

Chapter 1 – Caption Translations (Kato Japan N Gauge 50th Anniversary Book)

Fig.1-1: JNR C50, the first N-gauge item by Sekisui Kinzoku produced in the end of 1965, is also one of the first N-gauge steam locomotives with a separated tender in the world. The proportions of the locomotive are superior no matter the angle of view.

Fig.1-2: The plastic boiler and the cab of JNR C50 were assembled with glue, which is one of the characteristics of early products made by Sekisui Kinzoku. The body parts, made by injection molding, were used as is and their surfaces were not painted. The valve gear parts and the trucks of the separate tender were produced by drop forging metal, a technique with which Sekisui Kinzoku gained expertise as a supplier of metal parts to Japanese manufactures for HO- and O-scale models after World War II.

Fig.1-3: An air compressor in Fig.1-2, the official side, and a feed water pump in the unofficial side of this figure were composed of separated top and bottom parts that were adhered to each other on the surfaces of the running board. The couplers (downsized NMRA X2F types) had been used for most early Japanese prototypes until 1968, while Arnold couplers, introduced in 1967, were used for U.S. prototypes after an agreement for the unification of N-gauge couplers with European manufacturers in Nürnberg.

Fig.1-4: Details of the engine front, composed of smooth flat and curved surfaces, are quite simple compared to models today. Even number plates are not supplied for the first C50. The second steam locomotive JNR C11 by Sekisui Kinzoku which was then followed by the C62 and D51 were produced five years later and beyond and had number plates which were printed on a paper sticker.

Fig.1-5: All early products were shipped in paper boxes. The box design with a thin plastic cover is similar to that of Arnold rapido. In the early days of Japan, the term of "9mm gauge" was used instead of "N-gauge" so as not to be confused with HO "Narrow" gauge. The use of the character "N" was brought in from Europe in 1963-1964 and was therefore already in use on the box of Japanese products in 1965.

Fig.1-6: In the first C50, a motor located inside the separate tender gives power to the three driving wheels of the engine through a universal joint. The C50 was divided into those of original and later production, which differ in the motor, weight distribution and the material of the universal joint. The original production utilized an outsourced caramel motor with a rectangular cross section, while the later production used an original small round motor. The period of each production was around one year and was discontinued in 1967.

Fig.1-7: JNR 3rd class passenger coach OHA31 is another first item by Sekisui Kinzoku produced in 1965 with the original C50 release. The original production on the right is characterized by metal trucks, which were replaced by plastic trucks in a second production one year later. The truck in the second production was painted in matte black. This matte finish was omitted from the third production. The last production had Arnold couplers and an exceptionally painted body. The production of early OHA31 cars lasted through the beginning of 1964.

Fig.1-8: Early OHA31, characterized by an unpainted body, a roof without reproduction of the lighting windows, and early couplers, was produced for around three years and replaced by an improved series in 1971 including the 2nd class coach ORO30 and the combination OHANI30.

Fig.1-9: Four variations of early OHA31 - Ordered from front to back in the order of their production. The metal truck in the original production and the painted plastic truck in the second production are obvious from the photo.

Fig.1-10: The OHA31 is packed into a paper box. Occasionally included is a one-sheet instruction manual for the locomotive C50.

Fig.1-11: The body of OHA31 is composed of six parts consisting of four body plates, a roof, and a floor plate assembled with glue to reproduce the details as much as possible under the molding technologies available at that time. It is noteworthy that the floor plate has slits prepared for the planned combination coach with large baggage doors. The combination would eventually be produced but not until a later iteration of this car design.

Fig.1-12: The models of JNR Series 103 commuter electric train was produced in 1966 and the production has been continued till today without changing main body design. The early models, which featured draw bar type couplers, a pantograph assembled by thin wires, and unnumbered bodies were produced until 1968. Three or four different car types in four different colors were produced. Motors in the MOHA103(M) were changed from one with a rectangular shape to the original round shape one used in the C50 due to its positive reception. The early production was replaced by the improved series with a new high-performance drive unit and with changes in the body structure and couplers in 1970. Some of them were exported to the U.S. and sold under the name of "subway cars".

Fig.1-13: All models in yellow or canary color, KUHA103, SAHA103 and MOHA103(M) respectively from the right in the photo, are painted on the injection color of plastic bodies to remove the transparency of the colored material. For certain other colors such as orange and light green, they were additionally painted onto a yellow injection molded body.

Fig.1-14: For the bodies, KUHA103, SAHA103 and MOHA103(M), in orange or vermilion colors, there were two variations of unpainted and painted bodies. Initially, all color variations were to be reproduced by the injection color

only. Since the second production, the bodies were painted additionally in the same color to eliminate the transparency of the material.

Fig.1-15: For the bodies , KUHA103, SAHA103 and MOHA103(M), in light green or Uguisu (a Japanese name of bird) color, there were also two variations of unpainted and painted bodies.

Fig.1-16: For blue or sky blue color, KUMOHA103(M) with the original motor was added to KUHA103, SAHA103 and MOHA103(M). Because transparency was not observed in the color of material, only unpainted bodies were produced.

Fig.1-17: The original drive unit with a box-shaped motor oriented vertically could not be inserted into the body of a head car KUMOHA103(M) with a cab, because of interference between the weight and the set-in part of front window. The problem was caused by the location of rectangular hole on the top plate of the body. The problem was solved by the development of a new small motor. As a result, the release of blue Series 103 cars, including KUMOHA103(M), was slightly delayed. The drive unit with a small motor developed originally by Sekisui Kinzoku was applied to Series 103 commuter trains in all colors during later productions.

Fig.1-18: Early productions of Series 103 cars are characterized by drawbar couplers. Because a few different shapes are needed, the order and the direction of cars coupled to each other are pre-fixed. Although the distance between the cars was kept small, the drawbars were replaced by Arnold couplers by the release of improved Series 103 models in 1970. A few attempts to use drawbars have existed so far, however none were successful because of the burdensome coupling.

Fig.1-19: Early models of the JNR EF70 alternative-current electric locomotive are distinguished from the improved models by the presence of a pantograph with a metal shoe. These models were released from 1967 to 1970 and there are 7 different variations. The original three models on the left have Sekisui early couplers, while the later four models on the right have Arnold couplers. With the exception of the two rightmost models, they have metal plated plastic bodies to reproduce the front silver lines and body numbers. The locomotive with an olive colored body was prepared for the export to the U.S. as a "Box cab electric" with a Pennsylvania freight paint scheme delivered by Con-Cor.

Fig.1-20: The original releases of EF70 are classified into three model types. The first model has semi-transparent front windows as a result of the surface finish. The first and the second models produced in 1967 have black roofs, while the model from 1968 has a silver roof. All bodies are metal plated under the paint. The vermilion body color is one of the features of early products, however, the improved models from 1971 also have the same color instead of the red applied to the models of the last group and of the recent renewal.

Fig.1-21: There are three different models of JNR prototypes in the later products from 1969 to 1970. All models have improved drive units assembled with die-cast blocks in addition to Arnold couplers replacing the early Sekisui couplers. The original models have operating headlights, which were changed to dummies in these later models. The model located in the center is of an imaginary direct-current locomotive which did not exist in prototype. The model on the right is the last model of the early EF70, where the front silver lines and numbers are reproduced by the hot stamp printing method instead of being metal plated.

Fig.1-22: Blue colors were applied only to prototypes of direct-current locomotive at that time. To pull the model of the limited express "blue train" composed of series 20 passenger cars produced in 1967, only the color of the alternative-current EF70 locomotive was changed from vermilion to blue. The model was produced in a short period until the release of a proper direct-current locomotive EF65 500 in 1970. Only a small number of blue EF70's are found today because the red color was painted on the blue body by many users.

Fig.1-23: All early models of the EF70 were sold with paper boxes. The detailed variation of paper boxes is described in Section 2.1.6 of Chapter 9.

- (a) "Middle size paper box of mid production" used for the original models of early EF70.
- (b) "Middle size paper box of later production" used for the later models of early EF70.

Fig.1-24: For original models of the EF70, a large three pole motor is installed on a plastic floor board whose surface is also metal plated for the purpose of supplying power. To compensate for the lack of weight around the motor, huge lead weights are inserted into the back side of the body. The original models have operating headlights which are switched by thin plates of selenium semiconductor contacting the bottom of the light bulbs. The structure including the fixing of the motor is slightly improved from the right to the left in the picture.

Fig.1-25: In later models, die-cast blocks were introduced to affix all components of the driving mechanisms. The superior performance of such a drive unit had already been verified by the PA-1 developed in 1967 for the U.S. market. The large motor was changed to a smaller FM-5 motor, which was widely used in the following decade, during the production of later models of the early EF70.

Fig.1-26: JNR series 20 passenger cars were composed of luxurious sleeping cars for limited express night trains developed after World War II. These models were the second release of passenger cars produced after the OHA31. Only two types of 2nd class sleeping car, NAHANE20 and NAHANEFU23 with a conductor room, were produced in 1967. The body structure and details were quite different from the improved models of series 20 passenger cars released in 1969, where five different car types including NAHANE20 were produced by using new molds. The release for the improved model of NAHANEFU23 was delayed until 1972. The picture shows an early model of

NAHANEFU23, where beige stripes are not drawn on the end face of the body.

Fig.1-27: An alternative early model of series 20 passenger cars NAHANE20, where Arnold couplers are attached instead of early Sekisui couplers. There is no official record for such a variation, however, it is at least clear that the model was produced in 1969 by the manufacturer or it had a change of trucks by a hobby store after the unification of couplers in Japan. Such a variation is observed also for a part of NAHANEFU23.

Fig.1-28: Convex molding around windows reproducing rubber gaskets to mount the glass in the prototype is one of important features of early models, while it was changed to concave molding for improved models from 1969 because of the feasibility of painting white lines along the color of prototypes.

Fig.1-29: Another feature of early models of series 20 passenger cars is the structure of the body where a roof molded with windows in one unit is separated from the body. In addition, the color of glass is transparent blue. These models were sold with paper boxes, however the paper boxes were used also for the early releases of improved models.

Fig.1-30: The first freight car by Sekisui Kinzoku is a TOKI15000 open wagon released in 1966. Early Sekisui couplers were attached to the early model. This release marked the first attempt at printing the number on the car. The TOKI15000 has been produced up through today with very little modification.

Fig.1-31: In 1967, two container freight cars, KOKI10000 and KOKIFU10000 with a conductor room, were produced. These models of high speed container freight train were suitable for being pulled by the EF70 produced at the same time. Because of the geometric irregularity of container surfaces, the lettering of the first production was not successful and the variation of available lettering was not enough, c.f. top picture and the right of bottom picture. In a half year, the quality of lettering was improved, c.f. middle picture and the left of bottom picture.

Fig.1-32: Early models of freight car characterized by early Sekisui couplers were sold with yellow paper boxes, which are referred to here as "small size paper box of original production", and "small size paper box of later production", c.f. left and right in the picture, respectively. The latter one had been used for a couple of years at least even after the unification of couplers. Details of these boxes are given in Section 9.2 (2.1.8), Chapter 9.

Fig.1-33: In 1970, a new model of direct-current electric locomotive EF65 was released to replace the temporary model of the blue EF70. Although the trucks and the shape of pantograph were not changed at all from those of the EF70, EF65 as a representative locomotive for limited express "Blue Trains" running along Tokaido-Sanyo main line was well received by the market.

Fig.1-34: The direct current locomotive EF65 as well as a KIIHA20 diesel car were the last motorized models delivered with a "Middle size paper box of later production", c.f. Section 9.2 (2.1.8), Chapter 9.

Fig.1-35: In 1970, one important motorized model of KIIHA20 diesel car was released. It contributed largely to the popularization of N-gauge in Japan, because users could enjoy the operation of a train composed of one diesel car with a minimum expense. The model has been produced until now with two different modifications of the drive unit. The early model is characterized by two large weights located at both ends of the body and was originally packed in a paper box, which is quite different from the popular model of later production with an elongated convex die-cast frame for the drive unit (c.f. Fig.7-1) and with a plastic case. There is also a model without a motor. It is quite difficult to distinguish it from the improved model because of the same outward appearance with the exception of the paper box.

Fig.1-36: Inside structure of an original production KIIHA20. The composition of drive unit parts is similar to the improved model where all parts are fixed tightly into an elongated convex die-cast frame (c.f. Fig.7-1). The shape of the bridges at the bottom of the body parts is different between the bodies with and without motor, although both variations are made by cutting from the same molded body.

Fig.1-37: The production of export models for the U.S. and continental prototypes was intended in the early stage before the completion of the first N-gauge models by Sekisui Kinzoku (c.f. Fig.4-12). In the end of 1967, the first export model, the ALCO PA-1, was manufactured and began delivery in the U.S. in 1968 with many variations of four-axle freight cars.

Fig.1-38: Models of U.S. prototypes were sold as Con-Cor models (c.f. Fig.8-4), while the name of "SEKISUI" or "SEKISUI KINZOKU" was molded on the bottom of many locomotives and rolling stocks.

Fig.1-39: The drive unit of the PA-1 with a die-cast frame anchoring all component parts was the first high-performance drive unit developed by Sekisui Kinzoku. The density of the drive unit seems to be the largest among all models by the manufacturer. To pull long trains, a requirement in the U.S., a large reduction ratio of motor revolution was realized by the introduction of cup gears between short rotating parallel shafts and of worm gears located above the trucks. A new idea of separated die-cast parts attached to the upper die-cast block across a fiber sheet of electric insulation was introduced as an original idea by Emiko Kato, the senior managing director of Sekisui Kinzoku Co. Ltd and wife of Yuji Kato. The design was an early prototype for separated die-cast blocks which operate also as electrodes for supplying power - a concept which has been widely applied to N-gauge drive units to this day.

Fig.1-40: The war bonnet paint scheme of Santa Fe is well known and popular also among Japanese modelers. The complicated painting design was reproduced by using a decal in a time when paper stickers were more common. One of the reason for the selection of the older PA-1 locomotive as the first U.S. model was to avoid the duplication of prototypes which had already been produced as N-gauge models.

Fig.1-41: In 1969, the first U.S. prototype steam locomotive was released simultaneously with four different smooth

side passenger cars. The original model had an operating hook coupler on front and drive wheels of zinc alloy without plating. Flat rubber tires were glued to an ungrooved drive wheel. The production of the J3A also had an important meaning as the first challenge of a large steam locomotive by Sekisui Kinzoku. The paint scheme of the Southern Pacific Daylight is the most beautiful among the various road names applied.

Fig.1-42: Export models for the U.S. used paper boxes similar to those of early Sekisui models for a long time. An "Extra large size paper box" was prepared for the J3A, while a "large size paper box" was for the smooth side passenger cars. Details of these boxes are given in Section 9.2 (2.1.8), Chapter 9. Full matte paint was applied to the earliest bodies of smooth side passenger cars.

Fig.1-43: High regard of Sekisui quality in both of driving performance and body details confirmed by early Con-Cor models such as the PA-1 and J3A encouraged the manufacturer to develop a new category of JNR prototype models with U.S. paint schemes. The first was likely the EF70 with a Pennsylvania freight paint scheme in 1969/1970. On this model, the body without metal plating was used because there was no need for silver printing on the front or numbers of this imaginary locomotive. There remains a question for the selection of somber color for the first item in this category. After the success of such a model, various road names were applied to the improved model of EF70, followed by many other JNR models such as the direct-current electric locomotive EF57, diesel locomotive DD13, tanker TAKI3000 etc.

Fig.1-44: The second model in this category was the diesel car KIHA20. The selected model was not classified as an early product, however it is introduced here as well as the improved models of series OHA31 passenger cars shown in Fig.1-45. There were only two color variations, Santa Fe olive and Pennsylvania Tuscan red, applied to the initial release of the improved KIHA20 which was distinguished by larger coupler pockets. The models of KIHA 20 were inserted into plastic cases, the same as those used for Japanese models. The paper insert was black and white, on which an item number 601 or 602 was stamped for the models with and without motor, respectively, regardless of road names. On the plastic cover, a red and white oval Con-Cor sticker was attached. The number of existing models is not so large today.

Fig.1-45: Improved models of series OHA31 with three different coaches, the 3rd class coach OHA31, 2nd class coach ORO30 as a diner, and passenger baggage combination OHANI30, were regarded as shorties of heavy weight passenger cars and painted either of olive or Tuscan red. There were several road names, and even variations of lettering for the same road name, reflecting a long-selling model.

Fig.1-46: Early tracks had light brown sleepers. In addition to the color, the length and the pitch were slightly larger than those introduced later, resulting in tracks that were ideal for reproducing JNR narrow gauge. Larger radii of 300mm and 270mm were employed ignoring the standards of track by European manufactures.

Fig.1-47: There are two different early switches. Both switches had a moving frog because early Sekisui models had lower wheel flanges. The original product on the left has a realistic frog shape, while a pair of guard rails is omitted. The later product in the center has a shorter frog to simplify adjustment during production. Additionally, a pair of guard rails were added. All of these early switches had a built-in solenoid machine. The right switch in the picture was produced in 1969 by Sekisui as a new series. In addition to the change of sleeper color from light brown to current black, the sizes of sleeper were changed to the dimensions used today. The period of production for the last one was not long.

Fig.1-48: Paper boxes for early switches with light brown sleepers. The left two are the original production, while right two are the later production. Exact consistency of these boxes with two different specifications of the switches mentioned above is not yet confirmed.

Fig.1-49: Paper boxes for the switch with black sleepers manufactured by Sekisui and the first box for the official straight and curved tracks made in Italy.

Fig.1-50: For the operation of N-gauge trains, an adjustable resistor of maximum 85 Ω was released in 1967, which was to be connected to any of DC power-supply unit available. An unopened early feeder is also shown.

Fig.1-51: The first catalog was prepared in 1967, which consisted of 4 x A4 pages folded into thirds. The catalog was distributed for free. Full contents are shown in pages 172 and 173. Before the publication of this catalog, information for new items was distributed via advertisement in TMS or "Tetsudo Mokei Shumi", the most popular journal for model railroading at that time in Japan.

Fig.1-52: The supply of model parts is one of the important services by Sekisui Kinzoku continued to this day. Most early parts were supplied in blister packages.