

PAPER MODEL ** KARTONMODELLBAU ** PAPIROVY MODEL

ISSN 1731-6863

Orlik

Model Kartonowy



Samochód samowyładowczy
JELCZ W640 JS



skala 1:25

Orlik
Model Kartonowy

Nr. kat. 007

Tipper Truck Jelcz W-640 JS

In 1973 Jelczańskie Zakłady Samochodowe from Jelcz established cooperation with STEYR-DAIMLER-PUCH AG company from Vienna in the area of building lorries and tipping trucks. Cooperation of Polish and Austrian designers resulted with the truck, the model of which is featured in this issue. In 1975 a licence contract agreement between Polski Przemysł Motoryzacyjny and the Austrian company STEYR-DAIMLER-PUCH AG for production of cars with large carrying capacity in Jelczańskie Zakłady Samochodowe was concluded.

Technical Data:

- Wheelbase.....2925 + 1350mm
- Total Length.....7246mm
- Total Width.....2500mm
- Height (trailer down).....3160mm
(trailer up).....6350mm
- Curb Weight.....12000 kg
- Maximum Gross Vehicle Weight.....30000 kg
- Gross Permissible Weight.....21460 kg
- Maximum Carrying Capacity.....18600 kg
- Permissible Carrying Capacity9460 kg
- Front Axle Load.....5460 – 6050 kg
- Rear Axle Tandem Load.....16000 – 23950 kg

Propulsive System:

Engine: "Leyland" SW680/101, in-line six-cylinder engine, diesel with direct injection and turbo charge. A six-section injection pump with two-range adjuster, pneumatic fuel dose correcting system, two-cylinder air-cooled compressor of one-sided action and turbocharger were employed in the engine.

Clutch: dry (i.e. operating without the use of oil), monoplate, hydraulically-controlled, servo-assisted (outer friction plate diameter – 430mm, inner friction plate diameter – 240mm).

Gear box: 6-speed manual gear box, synchronized with multiplier. Gear ratios: I-7,03, II-4,09, III-2,45, IV-1,5, V-1, VI-0,81, reverse unsynchronized – 6,48.

Brakes: main – di-circuit air-brake; parking- pneumatically controlled, controlling rear wheels; assisting- engine break, placed behind exhaust manifold, electro-pneumatically controlled, coupled with injection cut-off.

Traction and Economic Features:

- Maximum Speed.....71 km/h
- Fuel Consumption.....38l /100km
in average working conditions.....52l /100 km
- Hill-overcoming Ability.....45%
- Mileage to main repair.....200 000 km

Cargo Deck: steel, automatically-opened back, manually-opened sideboards; inside dime 4500 x 2300 x 800mm, load surface 10,35m.

Model Assembly Instructions

Legend:

- +back with Bristol board
- *back with 0,5mm thick cardboard
- **back with 1mm thick cardboard
- ***back with 1,5mm thick cardboard
-cut out/score
-bend in half and glue together
-bend in half and glue cardboard in between
-rolling direction
- pt.part(s)
- el.element(s)

Some of the parts are equipped with illustration of the way they ought to be formed. The places onto which certain parts should be glued are marked with green numbers.

Frame: Commence building the frame with making longitudinal beam from parts 1L and 1P. Each of the longitudinal beams consists of 3 parts: 1a, 1b and 1c. The diagram illustrates the way of building it. In the course of building one must pay attention so as not to allow the longitudinal beams to warp. Next build crossbars from pt.2,3,4,5,6 according to assembly diagrams. Back pt. 3a, 4a and 4b with pt. 3a', 4a' and 4b' so as to obtain elements colourful on both sides. Stick the crossbars (except for pt. 3a) to one of the longitudinal beams and afterwards stick the other longitudinal beam to them. Stick the third crossbar (from pt.3) to the bottom of the prepared frame. Now stick pt. 7,8,9 and 10, prepared according to assembly diagrams, to the frame one by one (back pt. 10c and 10d with pt. 10c' and 10d'). Back pt. 10a and 10b with pt. 10a' and 10b' after backing them with cardboard. Four sets of number plates are provided in this model, but only one of them needs to be chosen.

Back suspension: Commence building the back suspension with making el.11 and 12Next, put on and stick el.12 to both sides of el.11. Stick the prepared system to the bottom of the frame. (One needs to pay attention to the asymmetry of the el.11; the correct orientation of this element in relation to the frame is illustrated in the assembly diagram.) Next, build both springs (el.13) together with their housings (el.14). Mount the spring in the housing with the use of templates S1 (do not mount pt.14f-14i yet). Pull the springs together with their housings over pt. 11d from both sides to the marked spot and stick it. Stick pt.14f-14i to the housing. Build back bridge 15 and front bridge 16. The main body of the front bridge is slightly "twisted", therefore it needs to be formed on a carcass structure. Build the carcass structure from pt. 16A-16D and cover it round with pt.16a,b,c. Pt. 16a and 16b are to be stuck to appropriate sides of the carcass, what is illustrated in the diagrams. Stick brake drums together with hubs (pt.17) and spring slides from pt.18 to the sides of the finished bridges. (Due to the asymmetry of the element 18, it ought to be stuck in the right position, as shown on the diagram illustrating fastening of the bridges to the chassis.) Now build the braking system (servomotors) together with housings (el.19) and stick the whole unit to the bridges according to the diagram. (Pt. 20a and 20b, backed with cardboard, need to be sanded down with sandpaper, so as to round their otherwise sharp edges off, and painted black.) Pull the bridges over the springs and fasten them with the use of rods (el.20), according to the provided diagrams. One needs to see to it that the distance between the axles of both of the bridges is about 56mm. If the distance was bigger, a problem while mounting the wheels later on could appear. The last step of the back suspension assembly is making the shaft from pt. 20g-20j and glueing it in between the bridges with the use of articulated joints made of used-up ball-point refill straw. (Do not stick pt.20i to pt.20g. It should be moveable so as to enable adjusting the length of the shaft to the distance between the bridges.)

Front suspension: Build the front axle from pt. 21a – 21d and next, using pt. 21e-21i, build stub axles on both sides of the axle. In order to make the stub axles moveable, do not stick the wire S8 to pt.21e (it should rotate freely), but stick it to rollers 21f. Stick pt. 21g to the rollers; then stick pt. 21h and 21i to the top and the bottom of pt. 21g respectively. Thus prepared stub axles should rotate freely. Stick the spring housings made from pt.21j to the axle. Next build crosswise steering shaft. Building its moveable version, drill small holes in pt. 22b and 21i and thread an axle made of 0,3mm wire through the holes. Prevent the axle from falling out by applying a drop of cyanide-acrylic glue (repeat the procedure when building the moveable joints of the second rod pt 28j). Build the front springs housings from pt. 23-25 according to diagrams and stick it to the frame. Build the spring according to the diagram, remembering to “roll” the ends of the last but one spring leaf on the templates S10. Fasten the finished spring on the axle with the use of templates S11. Glue the whole axle together with the springs into housings (23, 24, and 25). Complement the unit with shock absorbers (el.27), steering converter (el. 28) and stabilizer (el. 290. The way of building a functioning steering converter is illustrated in the diagram; moveable joints of the rod 28j are made similarly to el. 22. After sticking the wheel hubs (el.30) to both of the stub axles, the front suspension is complete. Front wheels hubs may be build in either a full or a simplified version. The assembly procedures of both of the versions are presented in the diagrams. Elements needed for building the full version can be found on the sheet 7.

Propulsive System: First, build the engine block from pt. 31; stick the sump (el. 32) at the bottom of the block and the heads (el. 33) at the top. Build the exhaust system out of pt. 34c and 34d and stick it to the heads. Proceed similarly building the intake system (pt. 34a,b). Stick pt. 34e and 34f to the pt. 34b from the top. Having shaped pt. 34g correctly, stick it to the marked spot on pt. 34a. Next, build a turbocharger from pt. 35 according to the diagram and then stick pt.34c to the slanting back side of the element. Join the el. 34a with the turbocharger with the use of template S17. It is recommended to make the S17 of modelling clay; first mould the shape of the element tentatively and after hardening it, polish it up with the use of needle files and sandpaper (especially on the spot where it is connected with the turbocharger). Next, stick el. 36 to the front side of the engine and build compressor together with the jerk pump (el.36, 37) according to the diagram. Stick the ready unit to the right side of the engine. Prepare the high pressure cables of 0,3 – 0,4mm wire on your own, referring to the suggestions presented in the diagram. Stick the clamping rings (p.39) onto the marked spot on the cables. Prepare and stick the el.40 to the pt. 34a. Stick the ready el. 41, 42, 43 onto appropriate spots of the body of the engine. Stick the finished synchronizer rings (pt. 44 and 45) to the front side of the engine. Gird both of the synchronizer rings and the generator synchronizer ring with strips 46 (trim off the excess of the strips). Build the gear box from pt. 47, 48, 49 according to the diagram and thus prepared, stick it to the back side of the engine. Stick the starter (pt.50) to the pt.47a. Stick the fan (p.52) together with the front and rear fastenings (pt.53) to the engine. Glue the ready unit into the frame (slightly tilting it backwards). The last step is to build radiator (el. 51) and glue it in front of the engine. Join the radiator with the engine with the use of template S19 in the way suggested by the assembly diagrams. Build the shaft (el. 54) joining the propulsive system with bridges according to diagrams and glue it in between the gear box and the front bridge.

Build el.55 (back suspension of the cabin) according to the diagram and stick it to the frame. Build el. 56 – the front fastening of the cabin together with its tilting mechanism – according to the diagrams.

Driver's Cab: The cab ought to be build in two stages. First build the interior of the cabin together with its inner walls and only then cover the thus prepared element with exterior walls. Commence building the cab with making the floor, that is, glueing el. 57a and 57b together. Compose the front part of the engine chamber from el. 57c (external) and 57d together with 57e (internal), and the back part of the chamber from pt. 57f and 57g. Glue both of the parts together. Stick the el. 57h to the pt. 57g onto the marked spot at the bottom. Stick both – left and right – floors prepared before to the sides of the ready chamber. Build the front wall from pt.57i and 57j glued together and stick it to the front of the floors and the chamber. Stick the element build of pt. 57k and 57l to the wall. Stick the pt. 57l to the bottom of the floors. Build the dashboard with the car clocks (el.58) according to the diagram and stick it to the pt. 57i. Stick the pedals (p.59 and 60) to the marked spot on the floor. Make the gear lever according to the template S56 and glue it into the floor. Build the steering column (el.61) according to the diagram. Stick the switches (pt.61h) on the sides of pt. 61b. Stick the ready element to the floor and the dashboard. Build the seats (el.62) according to the diagram and stick them to the floor.

Element 63 (driver's cab external walls)

Cut out all the marked spaces in the pt. 63a. Back the thus prepared element (from the unprinted side) with “glass panes” F1, F2 and F3. Profiling the pt. 63a, one ought to pay attention to the following points:

- Ø bend slightly the upper parts of the side walls inwards along the marked horizontal line (the side walls only!!!);
- Ø bend the side walls slightly along the broken line marked on the element;
- Ø back vertical edge of the cab (i.e. the edge joining side wall with the back one) should be rounded, rather than angular.

Having profiled the pt. 63a correctly, stick the “upholstery” (pt. 63b, c, d) to the marked spots. Complement the “upholstery” with pt. 63e (handles), 63f (door handles) and 63g (window riser handles). Cover the elements prepared before with the finished element 63. It is recommended to do that in few stages, starting from the back. Build the fire extinguisher (pt. 64) according to the diagram and stick it to pt. 63a, as the diagram suggests. Pt.65 is a ceiling.

Stick the lamp (pt. 65b+c) and the sun visors (pt.65 d+e) to the pt.65a. Butt the thus prepared ceiling and pt. 63a. Butt the front windscreen (pt.66), backed with the template F4, in the front. (Stick the template F4 onto unprinted side of the pt. 66.) Glue pt. 66 in, with its printed side inwards. Stick appropriate connecting strips onto the joints between pt. 63a, 65a and 66. The connecting strips are indispensable and one must not ignore them, as for they will later on be used for sticking external parts of the bodywork. Commence covering the cab with external with pt. 67. After cutting pt.67 out, back it at the bottom with pt. 67b – 67g imitating press-formed iron sheet. Profile pt. 67a similarly to pt 63a and cover the cab with it. While sticking pt. 67a onto the cab, do not apply glue to the whole surface but just the edges (if the surface is big, apply some glue to its middle as well). If pt. 67a is stuck correctly, about 0,2mm of this element sticks out at the top of the cab (what will be needed for glueing the roof in). Having profiled the roof (pt.68a), stick it to the cab. Stick the strips pt. 68b imitating embossing. Stick the window pane pt.69 at the front. Build the front part of the cab from pt. 70a – 70g (the unprinted sides of the el. 70a, b, c need to be painted). In order to build an open able front bonnet, cut out the marked pieces from pt. 70a, b, c which will be used for building the bonnet. Back the thus prepared bonnet with pt. 71a. Glue “the hinge” made from pt. 71d backed with thin fabric into the slot. Stick the el. 71c, 71d and 71e at the back of the bonnet. Cover the edges of pt. 70a,b,c from the bottom with pt. 72. this is to prevent the bonnet from sinking inside. Stick the radiator grill (pt.73a), together with the sign 73b, plate 73c and handles 73d to the driver’s cab. Build the fender from pt. 74a – 74g together with the door step and stick it to the bottom of the cabin on the marked spot. Remember to back parts 74g with parts 74g’ , provided on the thin sheet. Stick the indicators, door handles and windscreen wipers build from pt. 75a – 75f to the cab on the marked spots. Butt the gutters made from pt. 76a – 76e to the cabin in the spots suggested by the diagram. Finally, stick the wing mirrors (pt. 77) and the steps (pt. 78) to the cab. Stick the finished cab to its front fastening.

Cargo Deck Supporting Frame: Build the frame according to the assembly diagrams. Build the carcass structure from pt. 80a and 80b glued together with their corners. Do not join the el.80 with the frame; it is recommended to do it while mounting the cargo deck, having adjusted it to the gauge of the pt. 106 and 107. Great attention should be paid when building el. 81 as for its internal part must be moveable. When building moveable cargo deck, first roll pt. 81a tightly round template S38; stick the rollers 81b to its sides. Saturate the fault on the pt. 81a with cyanide-acrylic glue and sand it down until the fault disappears (this will prevent it from blocking while tipping the trailer). Slip the element into the roll made from pt. 81c. Stick elements build from pt. 81d, e, f and templates S37 to rollers 81b at their sides. Cyanide-acrylic glue is best for this purpose as for the Butapren glue may prove to be too weak. While glueing one must pay attention not to glue pt. 81a and b with 81c since this would be tantamount to blocking the whole mechanism. Stick the finished frame to the top of the frame of the car. Strengthen the joint by sticking pt. 82a+b and 82c on both sides.

Build the tool box together with compressed air containers from el. 83, 84 and 85. Stick the unit to the frame. Building the air containers you may choose one of the two ways of dealing with their endings – using either pt. 84(85)c or 84(85)d. Having chosen the “c” parts, you ought to “rounden” the details before sticking. In the case of the “d” parts, score the details in the marked spots, profile them and then stick them to the containers.

Air scoop together with the filter – pt. 86 and 87

Build air filter from pt. 86 and fix it to the frame. Build the air scoop chimney from pt. 87 according to the diagram and stick it to the back wall of the cab. Join the filter with the chimney with the use of template S39. Do not stick the template S39 to the chimney; it should easily go into it when tilting the driver’s cab. Join the filter with the engine with the use of template 40. It is recommended to make both the S39 and S40 templates from either a used-up ball-point refill straw bent above the flame of a candle or from modelling clay. Different methods may be employed as well, however it is important for the templates to be light, therefore wire should not be used for making them.

Exhaust system – pt. 88 and 89

Build exhaust silencer from pt. 88 and exhaust pipe fastening from pt. 89. Make the exhaust pipes according to templates S41 and S42 in the similar way it was done before. Slip the pipes to the silencer (pt. 88), but do not glue them yet. Thread the fastening pt. 89 onto S42. Install the exhaust system in the car (stick pt.89 to the frame and S41 to pt. 35). Regulate the length of the exhaust system putting the templates S41 and S42 deeper or shallower into the pt.88. Next, immobilize the joints between pt.88 and the templates with glue.

Fuel tank – pt.90

The fuel tank may be build in either a full or a simplified version. The full version encompasses embossings imitations. Building the simplified version, ignore el.90d, b, e, f and back the el. 90c with 0,5mm cardboard. In the case of the full version, cut out the imitations of the embossings from pt. 90c and 90a. Having profiled pt. 90a, back it with pt. 90e and 90f. In this version, build the sides of the tank from pt. 90b, c, d according to the diagram. Stick the tank to the frame.

Back part of the front fenders – el. 91

Wind pt.91a round wire S43, stick pt. 91d to its side with the use of cyanide-acrylic glue. Stick the detail to the marked spot on the frame using the cyanide-acrylic glue as well. Next, build fastenings from pt.91f, g, h. Thread the fastenings onto wire S43 (but do not stick them yet). Build the fender from el. 91a, b, c. Match the fender to its front part (with the cab closed) and stick it to fastenings (thread onto the wire) on an appropriate height. Immobilize the fastenings with the use of a drop of glue.

Back fenders – el.92

Build the fenders according to the diagrams and stick them to the marked spots on the frame. One ought to pay attention not to glue two fenders of the same kind (i.e. two left or two right ones) together. One of the fenders is build as a mirror image of the other.

Rear lights – el.93

Build the lights according to the diagrams. Next, drill small holes for wire S45 in the marked spots on the back of the frame. Put the light system into the holes and stick them with cyanide-acrylic glue.

Tow hook – el.94

Build el.94a – 94d first. Stick the strip 94e round the profiled el.94g, glue strip 94f in from inside. Glue the eye (94e, f, g) into the slot in pt. 94d. From the top, put in the pivot made from wire according to template S46. Stick the hook to the frame.

Wheels – el. 95

Build the wheels according to the assembly diagrams. Building the wheels one ought to pay attention to the following points:

- Ø the joining places of pt. 95d(j) and 95e are marked on the pt.95c;
- Ø in the front wheels, glue pt.95g in with the printed side outwards, while in the back wheels, glue pt.95g in with the printed side inwards. In the spare wheel placed on the frame, glue together two pt. 95g with the unprinted sides (one of them backed and the other not);
- Ø stick pt.95h round 95g in such a way that the “screws” on pt.95g fall between “notches” in pt 95h. It is perfectly visible in the assembly diagram;
- Ø back wheels differ from the front ones in tread pt.95k instead of 95i and pt. 95j instead of 95d. One ought to remember of that so as not to confuse the parts. Put the ready wheels in pairs and glue them together;
- Ø the spare wheel is build similarly to the back wheels (except for building pt.95g, which was described before).

Spare wheel frame and fastening – el.96

Build the frame according to the diagram and stick the spare wheel to it. Stick the whole unit to the frame of the car.

Halogen lights – el.97

Build the lights according to the diagram and stick them to the bottom of the fender. Drill small holes for the template S47 in the fender and glue the S47 in as the assembly diagram suggests.

Cargo deck: Build the floor from pt.98a and 98b glued together. Bend the front of pt. 98a down. Stick the longitudinal beams made from pt.98c, d, e, f, g, h (left and right one), together with pt.104 stuck in between them, to the bottom of the floor. Stick the crosswise (pt.100) and longitudinal (pt. 102, 103) reinforcements (el.102 and 103 are composed of two parts – a and b (i.e. external and internal one)- each. Next stick the crosswise front (pt.99) and back (pt.101) reinforcements. Each of the crosswise reinforcements (pt. 99, 100, 101) consist of three parts (a, b, c). Stick beam 105 made of pt. 105a, b, c to the back part of the floor. Drill small holes in the beam in the marked spots; later on, the template S53 will be put into them. Build el.106 in the following way: glue pt. 106a and 106b together, so that both pt. 106b are placed in between pt. 106a (as the diagram shows). Glue details made of pt.106c and d into the slits at the end of the element. Cover the element with pt. 106e and f. Build el. 107 similarly to 106. Glue the el. 106 and 107 into the longitudinal beams 98. Stick the beams to the cargo deck paying great attention to the axis of symmetry. Do it in the following way: Put the cargo deck onto the hinges (pt.80, 81), regulate its position relative to the car and immobilize el. 106 and 107 in the frame with the use of glue (at this stage, stick pt.80 to the frame – pt.79 – as well). Build el.108 according to the diagram and stick it to the beam 107. Build the front board of the cargo deck according to the diagram. Stick the reinforcement build from pt. 109b+c to pt. 109a. Build six vertical reinforcements of pt. 109d and e. Stick the reinforcements to the board, glueing plating in between them. Glue the plating in one by one in the following order: 109 h, g, f, g, h, beginning from one side. Glueing in the vertical reinforcements, pay attention to their mutual parallelism. Glue template S 48 into the board; stick the board to the front part of the floor. Drill small holes (for mounting template S53) in both sides of the board in the marked spots. Build middle (109i) and back (109j) pillars.

Back – el.110

Build the back according to the diagram and stick it with el.110e to pillars 109j from the top. Build the sideboards el. 111 according to the diagram. Stick hinges 112 to the finished boards from the top. There are left and right hinges, which differ in strips 112 (two kinds of which are provided). The difference is that the strip sticks from out from either one or the other side. The side with the strip sticking out should be turned to the outwards. Stick the boards to the trailer. Glue the boards in with the use of el. 112e stuck to the side surfaces of the pillars 109i and j and at the front to pt. 109a. Install the elements at such height, that after closing a board, a slot between the board and the trailer-floor does not appear. The board should not stick out below the floor either. Stick board – blocking fastenings build from pt. 113 and templates S52, to the bottom of each of the boards. Put the wire S53 into the holes drilled earlier in pt. 105 and 109, so that it sticks out from the front board equally with its vertical reinforcements. Immobilize the template in the holes with the use of glue. Stick hooks pt.114a to wire S53 in the spots intended for fastenings pt.113 in one of the two possible positions: either blocked (if building immovable boards, the hooks catch on template S52) or unblocked (if building open able boards, the hooks are raised). Build the back board similarly, choosing either pt. 114b (blocked) or 114c (unblocked) and stick it to beam 105 in the spot intended for fastenings (pt.133). Build the manual sideboard opening system from pt. 115a and 115b and template S54 and stick it on the sides (left and right) of the front board.

Cargo deck jack abutment – el.116

Roll pt. 116a tightly and glue in the template S55 made of a round-headed pin into its end. Next, form pt. 116b into a tube and butt its edges (on account of a small diameter of el. 116b, e, g, i it is recommended to moisten them slightly before forming; this method proves to be highly effective when mastered). Wind pt. 116c round the tube from the top to its inside and pt. 116d outwards on the marked spot at the bottom. Put pt. 116a inside pt.116b so that it comes out at the top and gets blocked by the strip 116c. Follow the same procedure building the rest of the segments of the jack abutment. Close the bottom and the end of the jack abutment with pt. 116j. Form pt.116k – p into “a sphere” by which the jack abutment is planted in the frame. Do not glue the sphere to the rest of the jack abutment nor the jack abutment to the frame and the cargo deck. The jack abutment build according to the description provided above is moveable, but not capable of bearing the weight of the cargo deck. The problem can be solved in two ways:

Ø build two immobile jack abutments (in such case the spheres may be glued to the rest of the jack abutments), one in an opened and one in a closed position, and exchange them according to your preference (elements enabling building two complete jack abutments are provided in this model);

Ø build the jack abutments according to the description and block it (after removing the sphere) opened with the use of a small stick of adjusted length (as suggested in the diagram).

Mud flaps – el.117

Stick the mud flaps to the fenders according to the main diagram.

Building blocks according to the template S57 is the last step in the model assembly. Do not stick the parts but build them as retractable. Retracting one of the pairs you may choose which side the trailer will tip.

Enjoy!

Instructions translated by Monika Kolek



Copyright © 2006 - All Rights reserved.