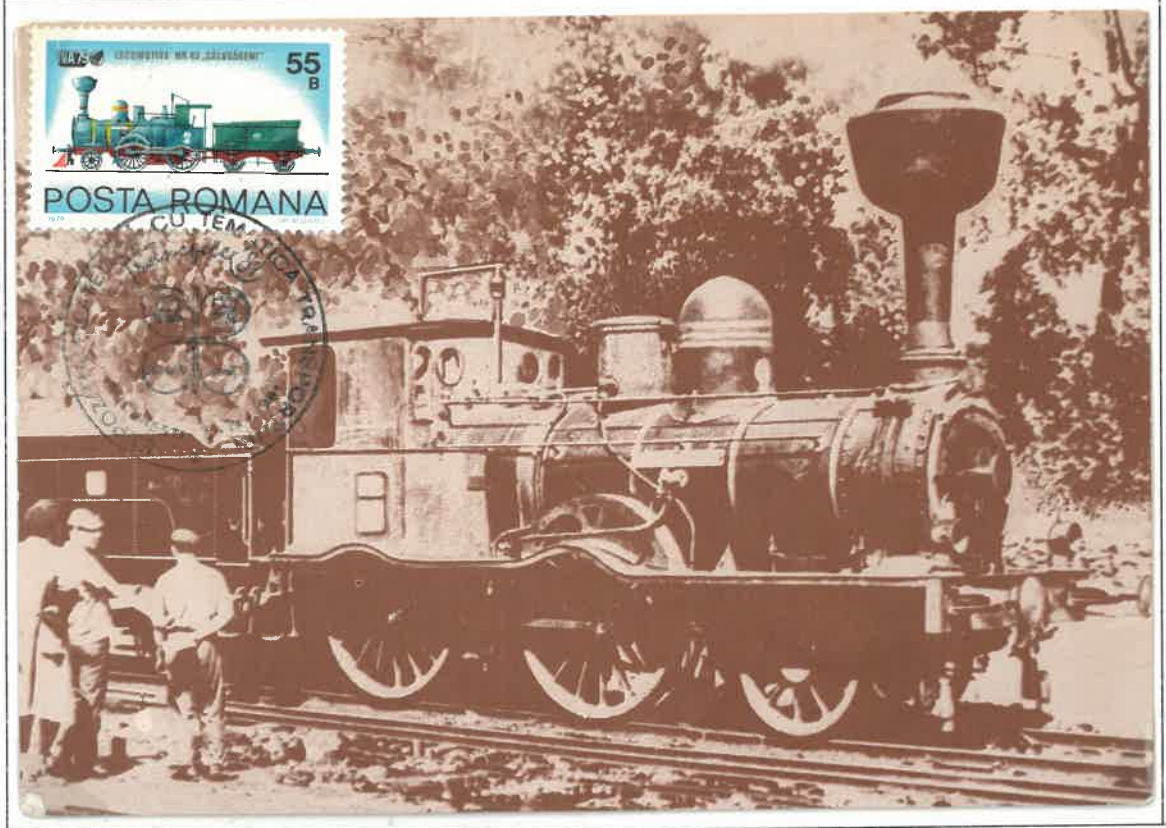
Issued:
03.07.1992
Canceled:
03.07.1992
Card:
Yugoslav Realways

Steam locomotive Series JDZ 151 produced in 1885 in Wiener Neustadt, with length 7635 mm, weight 23 t, max.speed 45 km/h, power 198 kW (270 HP), steam pressure 12 bar, height 4520 mm and axle load 10 t. This series of locomotives were in operation between 1885 and 1976 on local lines and as shunters in Yugoslavia.



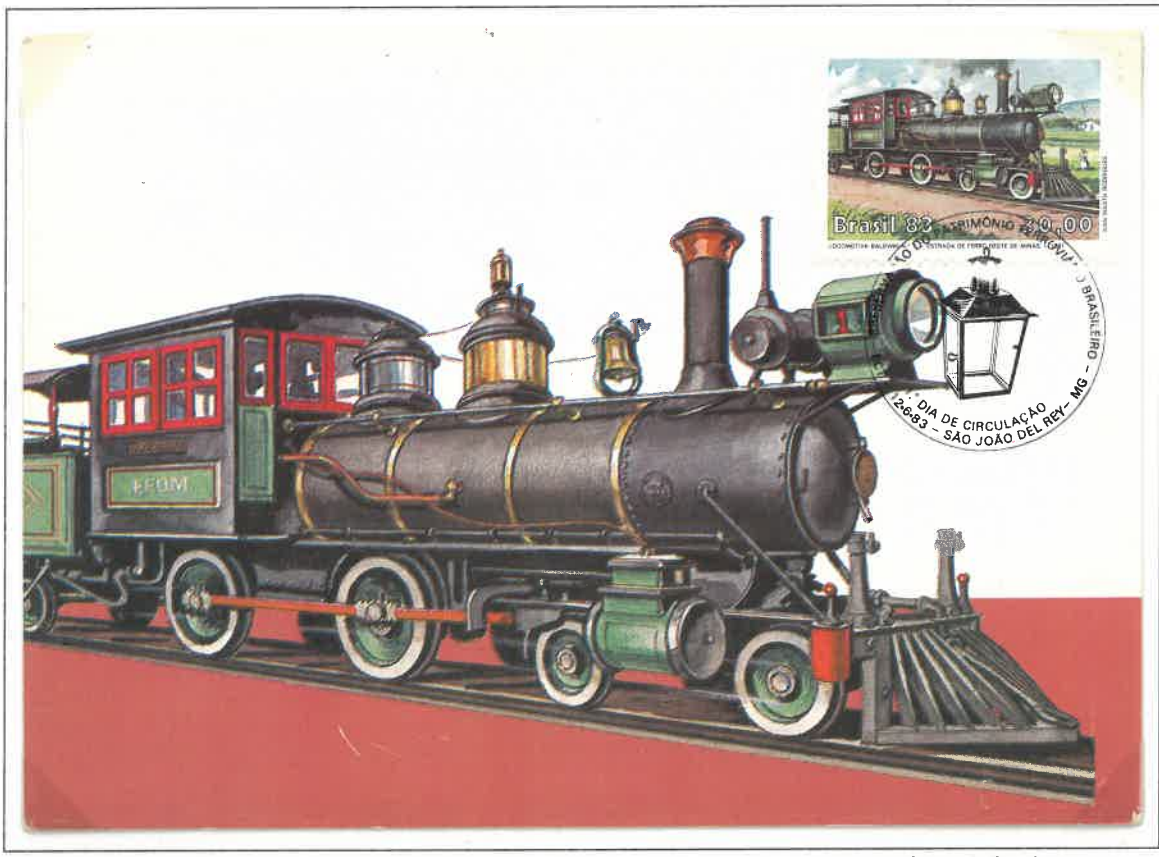
Issued:
06.02.1981
Canceled:
06.02.1981
Card:
C.F.R. Resita

Romanian early steam locomotive Series 150 000 from 1955. In the first years after World War II, due to the increase in the tonnage of freight trains on the large-gauge railway lines, it was necessary to equip them with new locomotives. For this purpose, the type 1' E, series CFR 150,000, was adopted, produced almost identically to the German series 50. Total 282 locomotives, 1946-1960.



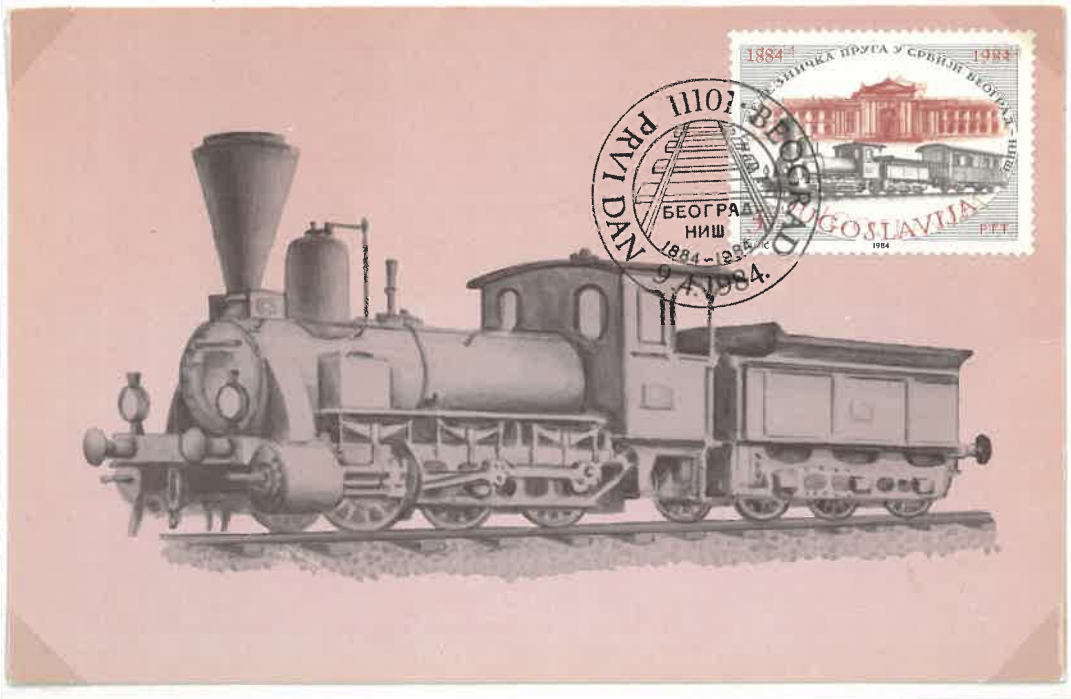
Issued:
06.02.1981
Canceled:
06.02.1981
Card:
C.F.R. Resita

Romanian Steam locomotive Series 43 type 1-B " Calugareni " built in 1869 by the Canada-Works-Birkenhead factory, operated on the CFR Bucharest-Giurgiu line when it opened on 19/31.10.1869.



Issued:
12.06.1985
Canceled:
12.06.1985
Card:
Braziliera Coreios
Telegrafos

Brazilian steam locomotive type Baldwin No.1 from 1881 in possession of Estrada de Ferro Oeste de Minasotive, used on short routes, hauling passenger trains and light freight in area of Sao Joao Del Rey.

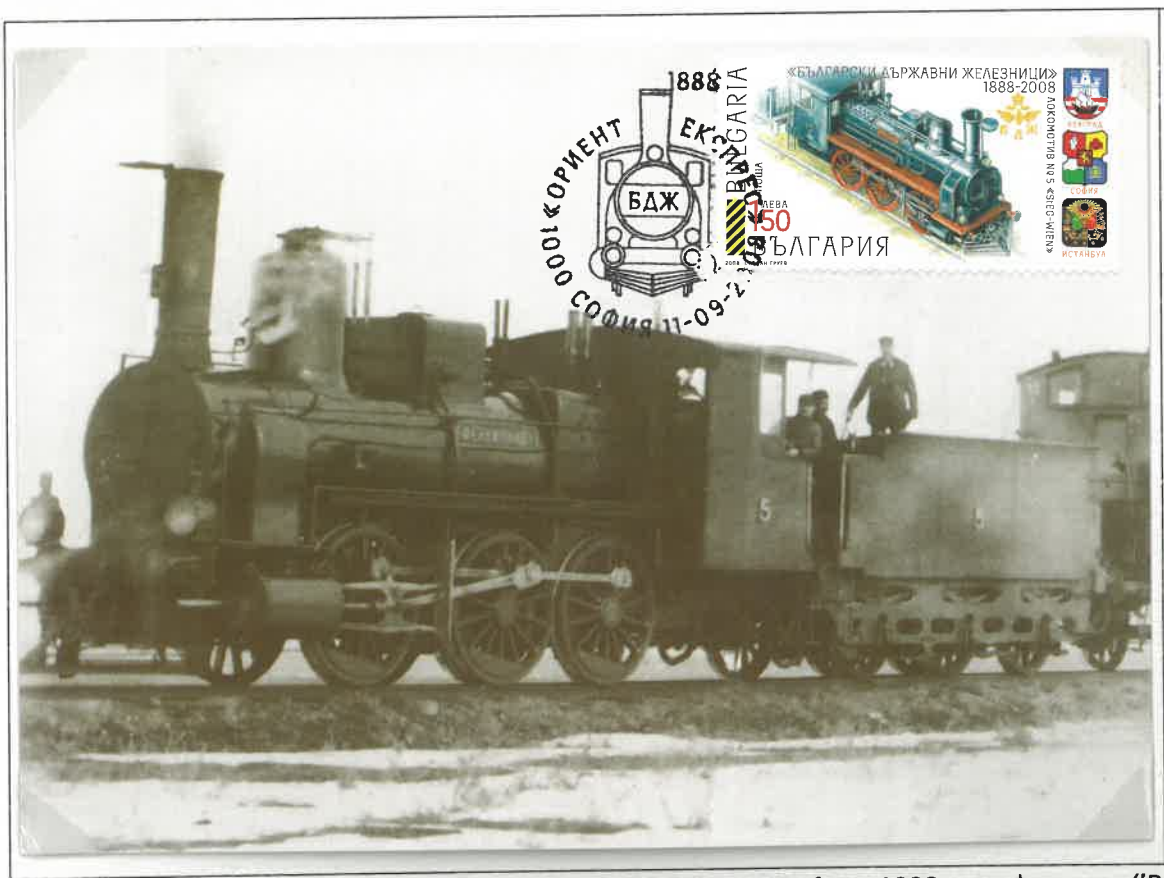


Issued:
09.04.1984
Canceled:
09.04.1984
Card:
D.Lucic, Yugoslavia

Steam locomotive CS No.1 in 1884 pulled the first ceremonial train on the railroad Belgrad-Nis.It was produced in the factory Kraus in Munchen, Germany, had 2 axles with coal tank and speed of 55 km/h. Yugoslavian issue to commemorate 100 years of railways in Serbia 1884-1984.

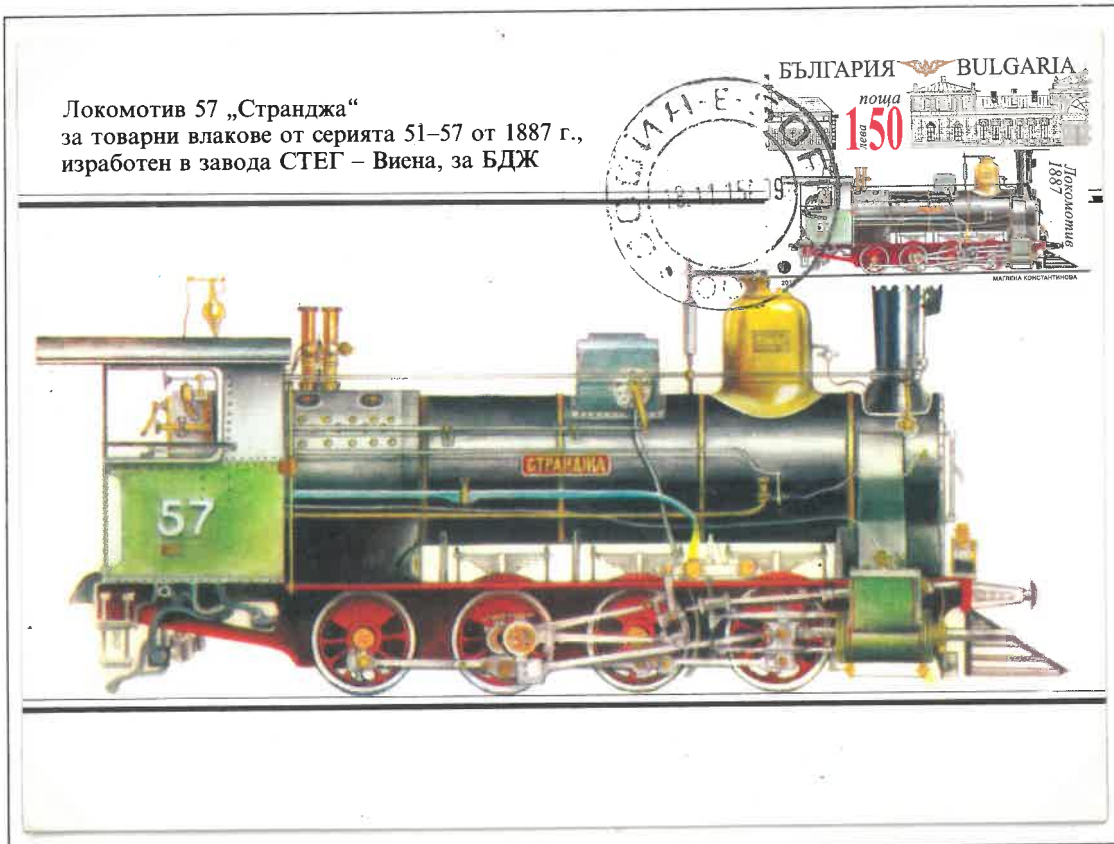
Issued:
01.06.2015
Canceled:
01.06.2015
Card:
HZ
Infrastruktura

Early steam tank Series JZ 116 with water tanks mounted on the locomotive itself and compact and sturdy design used for local passenger service ideal for mountainous and short distance lines, common in Croatia and Central Europe. Commemorates 150 years of the railway line.



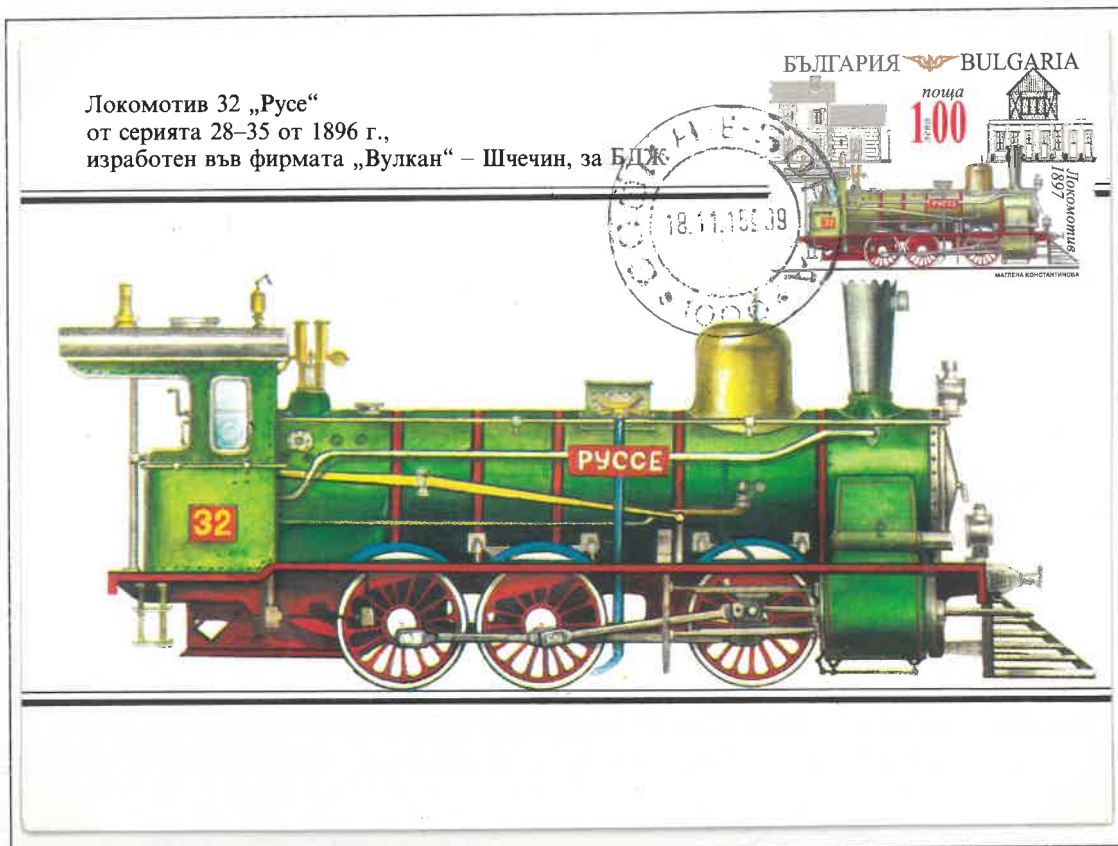
Issued:
11.09.2008
Canceled:
11.09.2008
Card:
Filap.abv.bg

First Bulgarian State Railways steam locomotive No.5-SFEG-WIEN from 1888, popular name "Rosica", later "Ferdinand", was 15157m long, with tall chimney, external cylinders and large spoked driving wheels. The locomotive was built in Austria or Germany and used for passenger, and mixed traffic with speed of 55km/h.



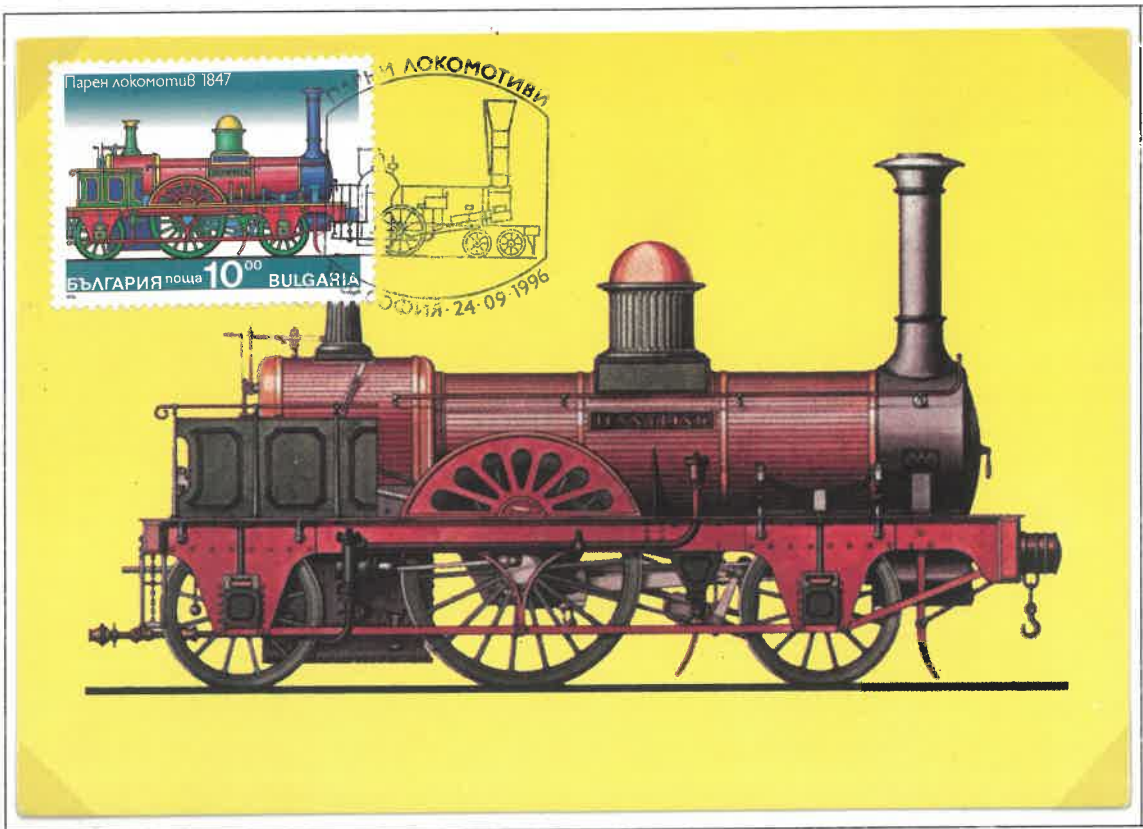
Issued:
18.11.2015
Canceled:
18.11.2015
Card:
Maglena Konstantinova

Tender steam locomotive Series 51-57 "Strandza" build in Vienna in 1887 for BDZ, with separate tender for coal and water, strong boiler and design for longer passengers transport routes. These locomotives helped establish reliable long-distance rail travel in Bulgaria.



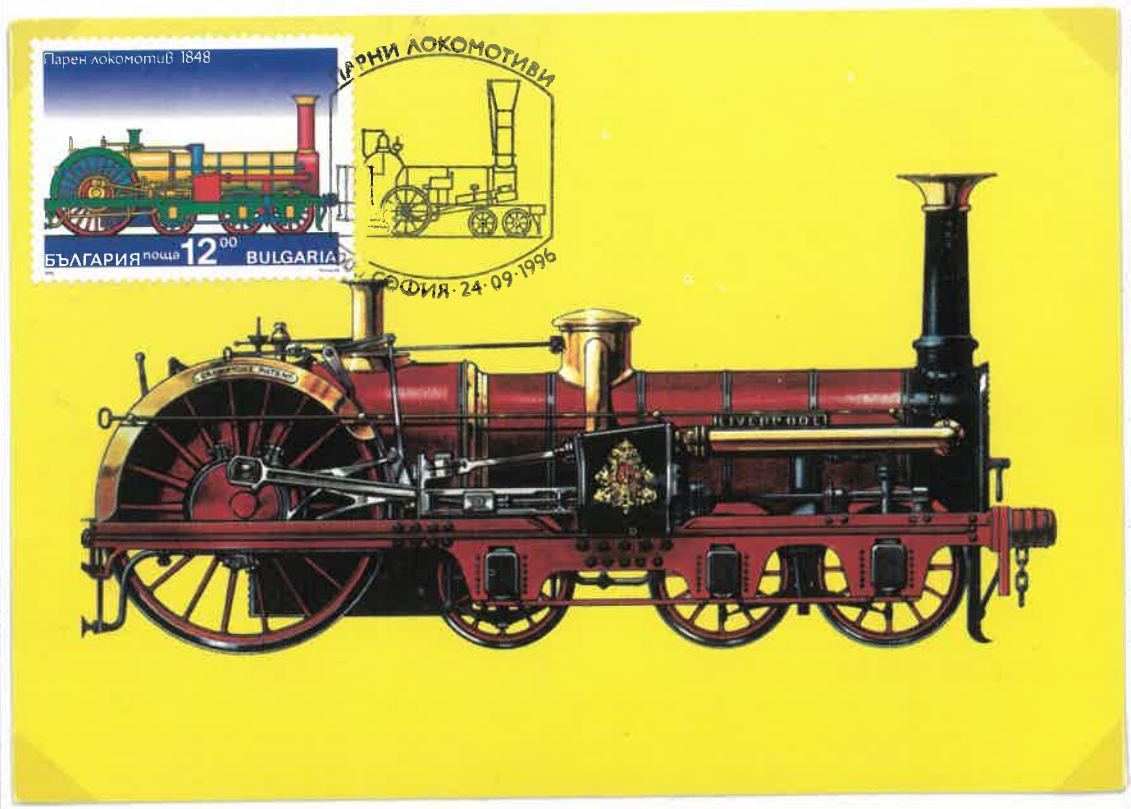
Issued:
18.11.2015
Canceled:
18.11.2015
Card:
Maglena Konstantinova

Steam locomotive 32 "Ruse" Series 28-35 from 1896, produced by Vulkan factory for BDZ, used for mixed service with improved design, better-balanced boiler, lower chimney and improved efficiency. Represents Bulgaria's transition to more modern and standardized steam technology.



Issued:
24.09.1996
Canceled:
24.09.1996
Card:
Bulphila, Bulgaria

Very early steam locomotive "Jenny Lind" with "Long boiler" system of Robert Stephenson from 1847, one of the first mature designs after the pioneering era with large spoked driving wheels, tall chimney for smoke control, external cylinders and visible mechanical parts used for passengers and mixed traffic. Represents the transition from experimental engines to practical railway locomotives.



Issued:
24.09.1996
Canceled:
24.09.1996
Card:
Bulphila, Bulgaria

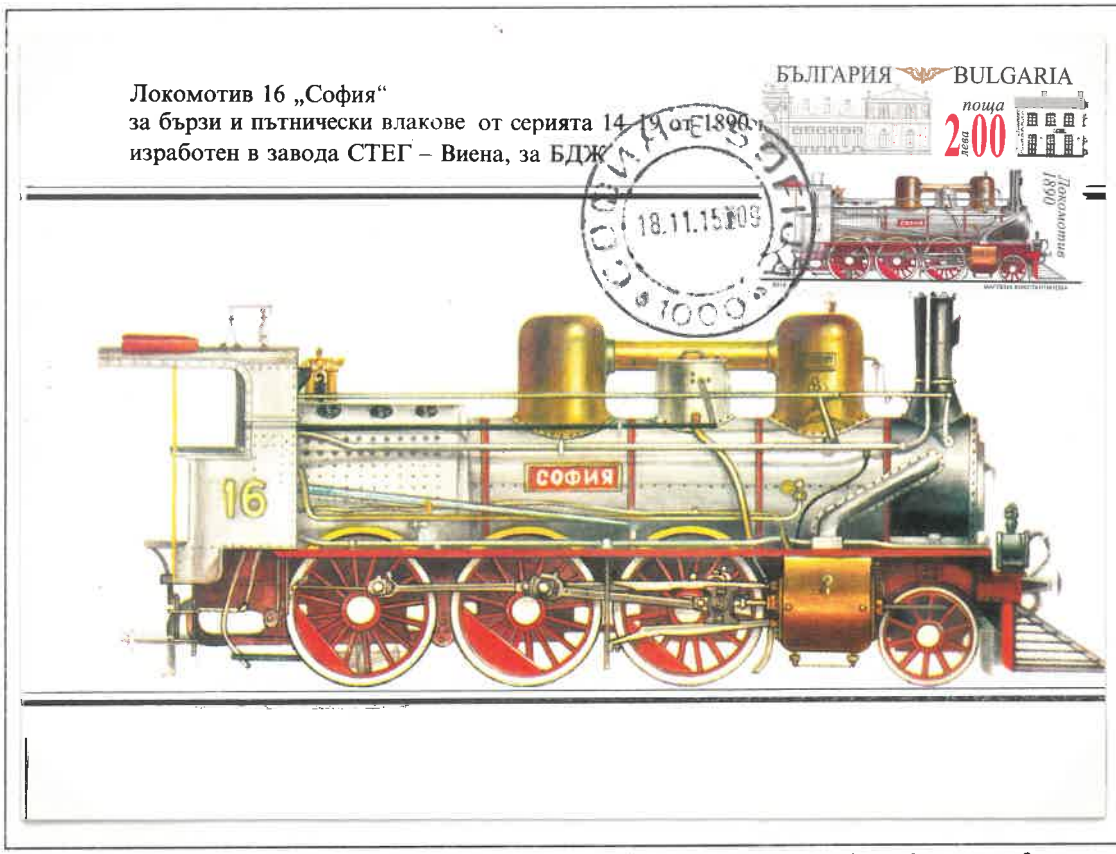
Improved early steam locomotive type "Liverpool" with "Crampton system from 1848 with longer boiler, better balance and smoother running, more efficient steam use. This locomotive was used for passenger trains on developing railway networks.

Issued:
25.03.1988
Canceled:
12.08.1988
Card:
Unknown

Early Bulgarian Steam locomotive (BDŽ) Class 16 –"Jantra" produced in Central Europe (commonly by Austrian or German manufacturers such as Wiener Neustadt or Krauss) in 1888. Design with wheel arrangement: 0-6-0 and speed of 40-50 km/h for freight and mixed traffic service. Operated on the early lines of the Bulgarian State Railways (BDŽ), especially on: Ruse – Varna line, Sofia region lines and Gorna Oryahovitsa railway junction.

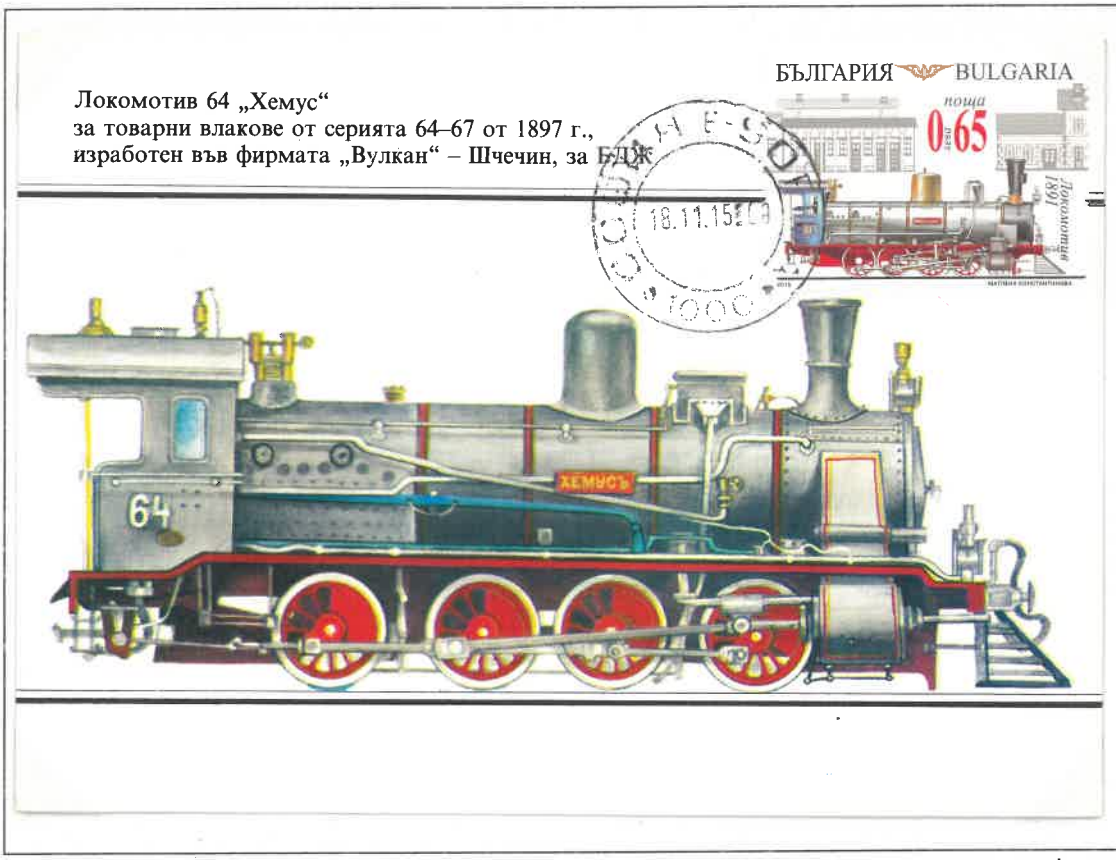
Issued:
01.10.2014
Canceled:
01.10.2014
Card:
FD Postar

JZ 51/MAV 375-steam locomotive, characteristic with medium-sized driving wheels, build for reliability and endurance. Produced between 1907 and 1929 in the locomotive factory Hungarian State Railways (MAV Gepgyar) in Budapest, operated widely across Croatia and Central Europe more than 70 years, until 23.09.1988, when from the railway station Pakrac the locomotive JZ 51-144 towed the last train and so marked the end of steam towing in Croatia.



Issued:
18.11.2015
Canceled:
18.11.2015
Card:
Maglena Konstantinova

Bulgarian steam locomotive 16 "Sofia" Series 14-19 from 1890, produced in StEG factory, Vienna for BDZ used for fast passenger and cargo transport.



Issued:
18.11.2015
Canceled:
18.11.2015
Card:
Maglena Konstantinova

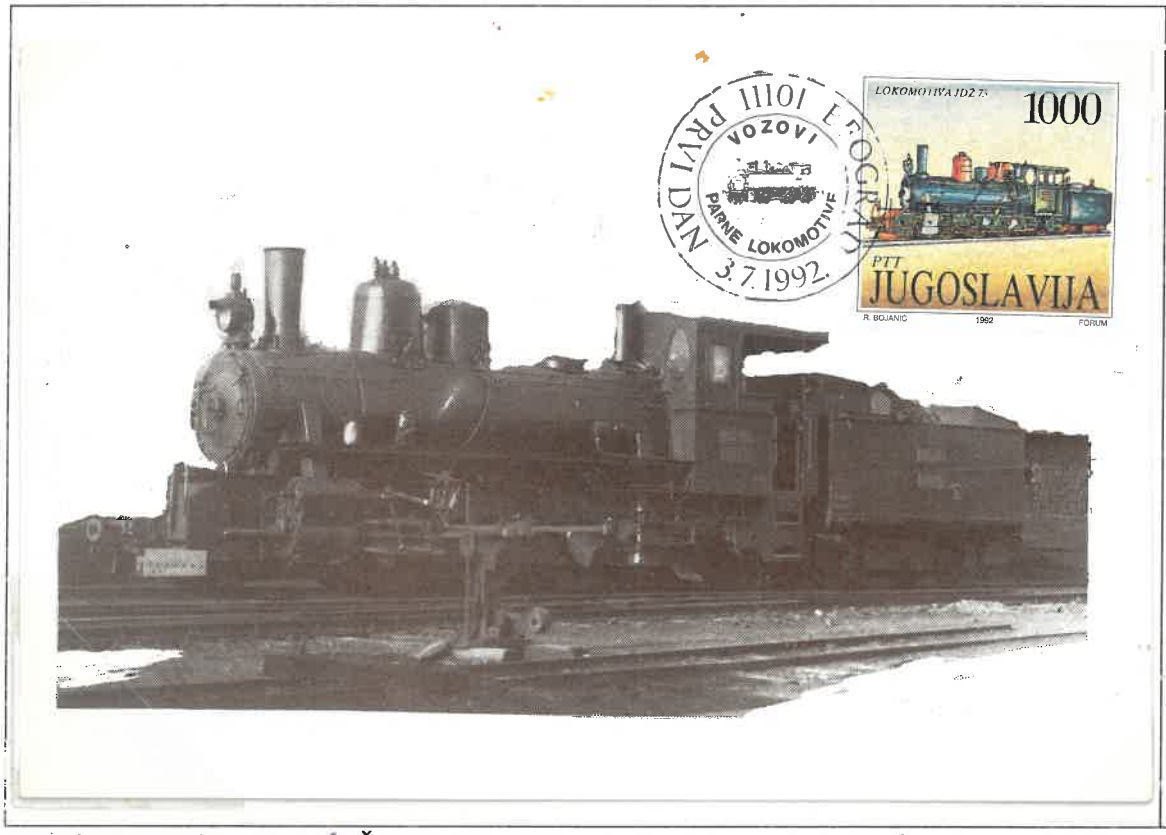
Bulgarian steam locomotive 64 "Hemus" Series 64-67 similar to Prussian G 7.2, produced in Vulkan factory, Stettin in 1897 for BDZ. This compound locomotive proved to be more economical and more powerful than the two-cylinder-simple locomotives and used in freight train service on longer routes.

Issued:
17.10.1996
Canceled:
17.10.1996
Card:
Lavassaare Muuseum

Estonian Steam locomotive – "Auruvedur Gk" built for Baltic narrow-gauge railways in late 19th – early 20th century with simple and robust construction, coal-fired boiler, wheel arrangement typically 0-6-0T, small size, designed for light infrastructure, used in Estonia and the Baltic region for Industrial lines, forestry transport, and local passenger services. Operated mainly on rural and regional routes.

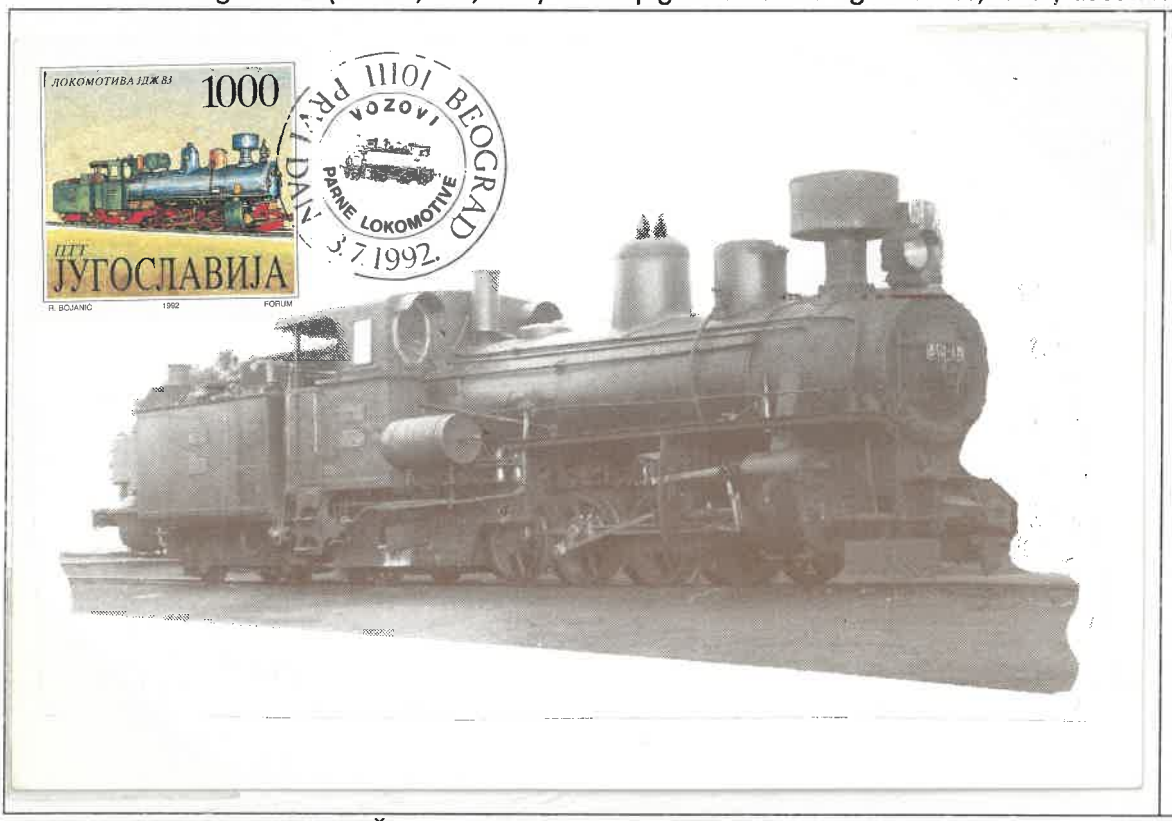
Issued:
07.12.2007
Canceled:
07.12.2007
Card:
Rojal Art, Skopje

Kosovo / Former Yugoslav steam locomotive 01-043 - Standard-gauge steam locomotive with heavy steel construction, coal-fired, designed for mixed traffic (passenger and freight), used by Railways of Kosovo and former Yugoslavia on main railway corridors and industrial freight lines for passenger services between major towns during the steam era.



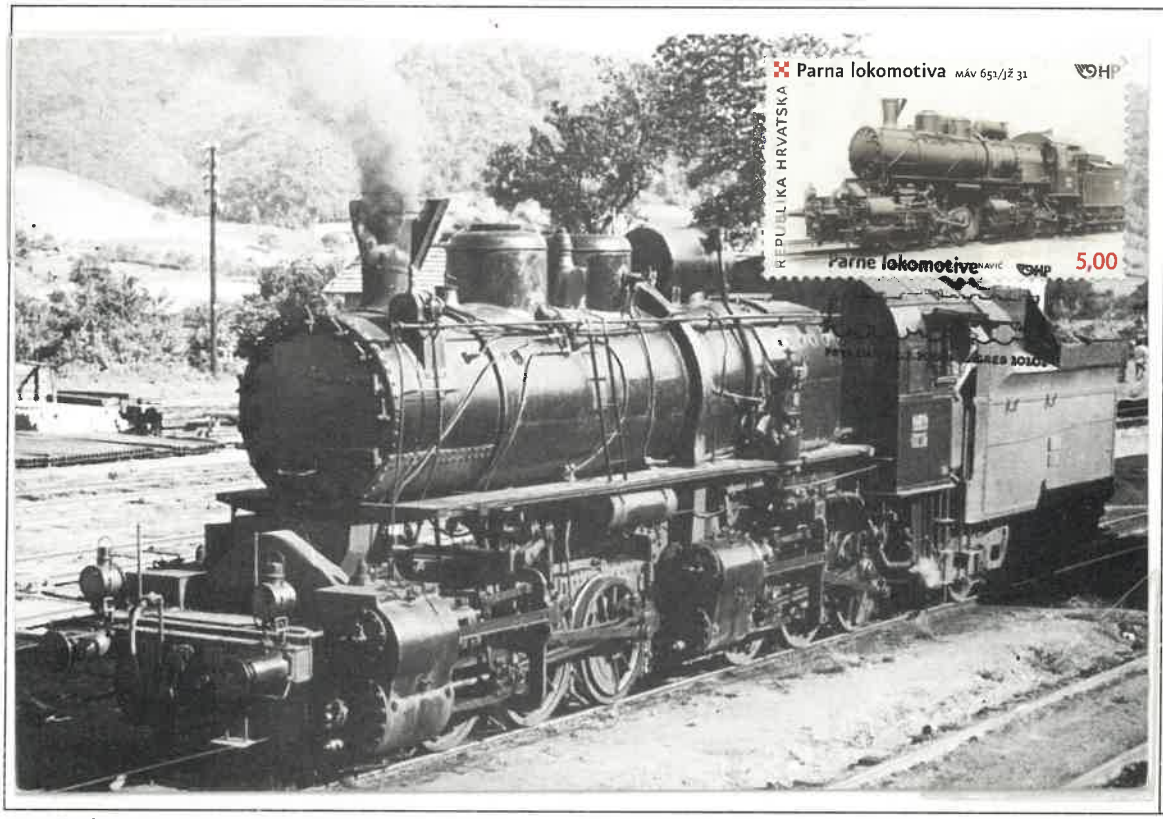
Issued:
03.07.1992
Canceled:
03.07.1992
Card:
Yugoslav railways

Yugoslav steam locomotive- JŽ Series 73, (760 mm – Bosnian gauge) and wheel arrangement 0-8-0T, produced in various European builders (early 20th century). Designed for heavy freight on narrow-gauge lines with tank steam locomotive (no tender) high tractive effort, low maximum speed of 30 km/h, coal-fired boiler, very robust and simple construction, good adhesion, ideal for mountainous terrain. Used in Bosnia and Herzegovina, Serbia, Montenegro, Kosovo, Macedonia for industrial freight lines (timber, ore, coal) in steep gradients and tight curves, rarely used for passenger service.



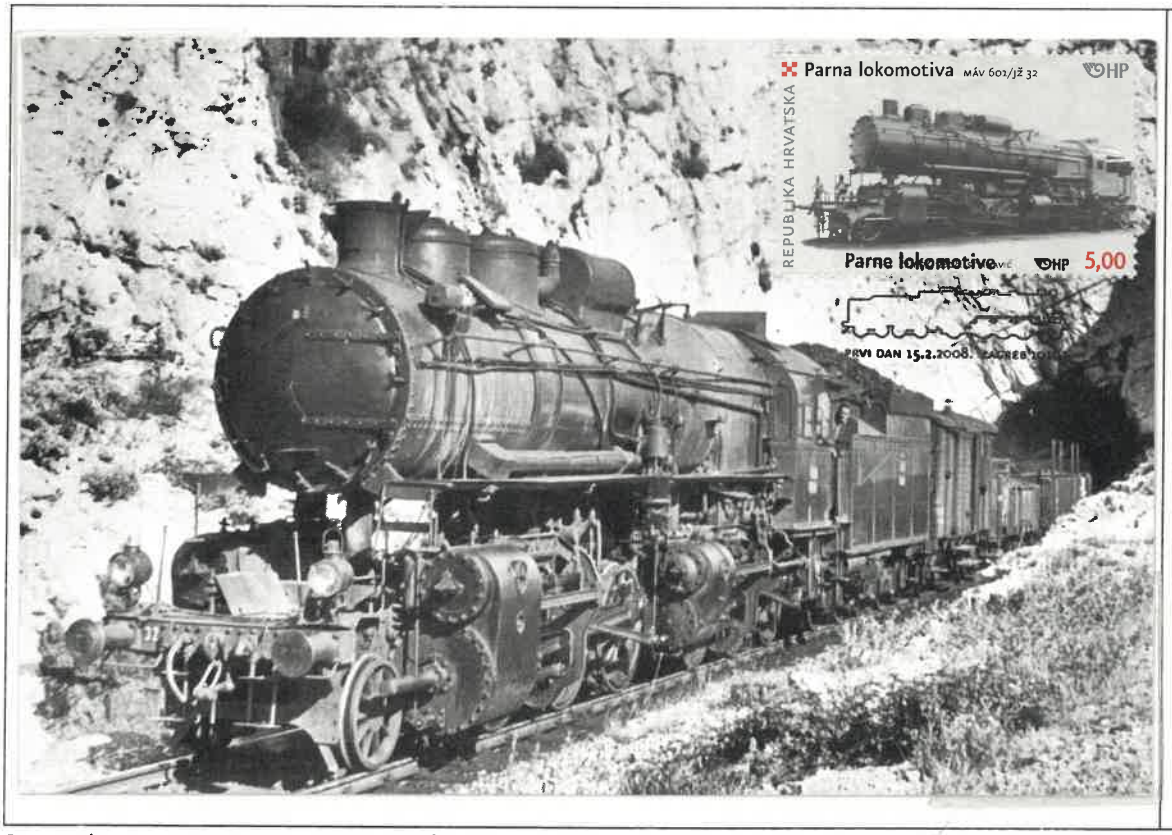
Issued:
03.07.1992
Canceled:
03.07.1992
Card:
Yugoslav Railways:

Yugoslav steam locomotive- JŽ Series 83, Narrow gauge (760 mm – Bosnian gauge) and wheel arrangement: 2-8-2T (Mikado Tank) produced in factories Škoda, Krauss, Borsig, and Henschel. Designed for mixed traffic (passenger and freight) with coal-fired boiler, leading axle for better stability, maximum speed of 50 km/h, service weight of 60 t. Used on main narrow-gauge routes in Bosnia, Serbia, Montenegro (Famous lines such as Sarajevo–Mostar, Šargan Eight) for passenger express and mixed trains. Some preserved today as museum locomotives.



Issued:
05.02.2008
Canceled:
05.02.2008
Card:
HZ Holding

Steam locomotive series MAV 651/JZ 31, manufactured in Hungarian factory MAV Gepgyar in Budapest in the period 1909-1914 – first locomotives with six-power-generating axles. The power of the locomotive was 765 KW, the length was 18.734mm, the weight 79.8t and the highest speed 50 km/h. in Croatia there were 9 locomotives of this series pulling goods train on Rijeka and Lika railway lines to the mid-1960s.



Issued:
05.02.2008
Canceled:
05.02.2008
Card:
HZ Holding

Steam locomotive Series MAV 601/JZ 32, manufactured Hungarian factory Gepgyar in the period 1914-1921 for traction of goods trains. The power of the locomotive was 1228 KW, the length was 22.570mm, the weight 109.9t and the highest speed 60 km/h. in Croatia there were 36 locomotives of this series pulling goods train on Rijeka and Lika railway lines to the mid-1960s.

Issued:
07.11.2011
Canceled:
07.11.2011
Card:
Zora Print, Sofia

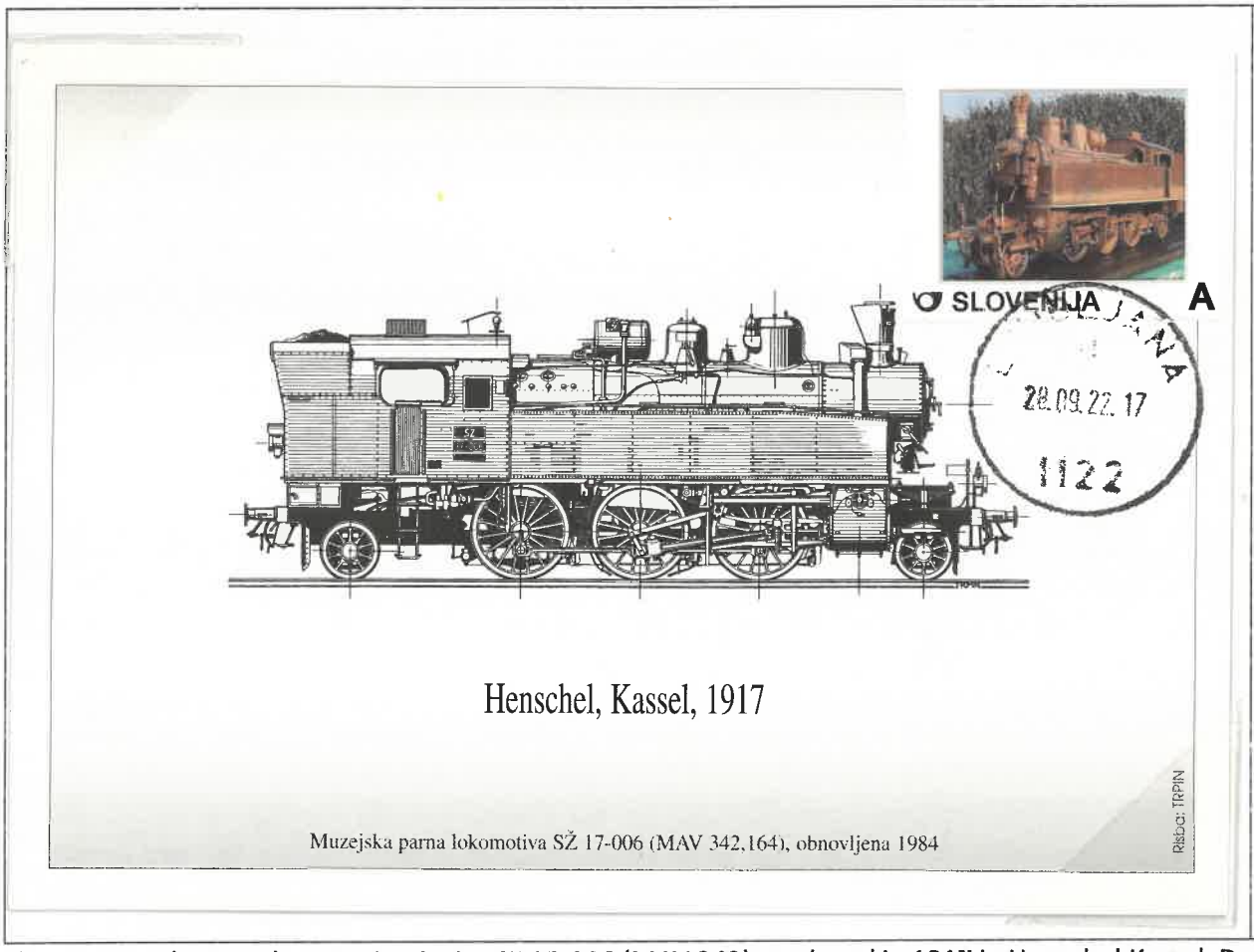
Early Bulgarian steam locomotive No. 148 produced in 1848 in Manchester, England, used on Ruse–Varna railway, the first railway line in Bulgaria for passenger and light freight transport. Characteristic with wheel arrangement typically 2-2-0 or 0-4-0, low speed, low power compared to later models and wood or coal-fired boiler.

Issued:
08.06.1969
Canceled:
08.06.1969
Card:
Unknown

Bulgarian early European steam locomotive (stylized / historical design), artistic representation rather than a specific operational model, inspired by early 19th-century steam engines with large driving wheels and vertical boiler design elements, symbolizes early European railway development.

Issued:
31.10.2008
Canceled:
31.10.2008
Card:
FD Rumijabar No.1

Steam locomotive "Lovken" was Klien-Linder locomotive type with 3 axles, that pulled 45 t, with speed of 15 km/h on the mountainous area and operated on routes Cetinje-Kotor and Cetinje-Podgorica-Nicksic in Montenegro starting from 26.09.1908.



Issued:
28.09.2022
Canceled:
28.09.2022
Card:
Tiskarna
Oman

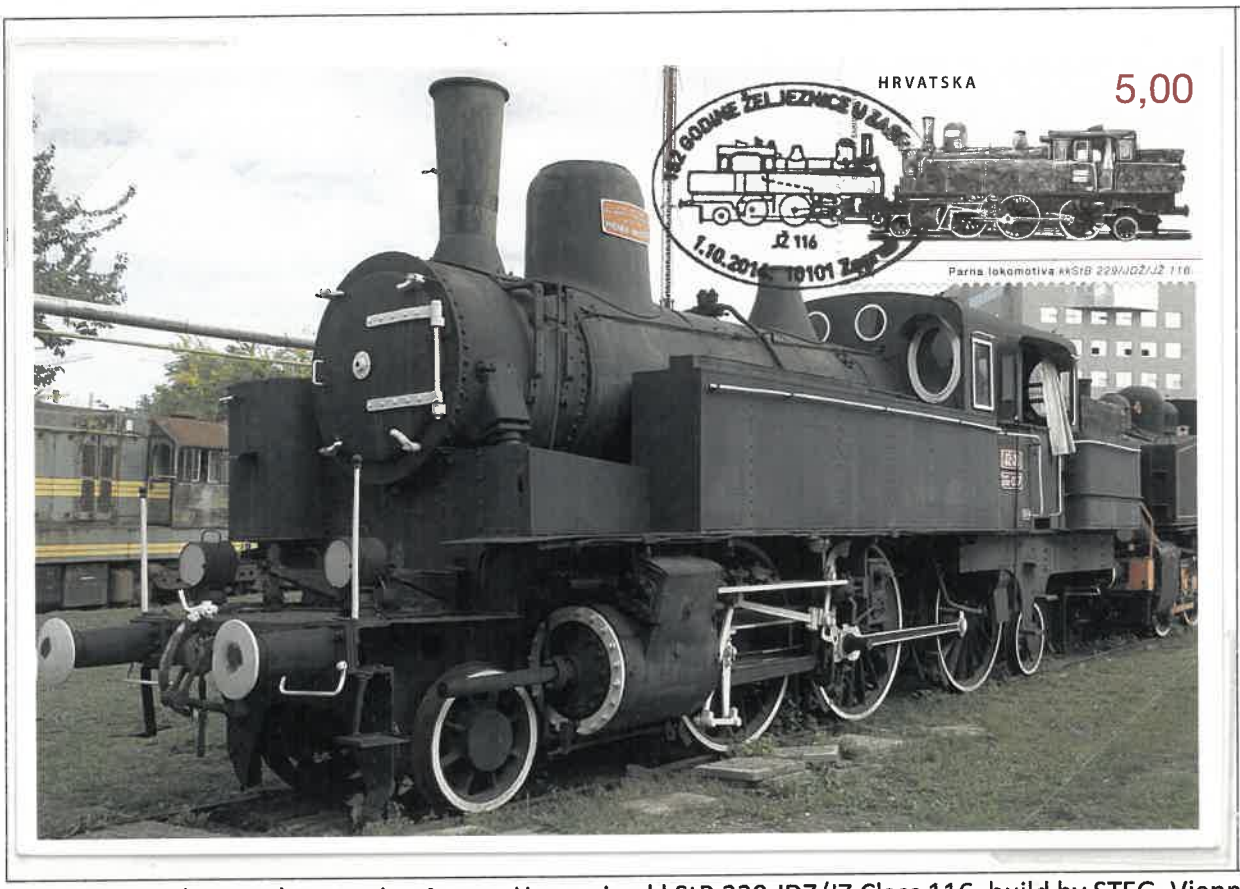
Slovenian tank steam locomotive Series SZ 17-006 (MAV 342) produced in 1917 in Henschel,Kassel. Designed mainly for suburban and regional passenger services with good acceleration and stable running in both directions, coal-fired boiler, medium axle load, suitable for secondary lines, compact design, ideal for stations without turning facilities, service weight 72 t, maximum speed of 60 km/h and driving wheel diameter of 1,420 mm. Used for mixed passenger/freight trains on local passenger routes in Slovenia. Today preserved in railway museum in Ljubljana.

Bulgarian narrow-gauge steam locomotive Series 609 from 1940s build by Chrzanow, Poland, operated on Septemvri-Dobrinishte line with maximum speed of 40 km/h for passenger and freight transport in steep mountainous terrain. Commemorative issue to mark 100 years of the Rhodope narrow-gauge railway.

Issued:
02.08.2022
Canceled:
02.08.2022
Card:
Stivens LTD, Sofia

Steam locomotive CO Chemins DC FR orientaux type C'3 T-0-6-OT, with 3 axes and 6 wheels and coal tender. Constructed by Georg Sigal, produced in 1870 in the Sigal factory and pulled the first train in Macedonia, on the route Skopje –Thessaloniki and backwards starting on 09.08.1873.

Issued:
09.08.1998
Canceled:
09.08.1998
Card:
RVJ Foto, Zagreb



Issued:
01.10.2014
Canceled:
01.10.2014
Card:
FD Postar,
Zagreb

Early industrial steam locomotive Austro-Hungarian kkStB 229 JDZ/JZ Class 116, build by STEG, Vienna, used in Croatian railway transport for short-distance freight and local services. Commemorative issue with special postmark

Issued:
03.10.2016
Canceled:
03.10.2016
Card:
Tiskara Grafing,
Zagreb

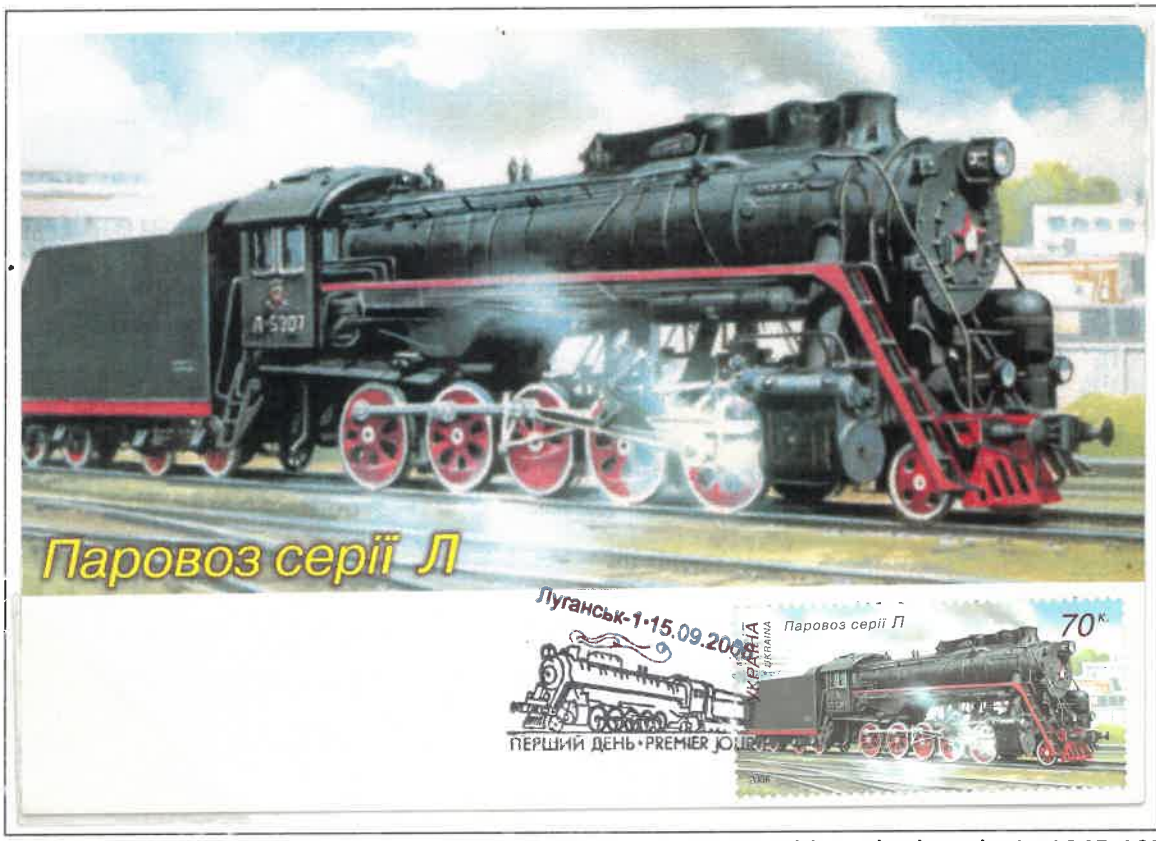
Steam locomotive model No.207 build in 1949 at the Djuro Dakovic factory in Slavonski Brod for hauling in industrial plants and mines on the 600 mm gauge, used in the mine Rudovci and Tile and Brick Factory Ilovac in Karlovci. The power of the locomotive was 26 kW; its length was 5.312 mm, weight 8.87 t and highest allowed speed 20 km/h.

Issued:
06.09.1981
Canceled:
06.09.1981
Card:
Unknown

Heavy freight steam locomotive CU ABUR No.486 type 1-B-1 "Orleans", constructed in 1983 locomotive factory S1S-A in Vienna, used for heavy freight service on long-distance trains, like international freight corridors toward Hungary and Yugoslavia, Petrosani coal basin to industrial centers.

Issued:
06.09.1981
Canceled:
06.09.1981
Card:
Unknown

Romanian Express passenger steam locomotive CFR Class 231 (Pacific Type C) build by Henschel &Son factory in 1922, used in interwar and early post-war period for high-speed passenger trains on prestige long distance routes. Operated by CFR until 1980.



Issued:
01.09.2006
Canceled:
01.09.2006
Card:
Valerij Rudenko

USSR/Ukraine freight steam locomotive Soviet Class L, designed by Lebedyansky in 1945-1955. Mainline cargo across the USSR like Siberian freight corridors, Moscow-Ural industrial region, Donbas coal fields-steel plants.

Issued:
01.09.2006
Canceled:
01.09.2006
Card:
Valerij Rudenko

Steam locomotive Soviet Class SO (Predecessor to the L class) named after Sergo Ordzhonikidze, build 1934-1951 and used for heavy freight service, backbone of Soviet freight transport before WWII.

Issued:
28.10.1981
Canceled:
28.10.1981
Card:
RO Jugomarka, Beograd

Steam locomotive operated in 1914 in Serbia, used for pulling ships on the river Danube in the sips channel in Serbia, which were 2 km long and 20 m wide. This locomotive was withdrawn from use in 1919 by the Serbian army in the lower part of the Danube river.

Issued:
03.07.1992
Canceled:
03.07.1992
Card:
Yugoslav Realways

Steam locomotive JDZ Class 16- SAVA 1-B-1 from 1936, with Austro-Hungarian industrial steam design produced in the factory Schwarzkopf, Berlin and used for short local freight duties. Main routes were Belgrade railway yards, Zagreb shunting areas, Ljubljana station and industrial sidings, local factory and depot connections.

Issued:
17.04.2015
Canceled:
17.04.2015
Card:
Marijan Dujnic

Slovakian CSD Class 498.1 "Albatros", build in 1952 in Skoda Works Factory, with modern standards for these units included mechanical stokers, the Kylchap dual blast pipe, a Škoda design multiple safety valve, a water purifier installed in the front dome, as well as SKF side rod and drive rod bearings. One of Europe`s fastest steam locomotives with top speed of 160 km/h used for prestige international services on high-speed express passenger trains.

Issued:
01.09.2006
Canceled:
01.09.2006
Card:
Valerij Rudenko

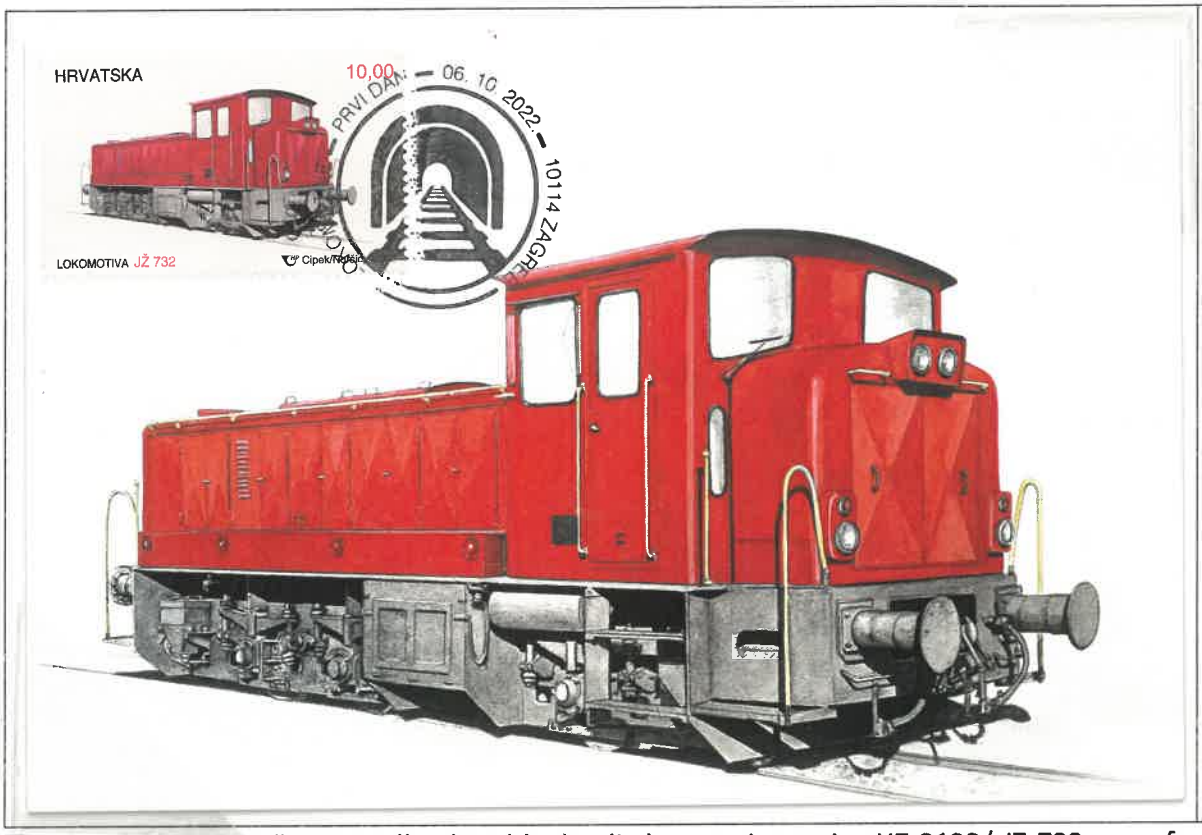
USSR/Ukraine freight steam locomotive Soviet Class FD named after Felix Dzerzhinsky, one of the most powerful Soviet steam locomotives used on long-distance mainline service like Trans-Ukrainian freight corridors, Donbas-Ural industrial lines etc.

Rudolf Diesel (1858–1913) a German engineer and inventor of the diesel engine. His invention played a key role in the development of diesel and diesel-electric locomotives.The diesel engine was more fuel-efficient, reliable, and easier to maintain than steam engines. It allowed locomotives to start quickly, operate over long distances, and reduce operating costs.

Issued:
18.06.2008
Canceled:
18.06.2008
Card:
Rojal Art, Skopje

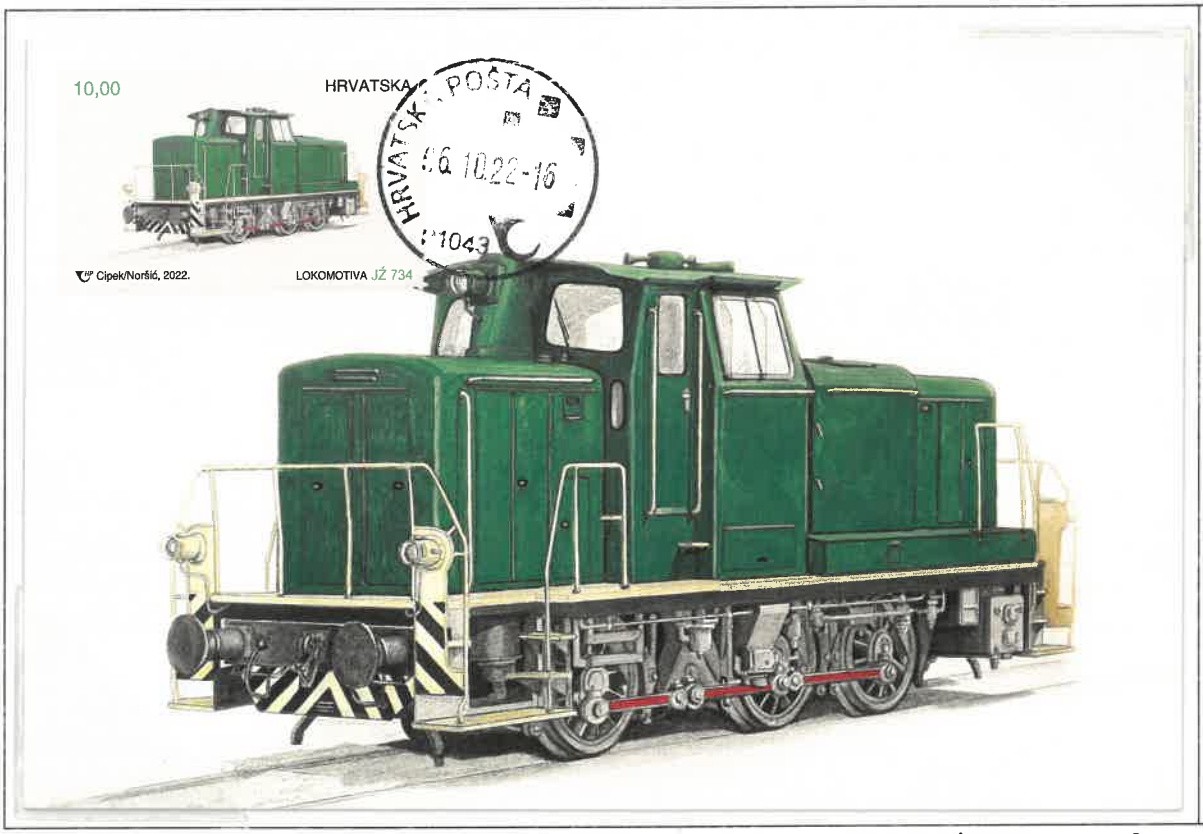
Bulgarian electric multiple unit EMU with electric motors installed under multiple cars, characteristic with fast acceleration and efficient braking and modern cab with improved driver visibility. Used for high-frequency daily operations around major cities on modern electric traction.

Issued:
07.12.2007
Canceled:
07.12.2007
Card: Rojal Art, Sk



Issued:
06.10.2022
Canceled:
06.10.2022
Card:
Maja Cipek, Zagreb

Shunting locomotive "Manevra" - diesel hydraulic locomotive series HZ 2132/ JZ 732 manufactured in 1969, at the "Djuro Dakovic" factory, used mainly for moving train cars within station or rail yards.



Issued:
06.10.2022
Canceled:
06.10.2022
Card:
Maja Cipek, Zagreb

Shunting locomotive Schwabica - diesel hydraulic locomotive series HZ 2133/ JZ 734 manufactured in 1959 at the Kiel AG factory, Germany. This locomotive type had installed diesel engine Maybach STO 6 with power of 441KW and developed speed of 30-60 km/h, used for light freight and local railway operation.

Issued:
20.05.1982
Canceled:
20.05.1982
Card:
J.Levinovski

Soviet Union/Russian, Diesel-electric shunting locomotive TEM 7, manufactured in Lyudinovo Diesel Locomotive Plant in the mid-1970s with power of 2000 hp and very high tractive effort at low speeds used for heavy shunting and industrial freight work.

Issued:
25.03.1988
Canceled:
25.03.1988
Card:
Sn.Il.Zinoviev

Bulgarian Diesel Locomotive BDZ Class 06 (Soviet M62 type) produced in Luhansk Locomotive Works, USSR (today Ukraine) in 1964. Characteristics for power output: approx. 2,000 hp (1,470 kW), axle arrangement Co-Co, maximum speed: 100 km/h and heavy freight capability. Operated across Bulgaria, mainly for freight trains and for heavy passenger trains on non-electrified lines.

Issued:
15.10.2018
Canceled:
15.10.2018
Card:
Rojal Art, Skopje

Diesel-electric locomotive JZ 642/HZ 2041, produced in Djuro Dakovic Factory in 1961 with four axels, equipped with four-stroke diesel engine, traction power of 425 kW, weight in service 63 t and maximum speed of 80 km/h. Railway Transport Zagreb received 33 locomotives between 1962 and 1965, some of them still in use for heavy shunting by HZ Cargo.

Issued:
15.10.2018
Canceled:
15.10.2018
Card:
Rojal Art, Skopje

Diesel-electric locomotive JZ 661/HZ 2061, the first multi-system diesel locomotive model G16 in the vehicle fleet of Yugoslav Railways manufactured in the American factory General Motors - EMD, popularly called "Kennedy". Used for pulling all types of passenger and freight trains on all railway categories. A total of 220 locomotives were purchased for JZ, part of them operated in Croatia, which massively replaced steam locomotives on the tracks in the area.

Issued:
25.10.1981
Canceled:
25.10.1981
Card:
I.P.Bucuresti No.1

Romanian Electric locomotive CFR Class 060-EA produced by Electroputere Craiova, Romania (license-built based on Swedish ASEA technology) in 1965. Characteristics: system 25 kV AC, power output approx. 5,100 kW, axle arrangement Co-Co and maximum speed of 120–160 km/h. Operated on Romania's main electrified lines, used for both passenger and freight trains.

Issued:
18.02.1982
Canceled:
18.02.1982
Card:
PhilSwiss

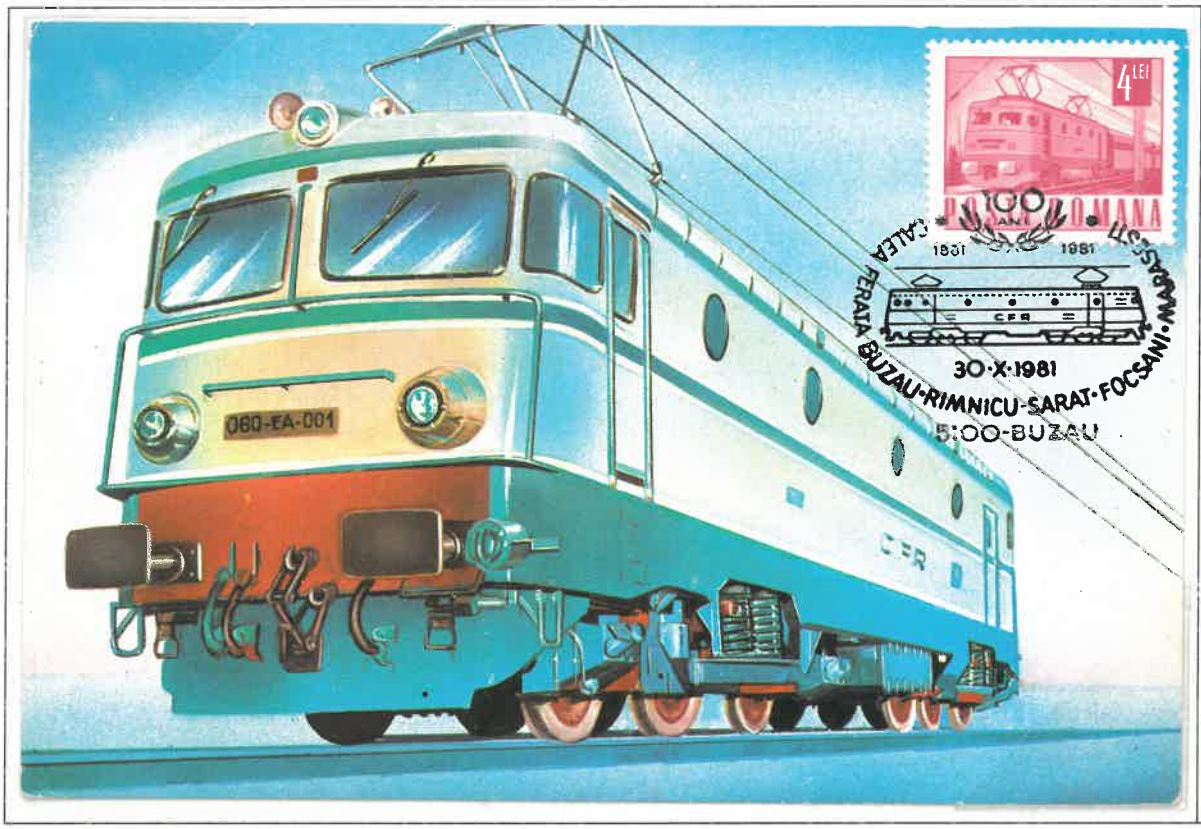
Swiss electrical locomotive Series SBB Ae 6/6 produced by SLM Winterthur Switzerland in 1952. Main characteristics:System 15 kV 16⅔ Hz AC, power output approx. 4,300 kW, axle arrangement Co-Co and maximum speed: 125 km/h. Operated by Swiss Federal Railways (SBB), mainly on the Gotthard line, used for heavy freight and passenger trains through Alpine routes.

Issued:
06.09.1981
Canceled:
06.09.1981
Card:
Unknown

Romanian Diesel-Electric locomotive Series 60, built by Electroputere Craiova known as EA-type (based on the license of the Swedish company ASEA). Design for standard gauge (1435 mm) and run using a catenary wire at 50 Hz 25 kV AC with max speed of 100 km/h.

Issued:
05.04.1983
Canceled:
05.04.1983
Card:
Zeleznicki Muzej,
Beograd

Yugoslav Electric passenger and freight locomotive JŽ Series 441, Produced in Rade Končar factory (based on ASEA technology) in the period 1967–1980. Main characteristics: power system: 25 kV AC, power output: approx. 4,000–4,400 kW, maximum speed: up to 120 km/h and Bo-Bo wheel arrangement.Operated by Yugoslav Railways on major electrified routes, including the Rijeka line (Riječka pruga) and other main corridors across former Yugoslavia (today Croatia, Serbia, Bosnia and Herzegovina, etc.).



Issued:
30.10.1981
Canceled:
30.10.1981
Card:
I.P.Bucuresti No.1

Romanian Electric passenger and freight locomotive CFR Class 40, produced in Electroputere Craiova under license from ASEA (Sweden) from 1965 onward. Main characteristics: power system: 25 kV AC, power output: approx. 5,100 kW, maximum speed: 120–160 km/h, Co-Co wheel arrangement.Used throughout Romania on main electrified lines for both passenger and freight services. Some units were also exported to Yugoslavia and Bulgaria.

Issued:
22.06.1988
Canceled:
22.06.1988
Card:
Sn.Il.Zinoviev

Bulgarian Electric locomotive BDZ Class 44 produced in Škoda Works, Plzen, Czechoslovakia in 1979. Main Characteristics: Power output approx. 4,000 kW, system 25 kV AC, axle arrangement: Co-Co and maximum speed of 130 km/h.Operated on main electrified railway lines in Bulgaria used for both passenger and freight trains.

Issued:
07.09.1990
Canceled:
07.09.1990
Card:
I.P. Sibiu

Diesel Multiple Unit (DMU) series CFR Class77 (Malaxa-type railcar). Build for Romanian State Railways (CFR) widely used in the mid-late 20th century, used for regional and local passenger services on non-electrified lines.

Issued:
02.07.1995
Canceled:
02.07.1995
Card:
Unknown

Yugoslav Electric locomotive series JZ Class 441, build under ASEA (Sweden) design, one of the most important Yugoslav electric locomotives with high pulling power used for passenger and freight trains on main electrified routes.

Issued:
01.08.2022
Canceled:
01.08.2022
Card:
Steven's Ltd.

Bulgarian Electric Multiple Unit (EMU) Series BDZ Class 32 (Siemens Desiro Classic) with distributed traction with distributed motors, fast acceleration and efficient braking, designed for frequent-stop services introduced in the 2000s. Used for suburban and regional transport.

Issued:
07.03.2006
Canceled:
07.03.2006
Card:
Unknown

Swiss Electric locomotive Series SBB Re 460 (Lok 2000), high-performance passenger locomotive with maximum speed around 200 km/h, designed for alpine terrain with advanced braking and safety systems. This is iconic modern Swiss design was used for intercity and international services.

Issued:
04.10.2024
Canceled:
04.10.2024
Card:
Rojal Art, Skopje

Croatian Electric locomotive Series HZ Class 1141 (ASEA RC 4 family) powered by overhead catenary with Bo'Bo' wheel arrangement and maximum speed of 160 km/h. Designed for reliability and strong traction, operated on main electrified lines, widely used in Croatia and neighboring countries.

Issued:
04.10.2024
Canceled:
04.10.2024
Card:
Rojal Art, Skopje

Croatian Electric locomotive series HZ Class 1142 produced in Yugoslavia (licensed production by ASEA) optimized for heavy freight transport with very robust and reliable construction, equipped with electric braking ideal for mountain routs and heavy load corridors.

Issued:
03.07.1992
Canceled:
03.07.1992
Card:
Yugoslav Realways

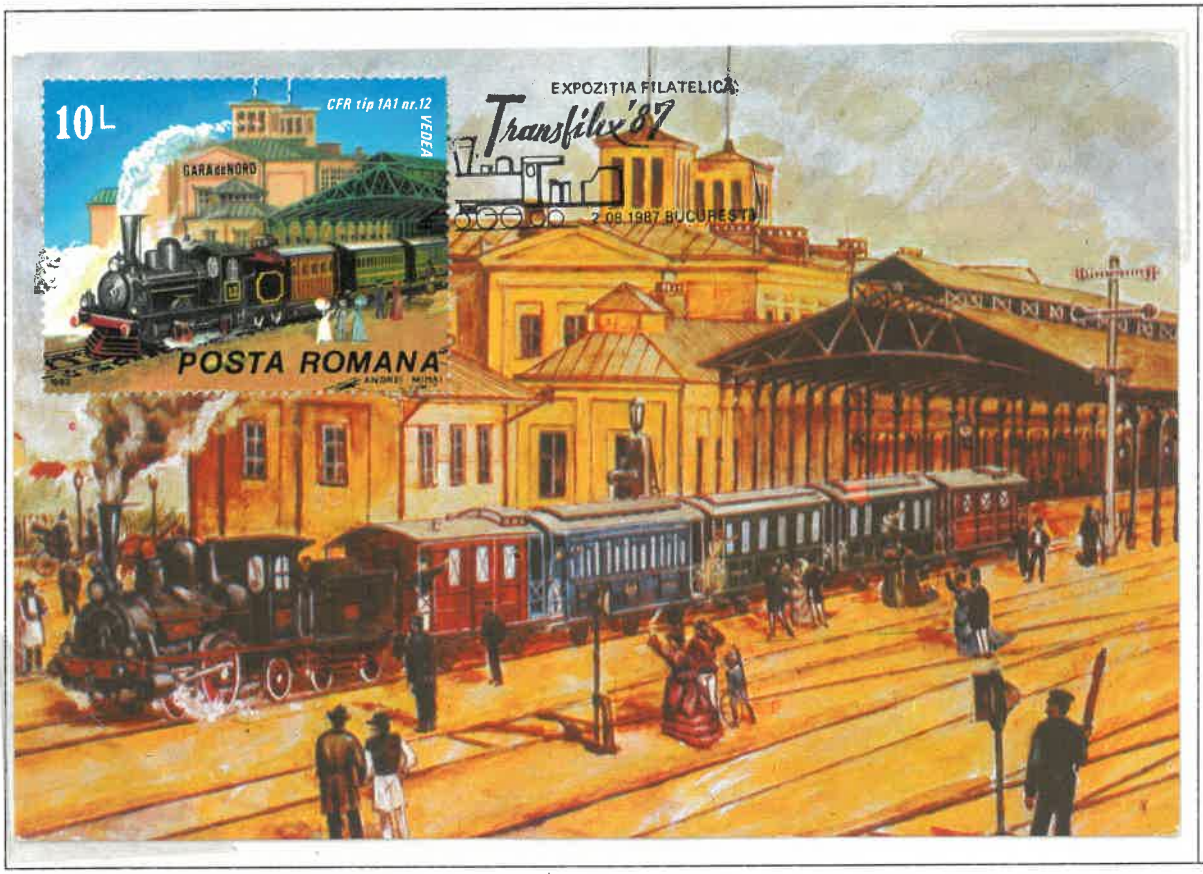
Steam locomotive- Passenger train composition with 3-8 passenger coaches made of wood or early steel and steam heating for passenger coaches with moderate speed and frequent stops, produced in 1909 especially for the prince Nikola Obrenovic of Serbia.

Issued:
04.04.2018
Canceled:
04.04.2018
Card:
Rojal Art, Skopje

Steam locomotive K 44 class 99.4 –Freight train composition with open freight wagons for coal, ore, timber and covered wagons for general goods, produced by Hencshel-Sohn factory and design by DN2T in 1918,. It was long 5.88m with maximum speed of 25 km/h operated on route Skopje –Ohrid until 1969. Today this locomotive is kept in Skopje and there is one more preserved in the museum of Belgrade, Serbia.

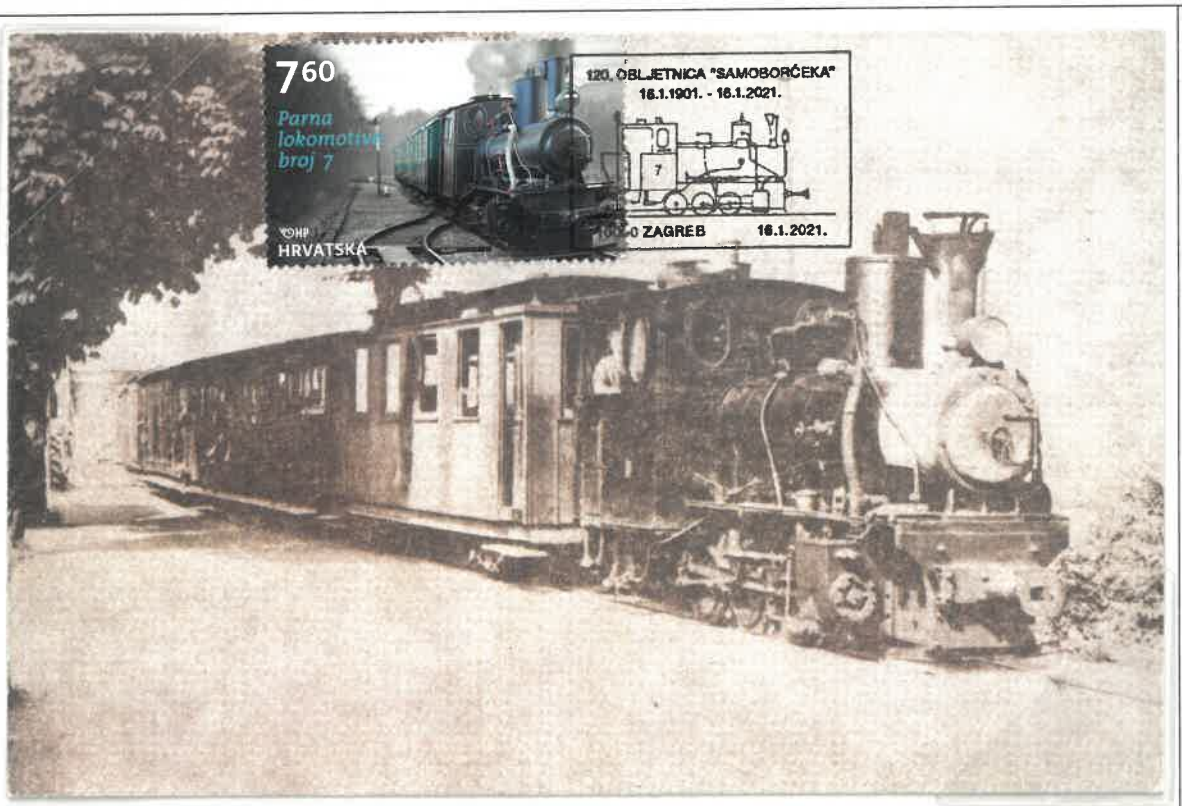
Issued:
17.04.2015
Canceled:
17.04.2015
Card:
Slovenska Posta

Steam locomotive –Mixed train composition with 1-2 passenger coaches and several freight wagons, used in areas with low passenger demand in rural and lightly used railway.



Issued:
07.08.1987
Canceled:
07.08.1987
Card:
I.P.Bucuresti No.1

Steam locomotive –Industrial/Narrow-gauge train with short, sometimes open passenger wagons used in forestry, mountain and rural areas.



Issued:
16.01.2021
Canceled:
16.01.2021
Card:
Unknown

Historic Steam-powered (coal or wood-fired boilers) train composition with low to moderate speed (typically 30–60 km/h), simple mechanical design, used for short- and medium-distance passenger light freight transport. Operated in Croatia, Austria-Hungary region, Slovenia, mainly regional and local railway lines in late 19th to early 20th century.

Issued:
28.09.2022
Canceled:
28.09.2022
Card:
Europcar

Museum Steam Train – "Muzejski vlak" reconstructed steam Tourist excursion train with authentic historical appearance operated at reduced speeds for safety and experience in Slovenia and neighboring countries, scenic mountain and forest railways, special museum or heritage rail lines for tourism and cultural heritage, education and historical preservation.

Issued:
09.11.1977
Canceled:
09.11.1977
Card:
Agfa Film

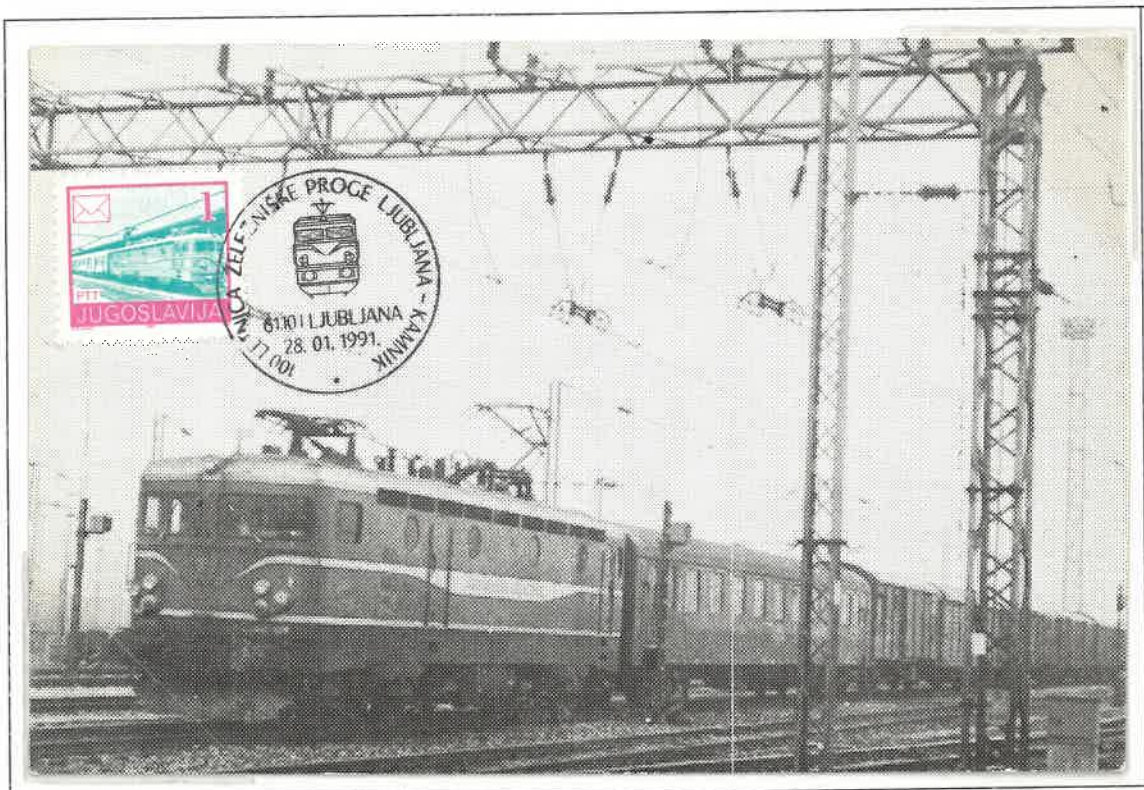
Bulgarian Narrow-Gauge Freight train composition with light freight wagons for transport of timber, minerals and industrial goods, serving remote or mountainous regions. Designed for tight curves and steep gradients with smaller size and lower axle load. Operated in Bulgaria and the Balkans on mountain railways and industrial lines, mostly in 20th century.

Issued:
15.12.2022
Canceled:
15.12.2022
Card:
Steven's Ltd.

Bulgarian Firefighting Train- specialized railway firefighting and emergency response train operated by Bulgarian State Railways (BDŽ) used for extinguishing fires along railway lines, responding to forest fires near tracks, intervening in accidents involving hazardous materials and providing water supply in hard-to-reach areas. Design with large water tank wagon, high-capacity water pumps, and mounted water/foam cannon on the roof, equipment for rescue and technical intervention. Usually includes service wagons for crew and equipment. Operated across Bulgaria, especially in mountainous and forested regions where road access is difficult. It can quickly reach remote railway sections and support national emergency services.

Issued:
11.05.1955
Canceled:
11.05.1955
Card:
Unknown

French Electric composition with locomotive BB 12000 operated in Northeastern France (especially the Valenciennes–Thionville region) on main electrified routes of SNCF from 1950s onward for freight and passenger transport with speed of 105-120 km/h.



Issued:
28.01.1991
Canceled:
28.01.1991
Card:
FD Zeleznicar, Beograd

Yugoslav Electric train composition pulled by locomotive Series JŽ 441, produced in Rade Končar (Zagreb) in 1967–1980s with technical characteristics: power supply: 25 kV AC, 50 Hz, maximum speed of 120 km/h and wheel arrangement: Bo-Bo used for passenger and freight services. After the breakup of Yugoslavia, it continued operating in Serbia, Croatia and Bosnia and Herzegovina.

Issued:
19.03.1962
Canceled:
19.03.1962
Card:
Unknown

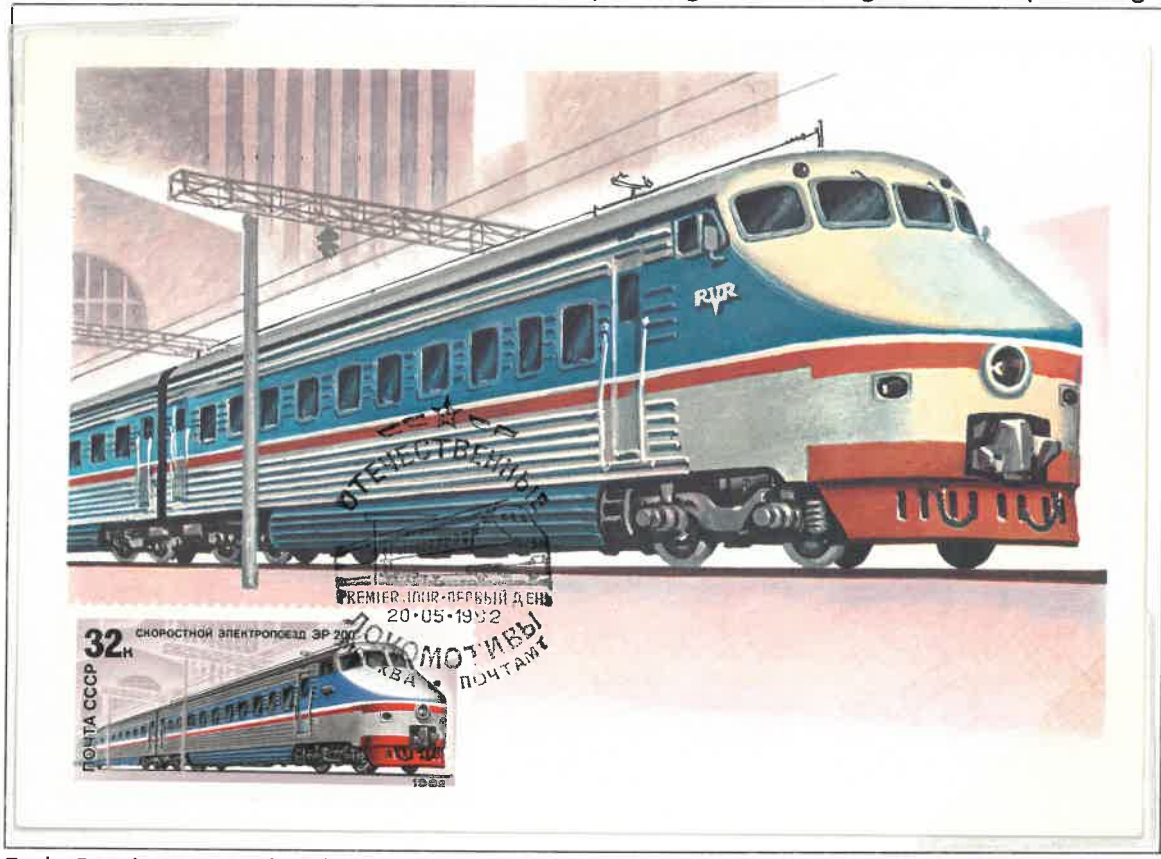
Swiss Electric Passenger Trains with electric traction (15 kV AC, Swiss standard), high reliability and strong braking systems and optimized for steep gradients and tunnels. Operated in Switzerland, alpine and lake routes (Gotthard, Lötschberg, Lake Geneva area) in mid–late 20th century for daily passenger transport.

Issued:
01.09.1974
Canceled:
01.09.1974
Card:
Cliché S.N.C.F.

French High-Speed Train – TGV, High-speed passenger-only trains (fixed trainsets, not traditional locomotive-hauled coaches) with electric multiple-unit design, top speed of 270 km/h, lightweight articulated coaches and aerodynamic design. Operated in France (core network), International services to Belgium, Switzerland, Germany, Italy, Spain from the late 1970s to today, used for rapid long-distance passenger transport competing with air travel on domestic routes.

Issued:
20.05.1982
Canceled:
20.05.1982
Card:
J.Levinovski

Soviet Heavy freight Electric Locomotive VL 80 produced in Novocherkassk Electric Locomotive Plant (USSR) in 1961. With Power system of 25 kV AC, wheel arrangement: Co-Co + Co-Co (two-section locomotive) and maximum speed of around 100 km/h, designed for hauling very heavy freight trains. Widely used across the Soviet Union, later in Russia, Ukraine, and other post-Soviet countries, mainly on long-distance freight corridors (including Siberian industrial routes).



Issued:
20.05.1982
Canceled:
20.05.1982
Card:
J.Levinovski

Early Russian Streamlined Electric Passenger Train Model ER 200 with fixed or semi-fixed trainset, electric traction, streamlined nose for higher speeds (typical speeds of 140–160 km/h) used for long-distance express passenger transport and premium intercity services. Operated on main electrified corridors (1950s–1960s) in Russia, Western and Central Europe.

Issued:
08.09.1984
Canceled:
08.09.1984
Card:
Jean Farcigny

French High-Speed Experimental Train "TGV", designed for very high speeds (over 250 km/h), electric multiple unit (distributed traction), lightweight articulated coaches and advanced aerodynamics. Used for testing and development of high-speed rail technology in France on dedicated test lines and early high-speed routes in the late 1960s–1970s.

Issued:
02.05.2005
Canceled:
02.05.2005
Card:
Unknown

German ICE (InterCity Express) Train used for fast national and international passenger transport, alternative to air travel Germany (core network), international services to Austria, Switzerland, France, Belgium, Netherlands from the early 1990s to today. Designed with high comfort, low noise, advanced safety systems and operating speeds of 250–300 km/h.

Issued:
26.05.2005
Canceled:
26.05.2005
Card:
Bulphila

Bulgarian Modern Regional Electric Multiple Unit, operating in Bulgaria on electrified main and regional railway lines nowadays. Designed for daily commuter transport and regional connectivity with quick acceleration and braking, moderate top speed (120–160 km/h).

Issued:
26.05.2005
Canceled:
26.05.2005
Card:
Bulphila

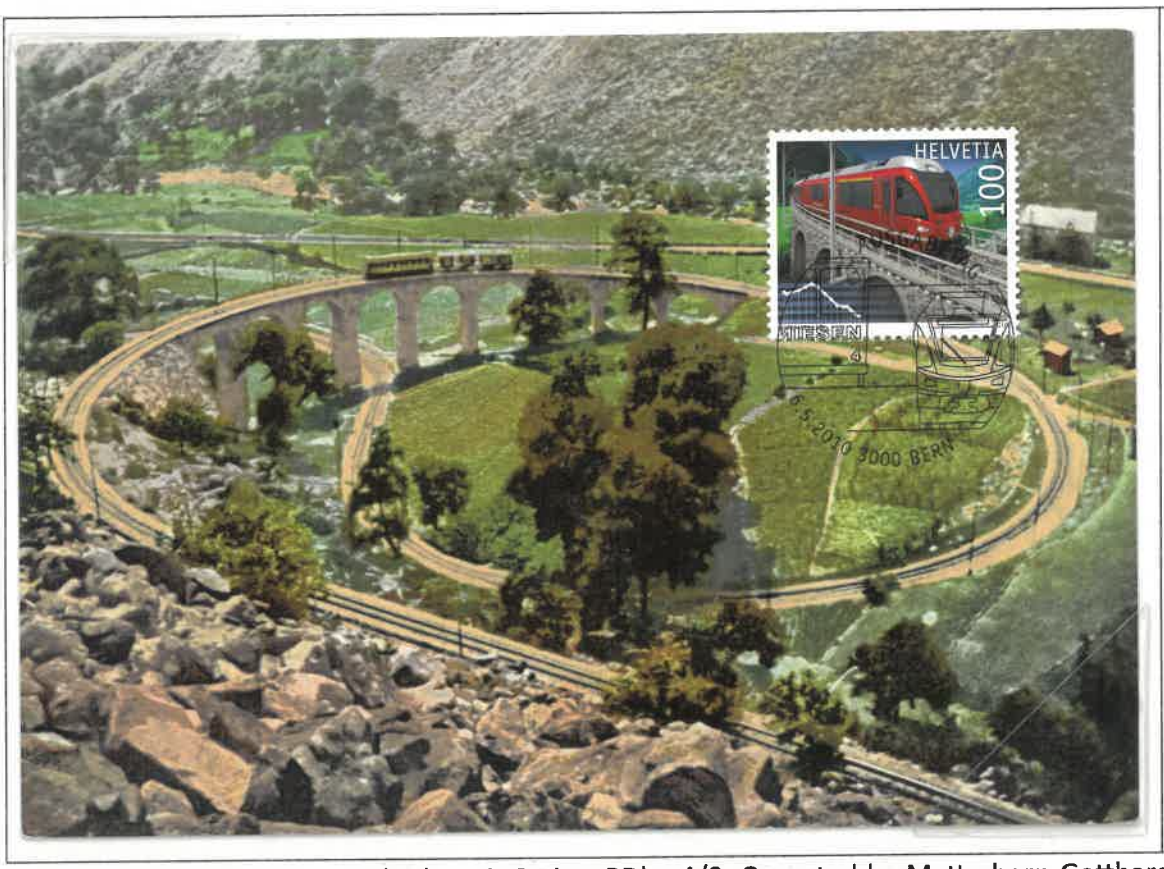
Bulgarian Electric Train Composition pulled by Heavy electric freight Locomotive BDŽ Class 46 produced in Škoda factory, Czechoslovakia in 1986-1987. Built for hauling heavy freight trains with power system: 25 kV AC, power output: approx. 5,400 kW, wheel arrangement: Co-Co and Maximum speed of 110 km/h. Operated on main electrified freight corridors in Bulgaria, especially on routes connecting Sofia with industrial and Black Sea regions (e.g., Burgas and Varna).

Issued:
31.05.2007
Canceled:
31.05.2007
Card:
Security Print by OSD

Austrian Electric Train Composition pulled by Electric Narrow-Gauge Locomotive Reihe E (Series E), designed for alpine mountain railways and operated by Mariazellerbahn.

Issued:
06.05.2010
Canceled:
06.05.2010
Card:
Niesenbahn

Swiss Electric rack railway multiple unit Series: BDhe 4/4, operated by Matterhorn Gotthard Bahn (MGB), (Previously operated by Furka–Oberalp Railway and Brig-Visp-Zermatt Railway). Build with Wheel arrangement Bo'Bo' (4 powered axles), power system 11 kV 16.7 Hz AC, overhead line supply and maximum speed ~90 km/h on adhesion sections and ~30–35 km/h on rack sections. Equipped with Abt rack system for steep mountain gradients and designed for operation on gradients up to 110‰ (11%). Used for passenger services on steep alpine routes in Switzerland, including sections toward Zermatt and the Oberalp Pass. Built to handle extreme mountain conditions, heavy snow, and sharp curves.



Issued:
06.05.2010
Canceled:
06.05.2010
Card:
Manfred Luchbanh

Swiss Electric rack railway multiple unit Series: BDhe 4/8, Operated by Matterhorn Gotthard Bahn (MGB) build with wheel arrangement Bo'Bo' + 2 trailer axles, power system 11 kV, overhead catenary and maximum speed of 90–100 km/h on adhesion sections and 35 km/h on rack sections. Equipped with Abt rack system and designed for steep gradients up to 110‰ and low-floor passenger compartments. Used for passenger transport on alpine routes such as Brig–Andermatt–Disentis and services toward Zermatt. Built for heavy snow conditions, sharp curves, and high mountain operation.

Issued:
28.04.2016
Canceled:
28.04.2016
Card:
Rojal Art, Skopje

Modern Regional Electric Multiple Unit MŽ Class 413 Stadler FLIRT, produced in Stadler Rail (Switzerland). Designed for frequent regional services with low-floor design, fast acceleration, and modern passenger interior. Operating in North Macedonia: Skopje – Veles – Gevgelija, Skopje – Kumanovo.