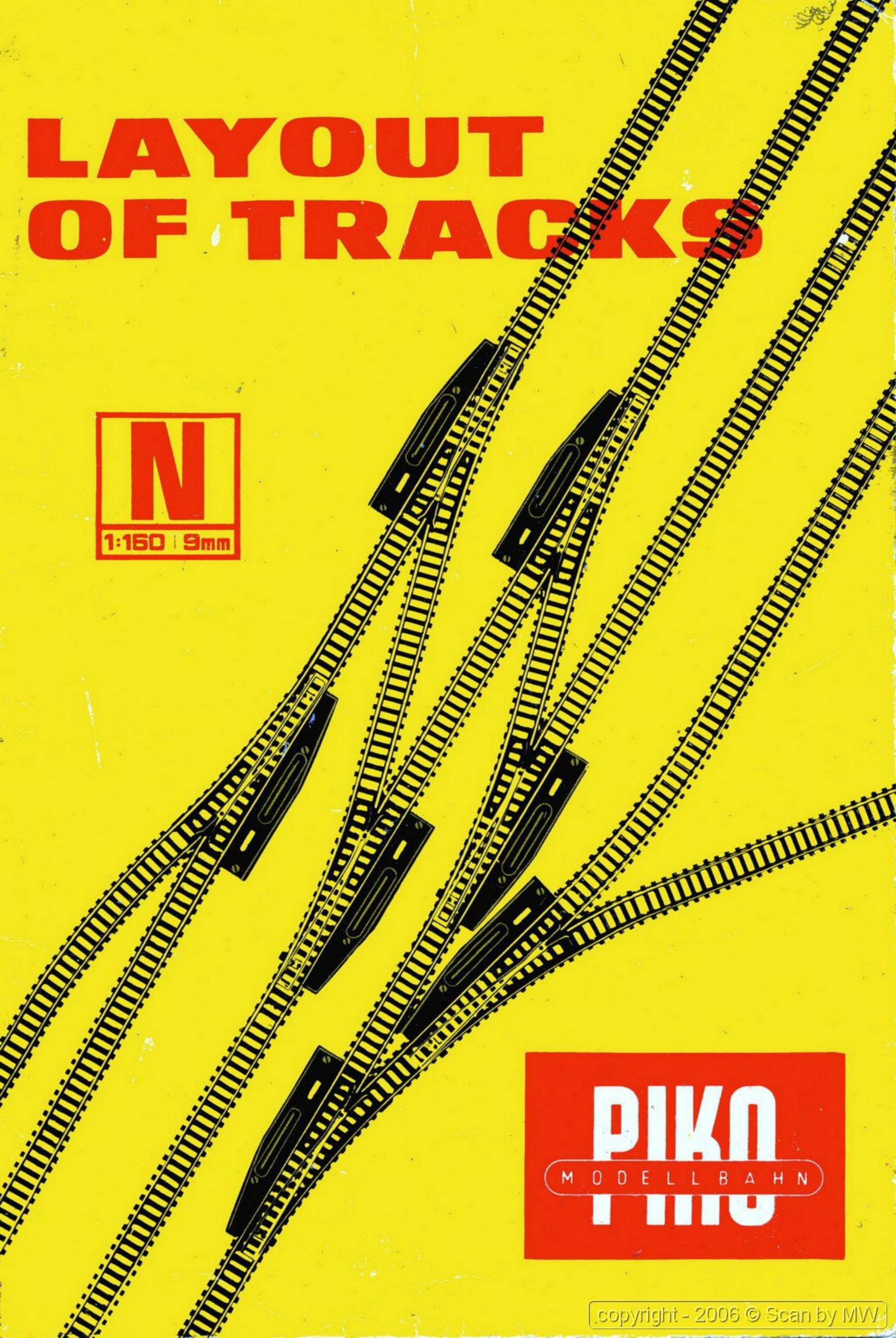


LAYOUT OF TRACKS





Smallest Model Railway With Greatest Possibilities

- Scale 1:160; track gauge 9 mm
- International d. c. two-rail double-conductor system
- International fully-automatic coupling
- Reliable design
- Wheel sets in point bearings
- Minimum floor space requirement
- Maximum traction
- Constant addition to kits, therefore . . .

... with PIKO you are always on the right track!

Dear PIKO Model Railway Friends!

At the 1964 Leipzig Autumn Fair where the first PIKO Gauge N model railway, scale 1 : 160, was presented – by the way the second industrially manufactured model railway of this kind on the world market – varying opinions were heard as to the future of this midget PIKO model railway. At that time, however, there was already full agreement on one point – it was amazing what a terrific amount of layout and rolling stock can be accommodated on minimum floor space. Today this opinion has remained unchanged, while assortment, functional safety and true-to-life appearance have improved. PIKO type N has been perfected to a fool-proof model railway, and designers keep working on further improvements and kit extension.

There are now nine different locomotives and a wide range of rolling stock – among them the popular doubledeck train – available for the enthusiasts. Further superbly detailed rolling stock and accessories will follow continually.

Further variety is added to rolling stock by the Gauge N four-axle passenger coaches (manufactured by Messrs. Schicht, Dresden) and two-axle passenger coaches (manufactured by system).

Following suggestions will give you an idea of how to design exciting layouts according to available space. Layout and coupling tips cover everything you will need from small and medium systems up to large layouts with automatic operation.

Detailed circuit diagrams will also allow the less skilled enthusiast to set up a Gauge N railway (Messrs. Stein KG, Leipzig).

A scenic layout is added to each track layout to inspire your imagination how to match model railway and surroundings.

A preferred layout can of course be built up in several stages. You can begin, for example, multiple train operation while still using one power control unit only and then extend your facilities step by step by adding more rolling stock and control units when it suits you.

If you are one of the unfortunate enthusiasts who up to now were unable to build up model railway system due to lack of space our midget model kits have given you a real chance.

There are actually no space problems whatsoever with PIKO Gauge N layouts.

You can squeeze this system into any space you have left because our layout designers have considered various conditions and dimensions, and provided that you do not meet any domestic opposition you might even tuck the layout away in the hat compartment of your linen cupboard or right on top of it. Just wrap it up to keep the dust out, and your model railway layout will always be ready for use. This is another star feature of our system you can go on operating your outfit the whole year round.

Now before you start setting up your layout just read through the following pages and select the one that suits you. The list of track components, points and crossovers will help you plan your visit to the local dealer.

Electrical accessories are also specified, but distributing strips, cables, etc. will have to be bought as required.

Keep in mind that PIKO Gauge N model railway sets, scale 1 : 160, with their wide range of stock and accessories provide maximum possibilities on minimum floor space.

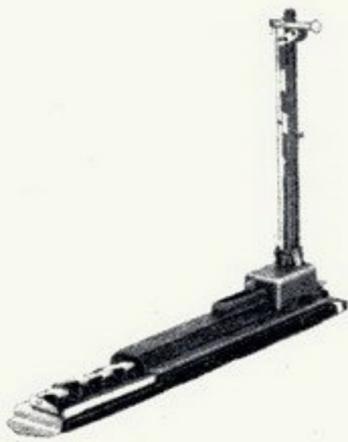


Fig. 6

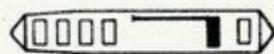


Fig. 7



A detailed instruction book which imparts valuable instructions for assembly and use of the signals is enclosed with each packed signal. Users are advised to accommodate signal drives below the layout board, which with the signal is possible without any difficulty at all; in doing so you "hide" the driving box which otherwise would spoil the scenery effect.

Circuit diagram, Fig. 5, shows you how to connect the signals. We should like to call your attention to a special feature of these signals. In places where signal drive unit cannot be accommodated under the layout board, the drive can be a hindrance of correct signal installation; this applies especially to places where signals are set up as departure signals.

In this case simply change over the signal mast so that driving box is now situated in front of the signal mast as will be seen in Figs. 6 and 7. We have considered this matter in our track layouts and marked them with corresponding signal symbols.

When signals with train controlling device are used on single-track lines the train will also stop in opposite direction to the signal, where the signal is of no significance. In order to prevent this from happening and to allow an unhindered flow of traffic in the opposite direction, a rectifier is incorporated (see Figs. 8 and 9).

In one direction this rectifier will block the current, while releasing in the other. Our track layouts include the commercial rectifier GY 100.

Fig. 8

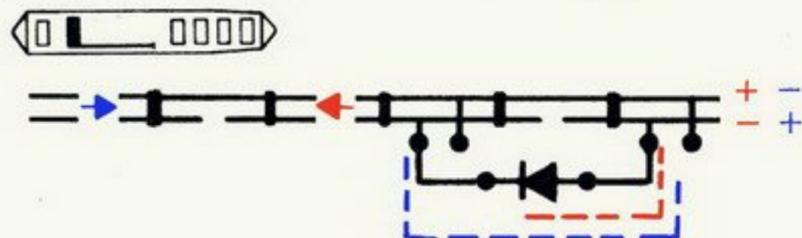
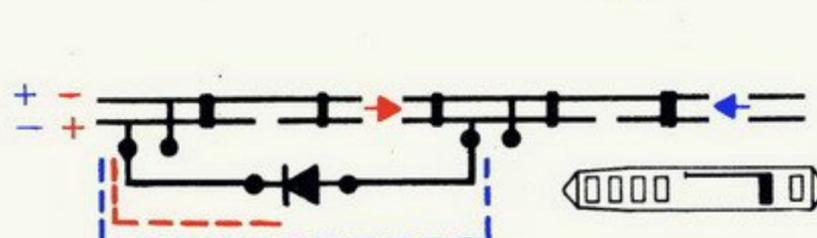


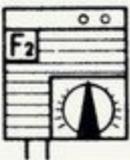
Fig. 9



Power packs

PIKO model railways are operated with 0 to 12 V direct current; however for electromechanical accessories 16 V alternating current is required. For various purpose of use

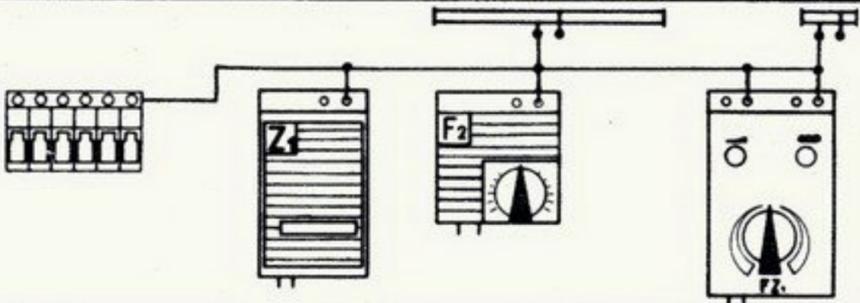
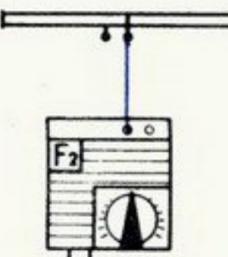
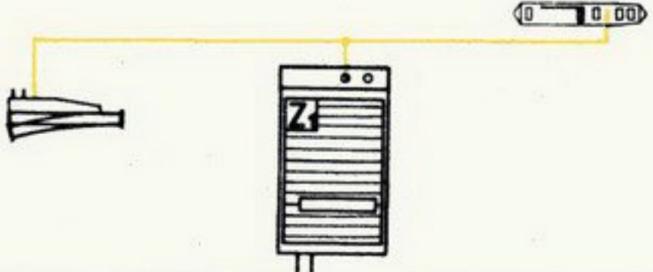
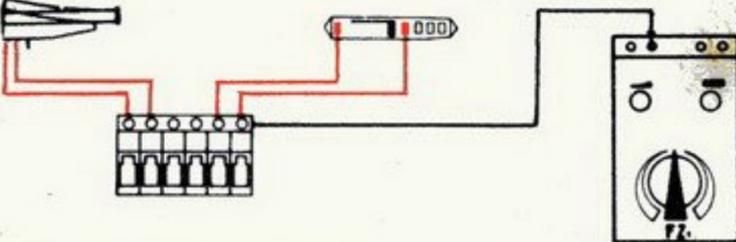
three different power packs are available. Their most important data are specified in the following table.

	Designation	Voltage	Loading Capacity	Explanations
	Traction transformer F 2 Item No. 5510/545/210 (220 Volt)	2-12 Volt d.c. voltage	0.6 A	Fine-step control thermoelectric excess-current- and short-circuit safety arrangement (fuse). No connections provided for accessories. Infinitely variable, thermoelectric excess-current- and short-circuit safety arrangement (fuse) separate windings for railway and accessories
	Control unit, traction and accessories FZ 1 Item No. 5510/5/3 (220 Volt)	2-12 Volt d.c. voltage 16 Volt a.c. voltage	1.2 A 1.2 A	Infinitely variable, thermoelectric excess-current and short-circuit safety arrangement (fuse) separate windings for railway and accessories
	Transformer for accessories Z 1 Item No. 5540/5/1	16 Volt a.c. voltage	1.5 A	Only for accessories (points, signals, small coupling rail, lighting of buildings, etc.) Thermoelectric excess-current- and short-circuit safety arrangement (fuse)

Key to the Track Layouts

Building-up of track systems and wiring can be gathered from track layouts, however, to ease matters for you electric

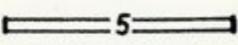
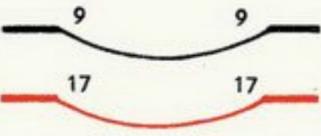
lines are marked in various colours, as the following table explains:

Colour	Designation	Example for Use
	1) neutral conductor for railway connection. 2) common neutral conductor in case of several appliances being connected to mains.	
	Line for railway connection	
	Accessories return conductor for all electromagnetic items	
	Operation-line via switch, key or switching track for all electromagnetic items	

Railway neutral conductor and accessories return conductor are marked by continuous lines, like the lines for railway connection; whereas lines for disconnectible track sections and electromechanical accessories are marked otherwise. Respective line terminations are marked at electromechanical items as also at the keyboard and provided with numbers. Since connections are consecutively marked by numbers, they cannot be mixed up and consequently wiring is easy. Always remember when wiring the system with jumper wires or stranded wire that line ends of the same number and colouring are joined with one another.

Marking of point connections was left out purposely in order not to give track layouts a non-distinct appearance, and apart from that, a connection diagram of points represented in the heading "Points" is fully sufficient.

Signals are marked distinctly by large letters at their location and on keyboard, points by designations W 1, W 2, etc. Tracks are marked in vivid black numbers, and in the case of disconnectible tracks numbers also appear at the keyboard.

			+ 20 + 40 Height data above layout plate in millimeters	W 1 W 4 Designation of points	A B Marking of signals	 Rectifier GY 100
Directional arrow indicates driving direction.	consecutive numbering of railway-station tracks.	Line ends with identical numbers are connected by jumper wire or stranded wire.				
Fig. 10						

Keyboard manufactured by Messrs. Zeuke & Wegwerth, Berlin, is used in the track layouts, which is suitable for both quick-break as also continuous current connection.

For several line connections, i.e. accessories-return conductor for points and signals, it is best to use PIKO distributor rail; this is not included in the lists of parts but instead is to be used depending on requirement (see Fig. 11 as well).

In the case of several traction-current circuits the track sections and appertaining power control unit involved are represented by the same colour. Disconnectible track sections located in these traction-current circuits are identified at the keyboard by the same colour, so that traction-current circuits cannot be mixed up.

Several track layouts direction of travel is accurately defined by arrows, since this is dependent on the respective connection; of course it is left to model railway enthusiasts to follow their own imagination with regard to railway station arrangements, etc., by using additional rectifiers, etc.

Height data for gradient tracks are also specified, the numbers indicate altitude level of tracks in millimeters above the layout boards.

Specified power packs for accessories are only sufficient for operation of points and signals; if it is intended to light up buildings, etc., then additional power must be provided.

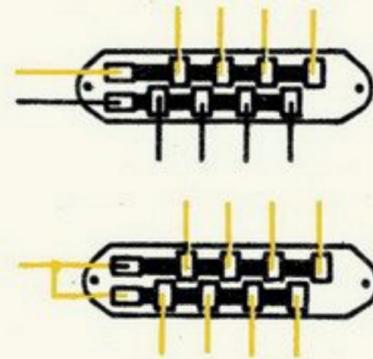


Fig. 11

Layout

For setting up a Gauge N model railway system always remember to choose a rigid board; in this instance a frame work design is not absolutely necessary, since thanks to the agreeable dimensions of the layout board all points of the system can be conveniently reached at any time.

Do not try to accommodate power control units and keyboard arrangements on the layout board, since they take up too much room, and of course their size will spoil the whole picture; but instead simply accommodate them in a separate switch desk.

There are various possibilities and methods for building up model railway systems. Much to our regret we are not able to go into details regarding this owing to the lack of space and for that reason refer to appropriate technical literature, for example Model Railway Manual by Gerlach, technical periodical "Der Modelleisenbahner", both published by Transpress-Verlag Berlin, and the journal "Das Signal" published by Zentrales Waren-Kontor Möbel- und Kulturwaren.

Suitable articles are available at your local dealers for arranging your scenery, i. e. dredging-flour, powdered flocks, rocks made of foamed polystyrene, various trees, meadow and field mats, etc.

In order to save you a few headaches we should like to suggest several tips for building up your layout.

To begin with take the greatest pains in **laying out the tracks**, adhering to this point will ensure safe and trouble-free electric traction: Any time spent here will in the long run reward you by smooth operation!

When you have got the track material, first of all draft the track layout on the board; then mark points where gradients commence, continue and end, then you can build up the supports for the track course at these points. When this has been completed you can lay tracks.

Make sure to connect track sections securely in order to ensure positive power transmission.

Track pieces which do not fit tightly can be remedied by the use of flat pliers to press them together, until the track connectors fit in tightly. Then nail the track to the layout board or to the section support respectively. In order to be on the safe side use a screw driver as safety measure between nail and hammer so that you do not damage the track profile with the hammer. Holes are provided for nails on all track pieces.

If you intend to glue the track system with broken rock, which will of course give the whole layout a better appearance, then apply a viscous coat of glue to the base before nailing on the tracks, then nail on the track, spread over the cork rubble immediately afterwards and press securely together.

In the case of points make sure that interlocking sleepers can be moved faultlessly. When all tracks have been laid, brush remaining rubble from the system. Remember to use the finest cork rubble, i. e. corresponding to a proportion of 1 : 100; when occasion arises use a sieve before hand to be on the safe side.

Prior to commencing with arranging the scenery, wire up the entire system and execute a trial run; in this way any faults occurring can be conveniently eliminated before the entire system is put into operation.

Always remember to ask for Gauge N items when **selecting accessories**, such as buildings, lamps, barriers, trees, etc. Buildings of other rated sizes will spoil the whole effect of your N-system! Trees however are another matter of course when they are sensibly selected, since trees for TT or HO gauges are frequently too low.

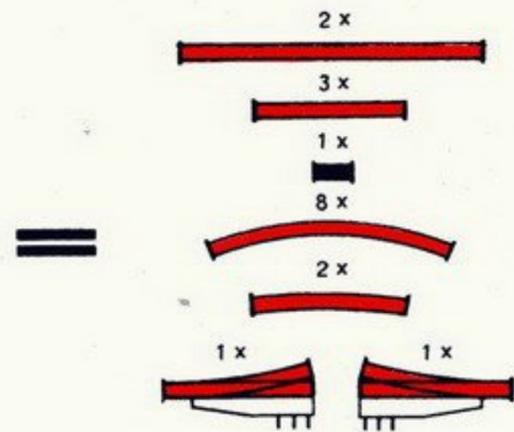
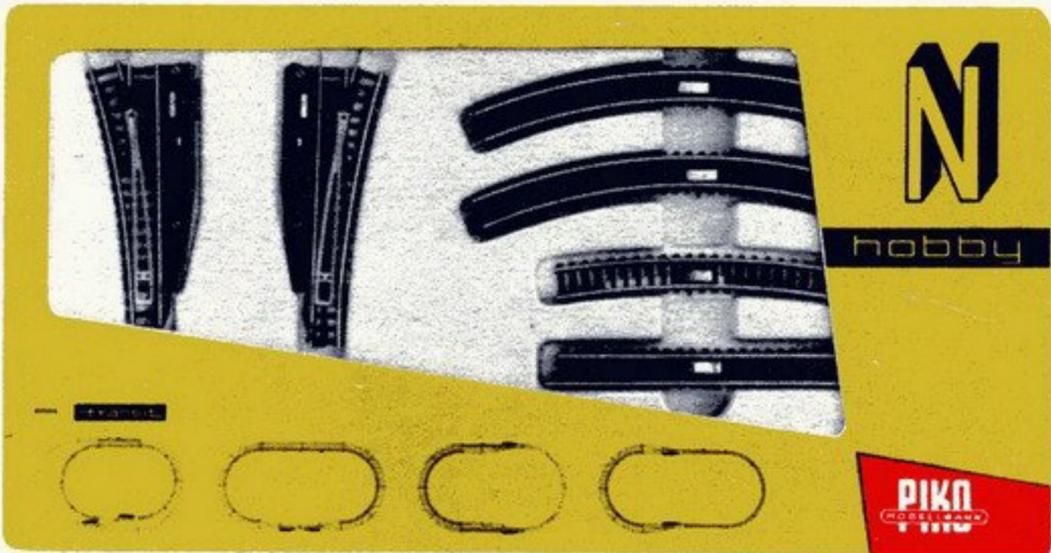
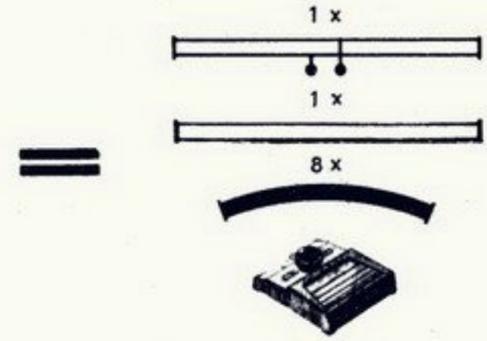
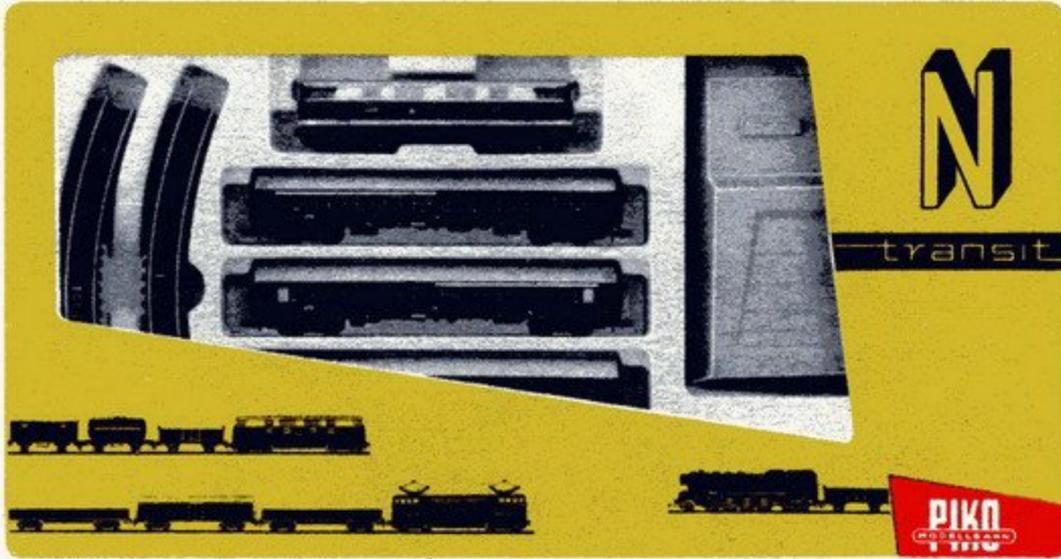
For example a pine-tree for Gauge N may well be of 10 to 12 cm height.

When purchasing model building make sure to select such articles that match the layout. For example a large-town railway station or even high buildings cannot be set up on a miniature-scale layout; but instead use buildings with a small town or countryside-like appearance.

These give a better effect and match much better with the model railway track layout.

For such systems that cannot "stay put" the whole year and consequently must be frequently moved about we recommend to use meadows and field-mats for arranging the scenery. In this way the system takes on a natural appearance and last but not least they remain stuck when being moved about; which is the case when you use dredging-flour, and then you are in trouble with the housewife.

If feasible keep your system somewhere free of dust when not in use. If not used for a long time clean tracks before using them again - then you are sure your start signal will be a success.

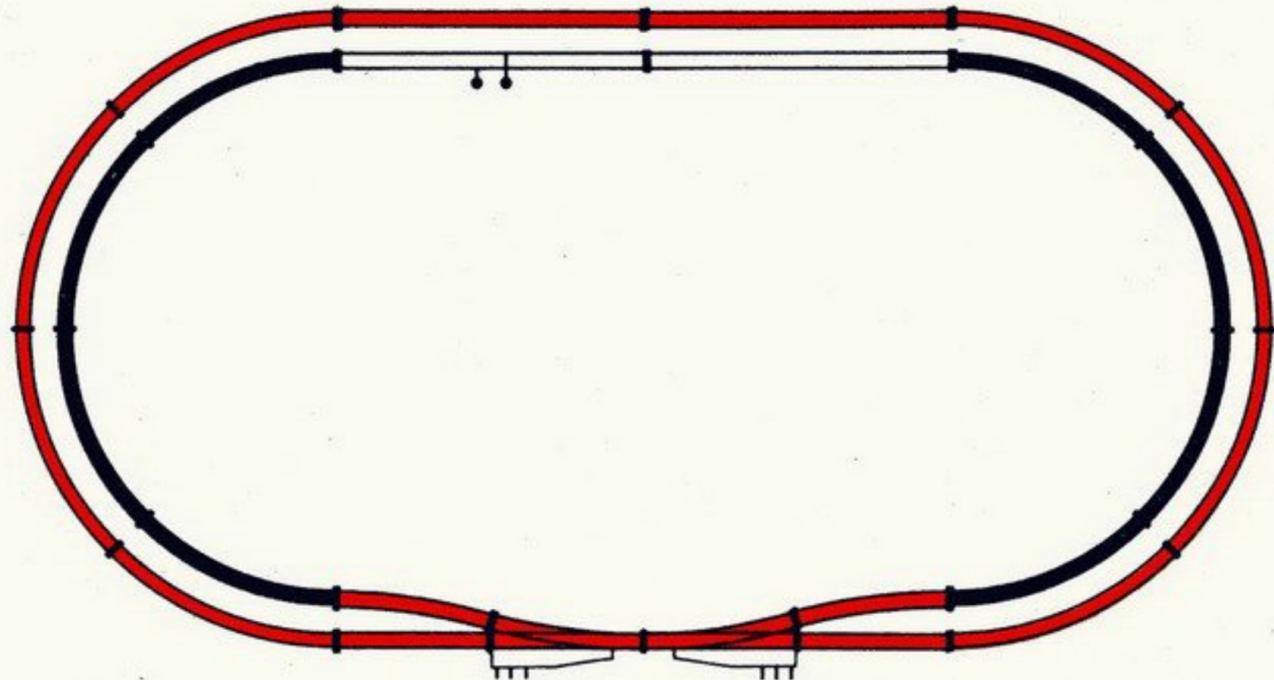


A set for beginners, Gauge N from VEB PIKO, contains all parts you need for PIKO midget model railway. With the enclosed traction-desk, in which flat batteries or single-cell batteries are accommodated, the locomotive is driven. If you wish to extend the system, the train can be driven with a mains pack without any changeover. By using a "PIKO-hobby" track extension Kit extend the

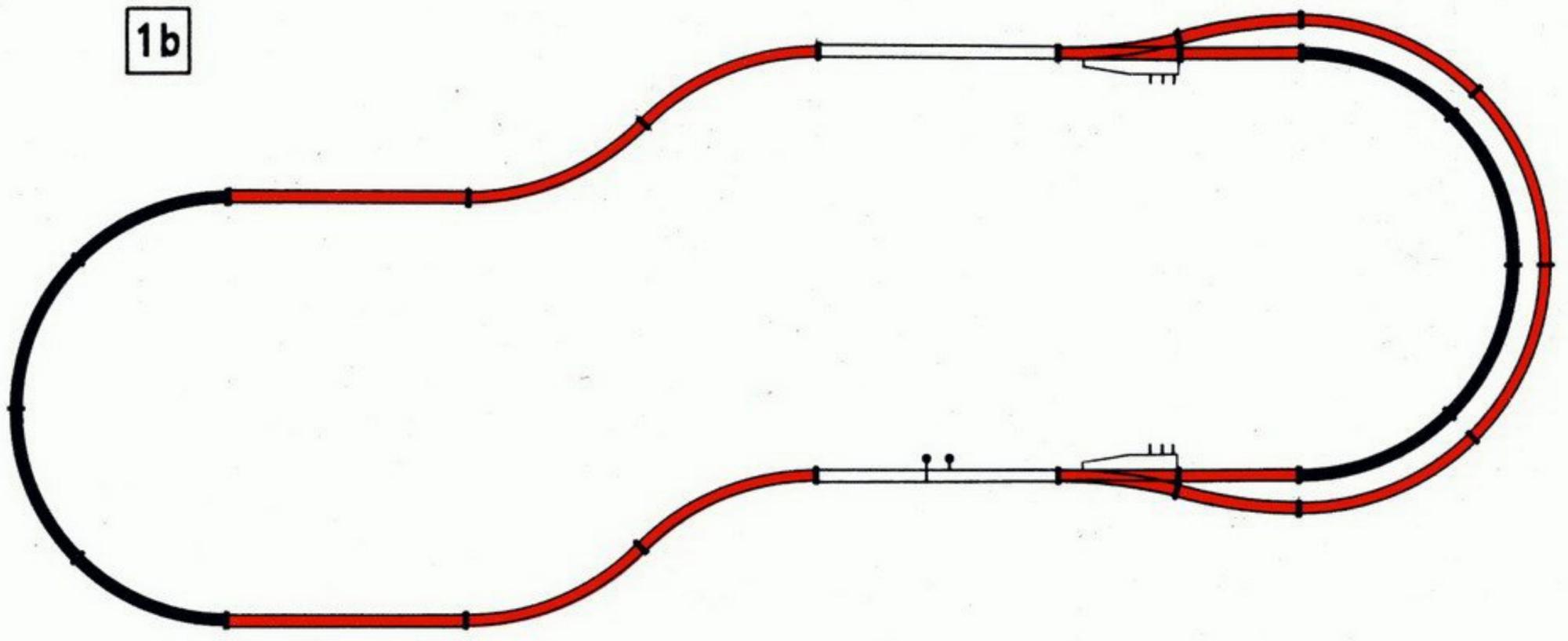
basic system because it contains all the tracks you need. To begin with you can just set the points by hand before applying a mains pack and when you need one, Model FZ 1 is just the job.

Track layouts 1 (a) to 1 (d) show what track systems can be built up with the items contained in the basic kit and the "PIKO-hobby" track extension kit extensions.

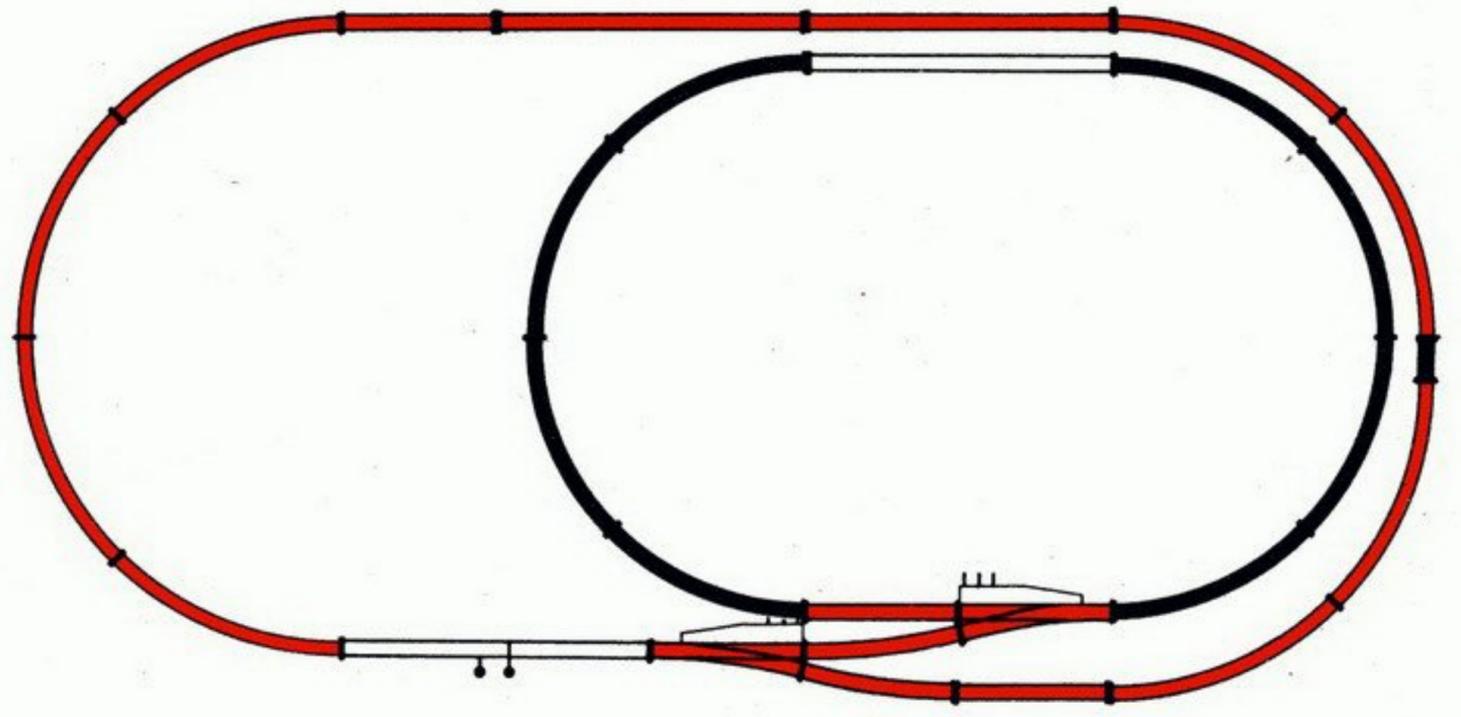
1a



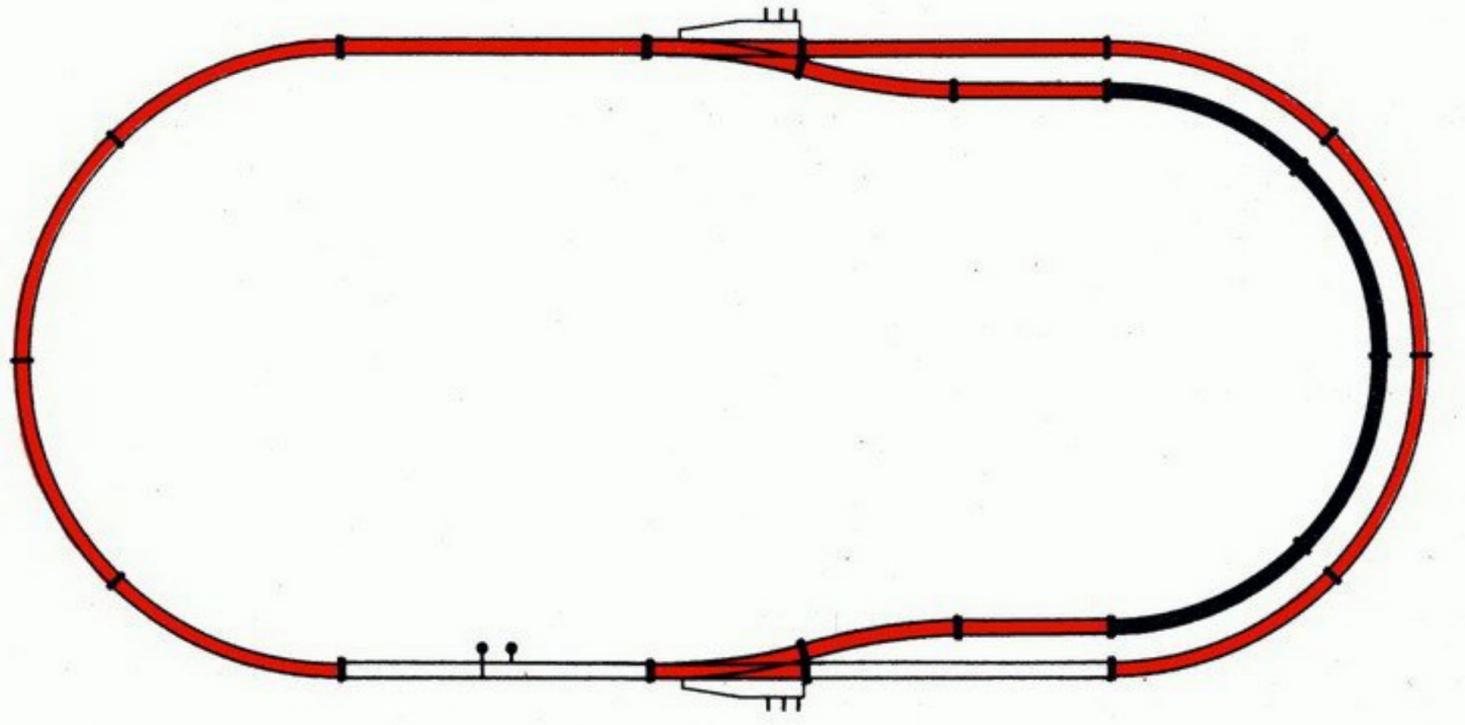
1b

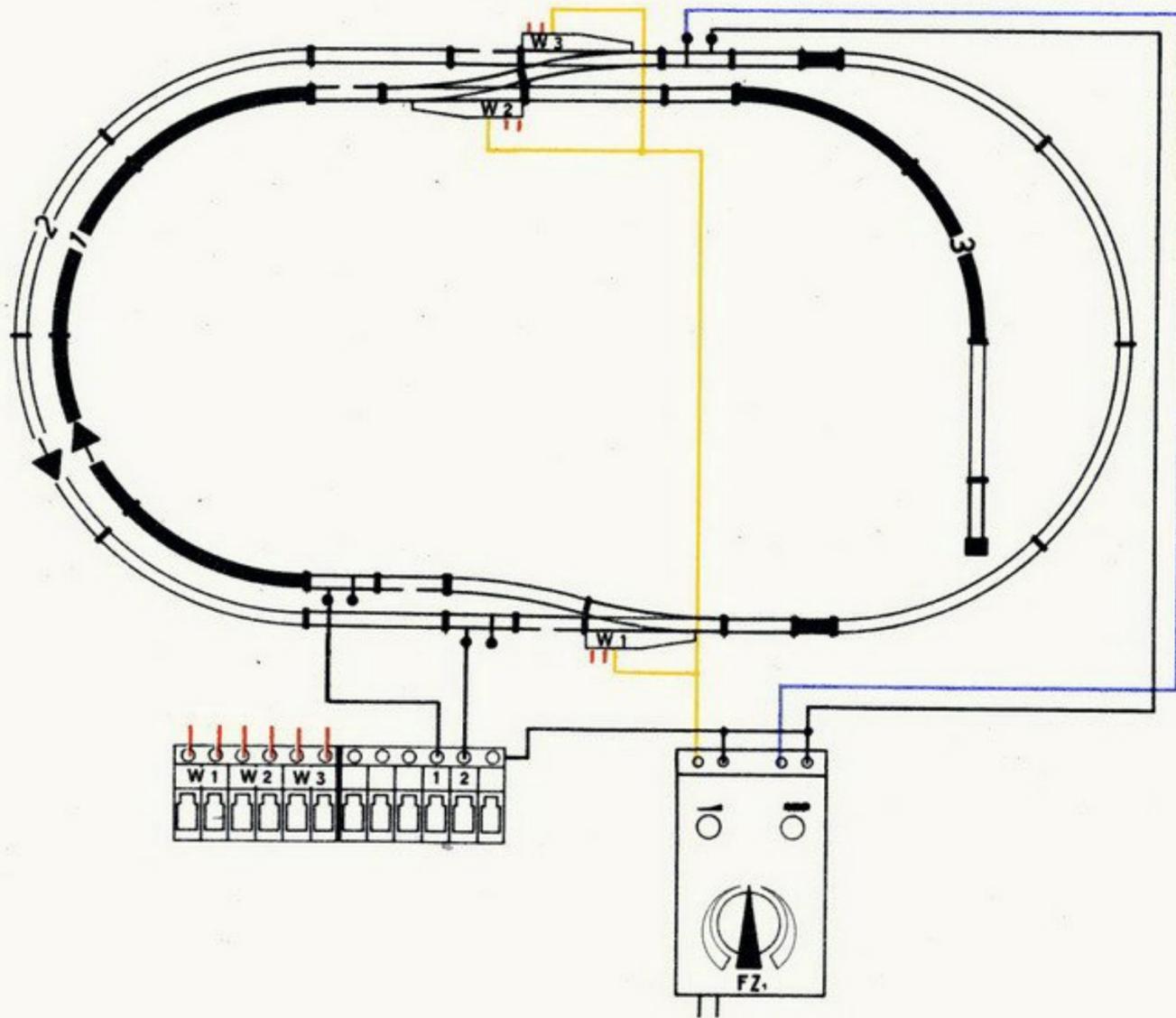


1c



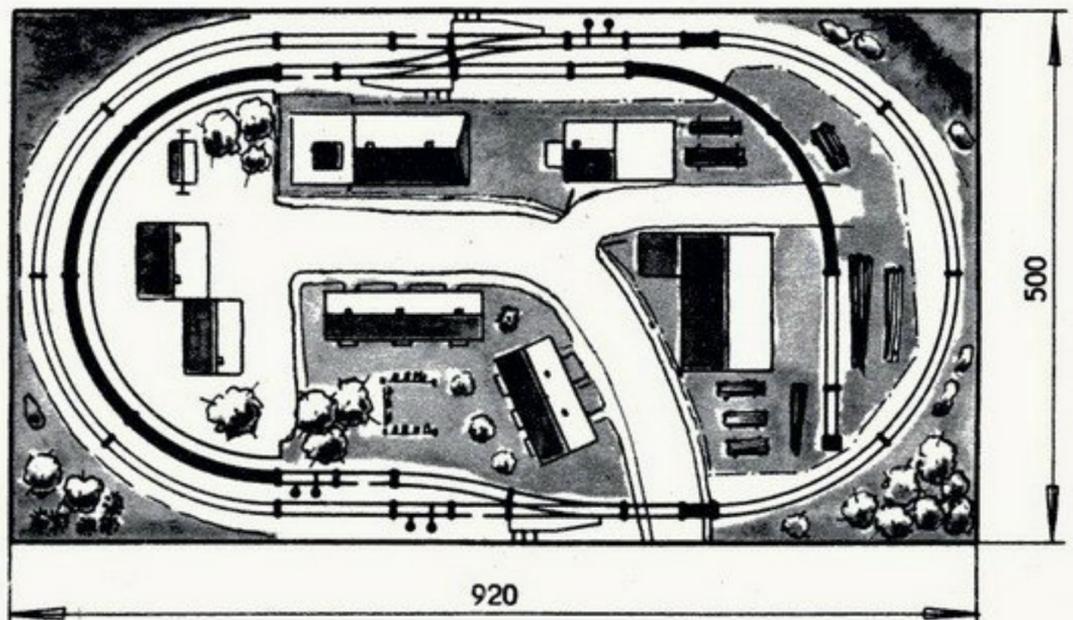
1d

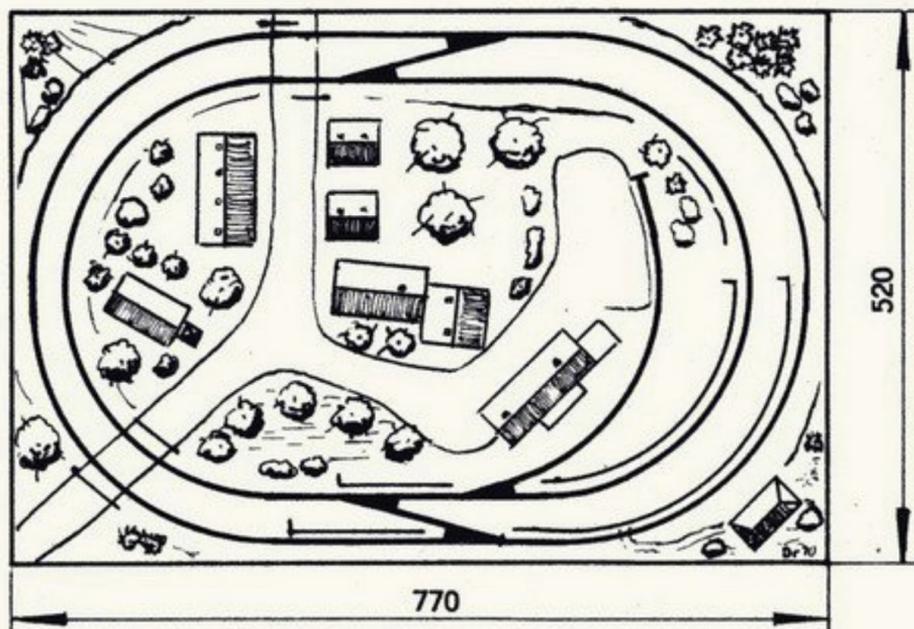
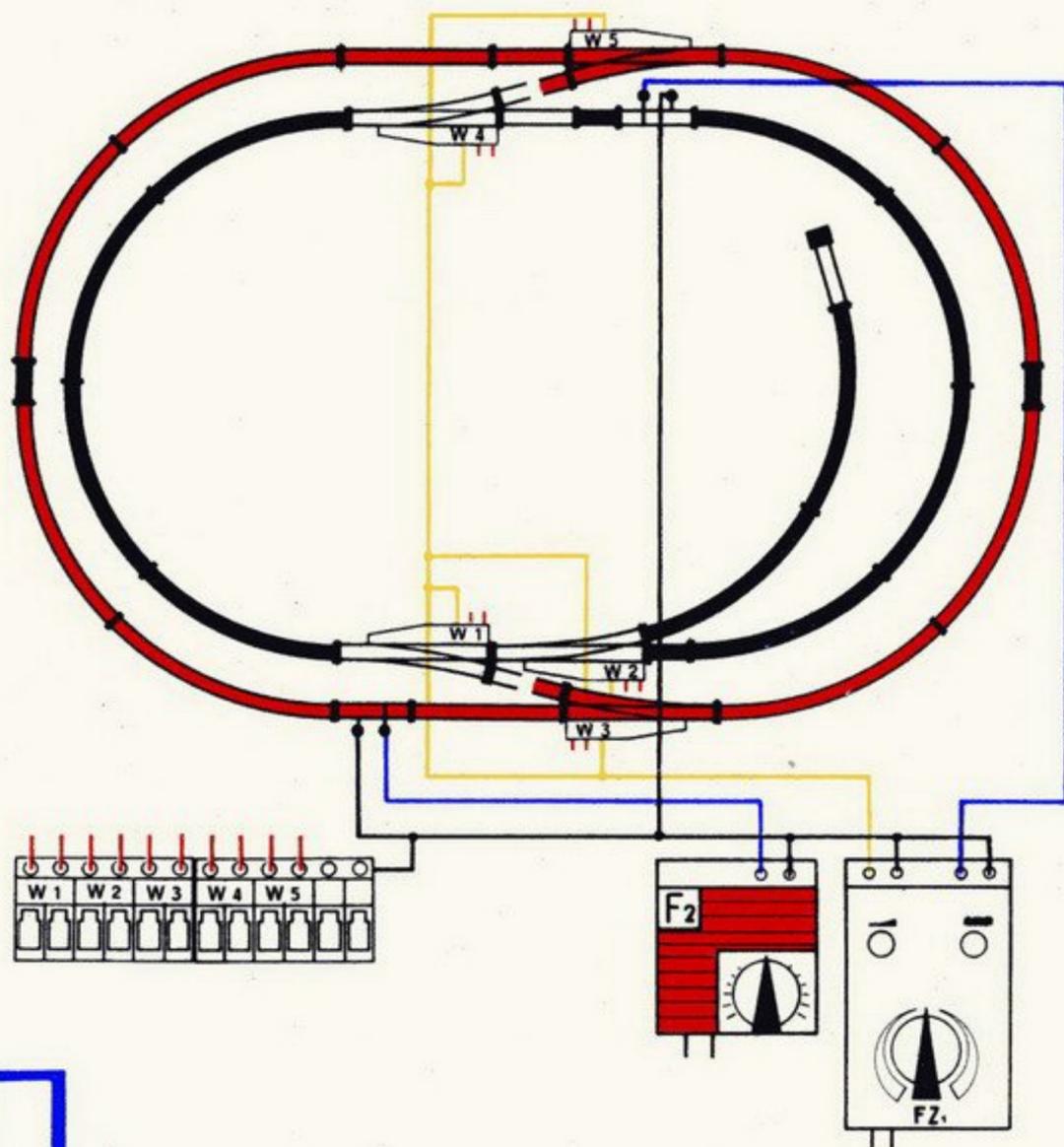




Although, as its name suggests, this system is only 920×500 mm, it still allows an alternate two-train operation, diversified by a branch line to the sawmill with furniture factory. Here you need shunting operations with flat wagons to add to the attraction. Keeping the factory supplied with wood, and then closed goods wagons as well to load the furniture and to place them in the goods-train. A second train consisting of model BR 65 and a double-decker train provides frequent passenger service.

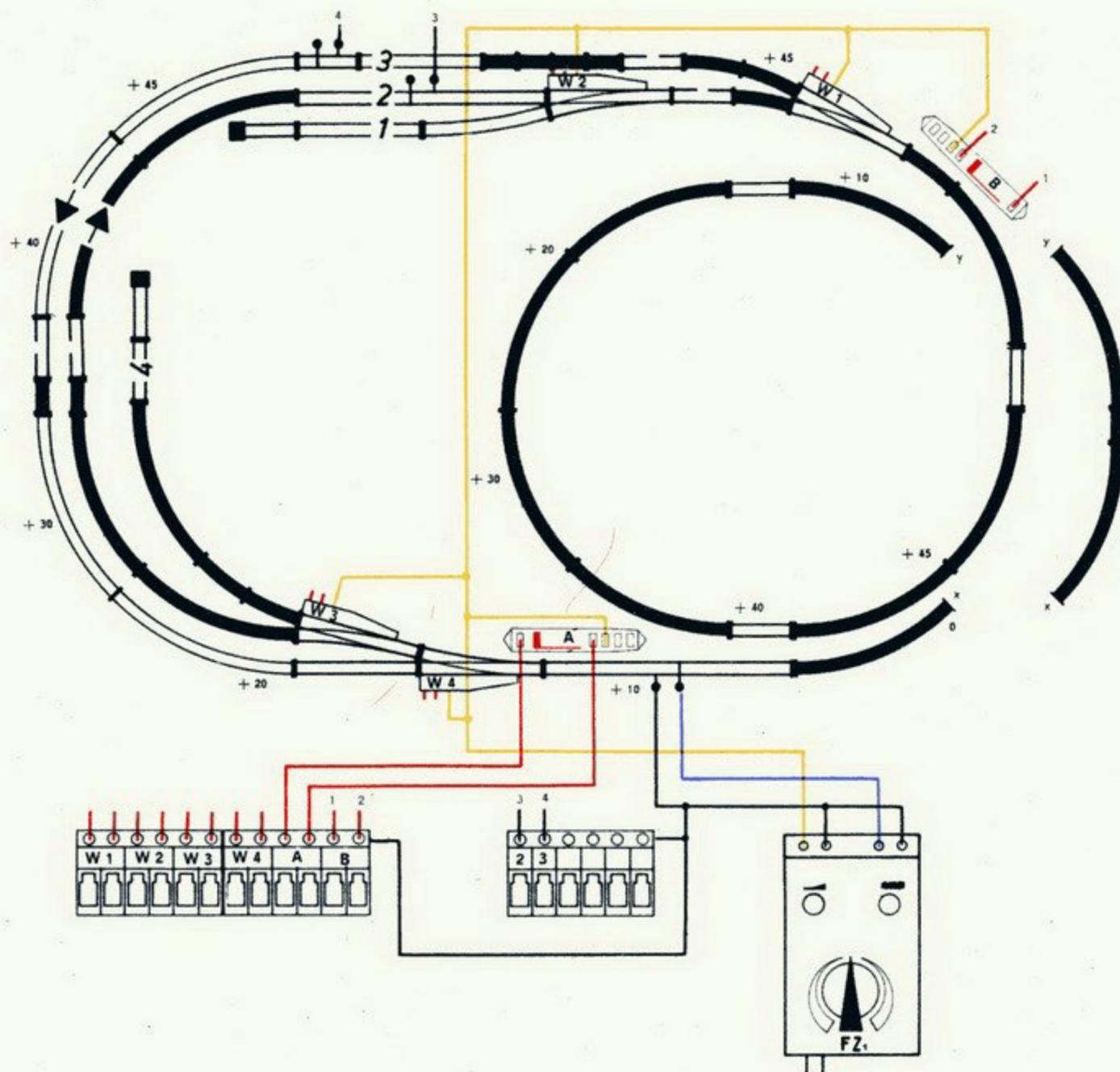
Platform and premises of this country-like railway station are situated in the track circuit. Track 1 is for passenger trains and track 2 is mainly used for goods trains. Thanks to the convenient siding said factory has been set up, whereby in conjunction with the sawmills – a lively shunting operation is necessary. Some additional new buildings house the workers and their families. Without going further you can see now what possibilities this miniature system offers in planning an interesting train service and how you can arrange scenery to the best effect.





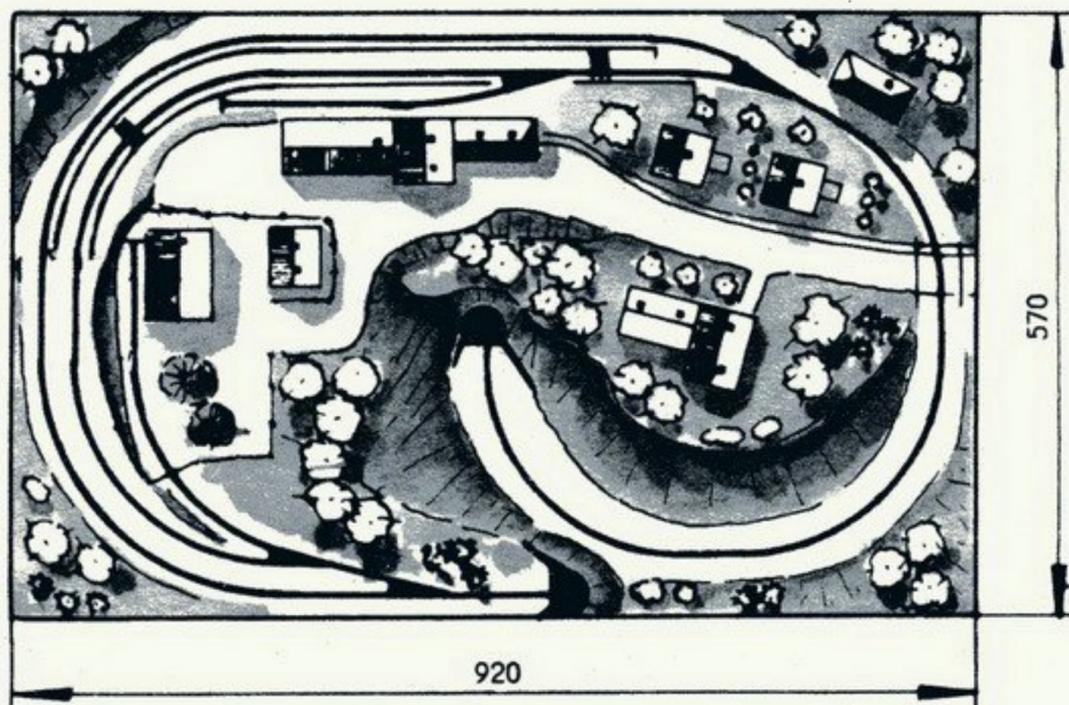
Track layout 3 shows clearly the possibilities offered by Gauge N. With an area of 770×520 mm only you can build up a two-track layout with independent two-train service. Even if operating possibilities are moderate, two trains can travel at the same time any way. The siding in the inner section, intended as truck loading point also allows shunting service. Platforms are arranged in the curve of the track, along with the station building. Also included is a country inn with adjoining hall for party of travellers etc. The road crossing the layout leads to the two communities for which the railway station is the connection to the traffic network. On the one hand the railway crossing for the road is made safe by full barrier system, and on the other hand by a semi-barrier system. Of course you are not forced to use both trains at the same time, and to start with use the system with one traction-transformer only; in this case power control unit F 2 is not needed, since power control unit FZ 1 is necessary for remote control of the points.

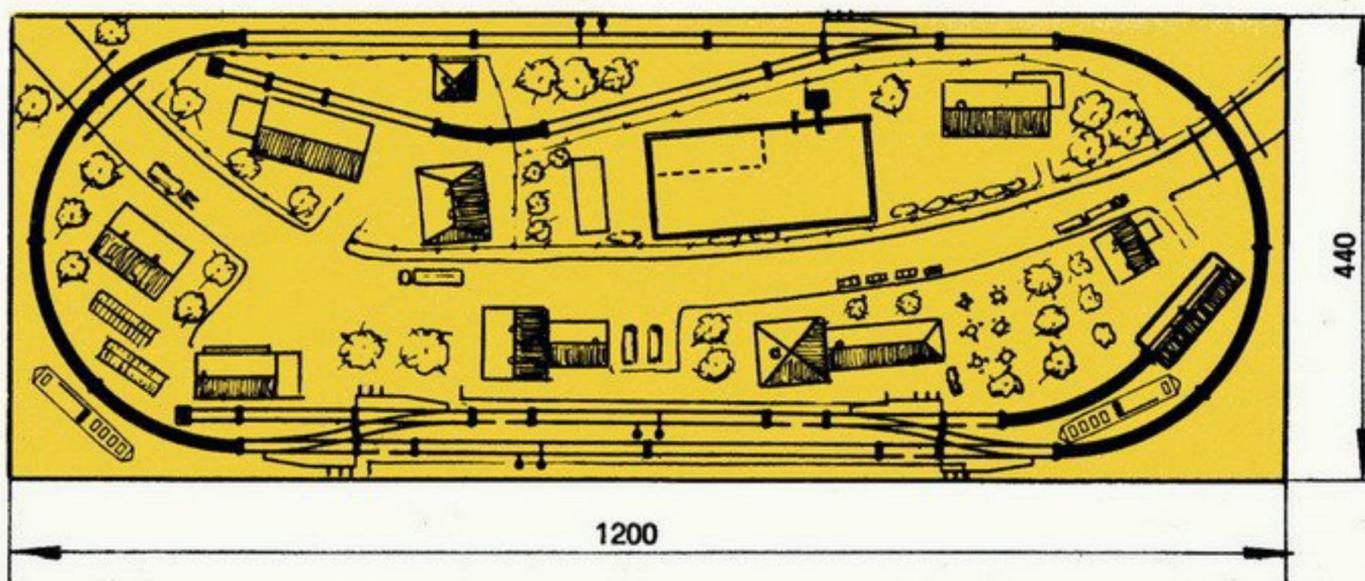




This small set up represents a small railway station with goods-traffic track and siding track to a coal and fertilizer establishment somewhere in the highlands. Two trains can be used in two-way traffic. Suitable in this instance is a branch line train for passengers with three or four two-axle passenger coaches, a luggage van and a BR 55 locomotive; and a goods-train with various wagons, especially a few open and covered wagons, using a BR 65 or a V 180 locomotive.

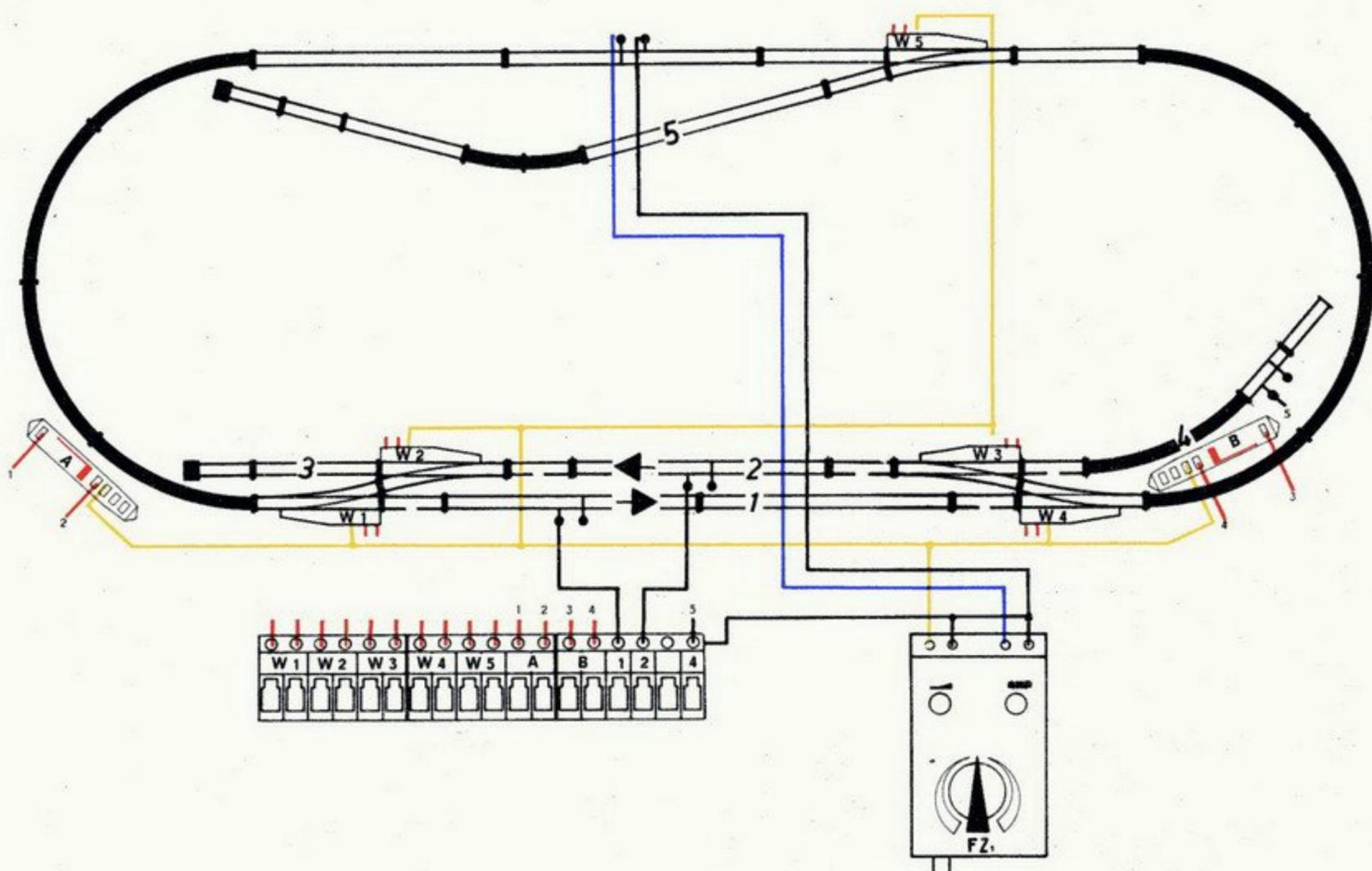
Points are remote-controlled from a switch or signal desk, likewise both station signals A and B, which are not connected to the train controlling device. The mountainside provides sufficient possibilities of putting the scenery setter's skill to the test. The road leading to the community is made safe by a barrier system. One point to remember is that traction vehicles with trolley wire system cannot be used on this layout, since track clearance height is not sufficient.

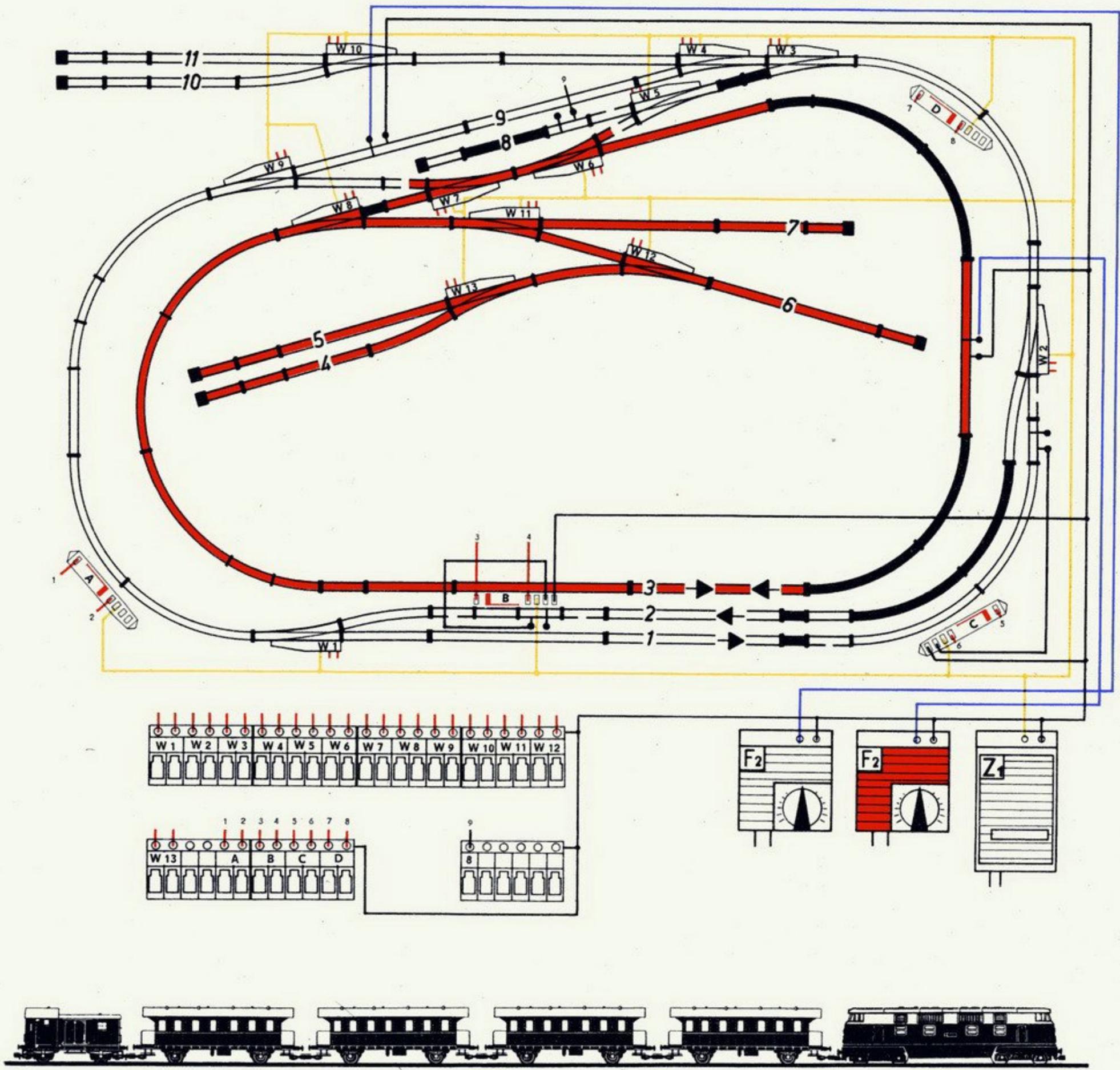




Here you have a system with intermediate station on a single-track branch line. Apart from two railway-station tracks, a goods shed track and a small locomotive shed, a works siding leads from the railway station to a large dairy. This layout situated in country-like surroundings includes recreation facilities such as an open-air swimming bath, not far away, and a country inn with tea-garden, just the thing to please the lovers of outings. A small market-garden, not far from the station buildings, with its early-vegetable cultivation, provides express goods deliveries, while the dairy requires refrigerator wagons in the slow goods train or, sometimes, in the branch line passenger train.

With this layout you can use two trains as well, one for passengers and the other for short-distance of goods. Tracks 1 and 2 as well as track 4 are disconnectible so that trains can be stopped there or a stand-by locomotive can be laid up in the sheds. Both station signals A and E are switched without train controlling device. As needed track 5 can also be arranged for disconnection so that here you can set up a shunting unit, while a train is still on the line.

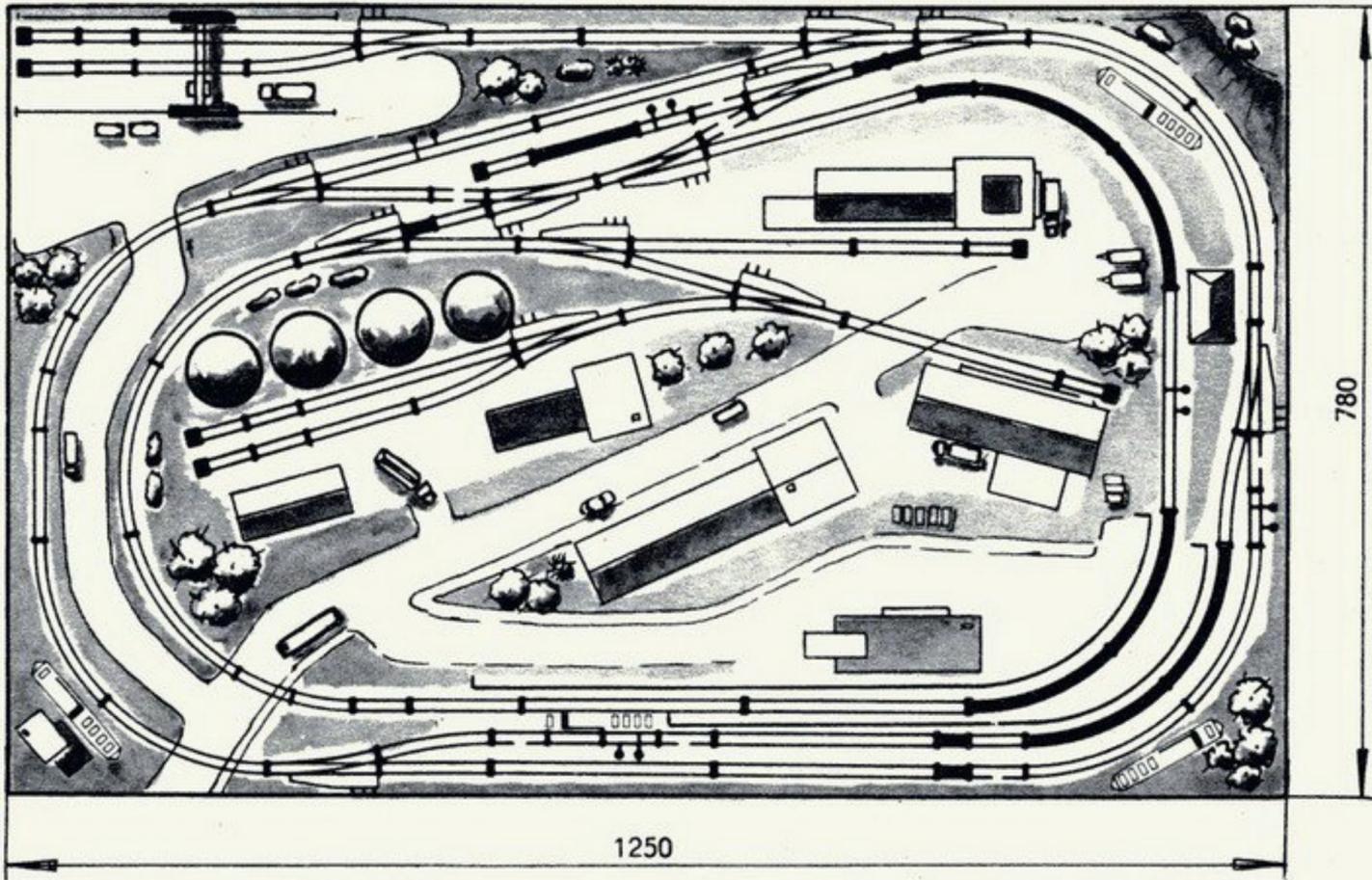




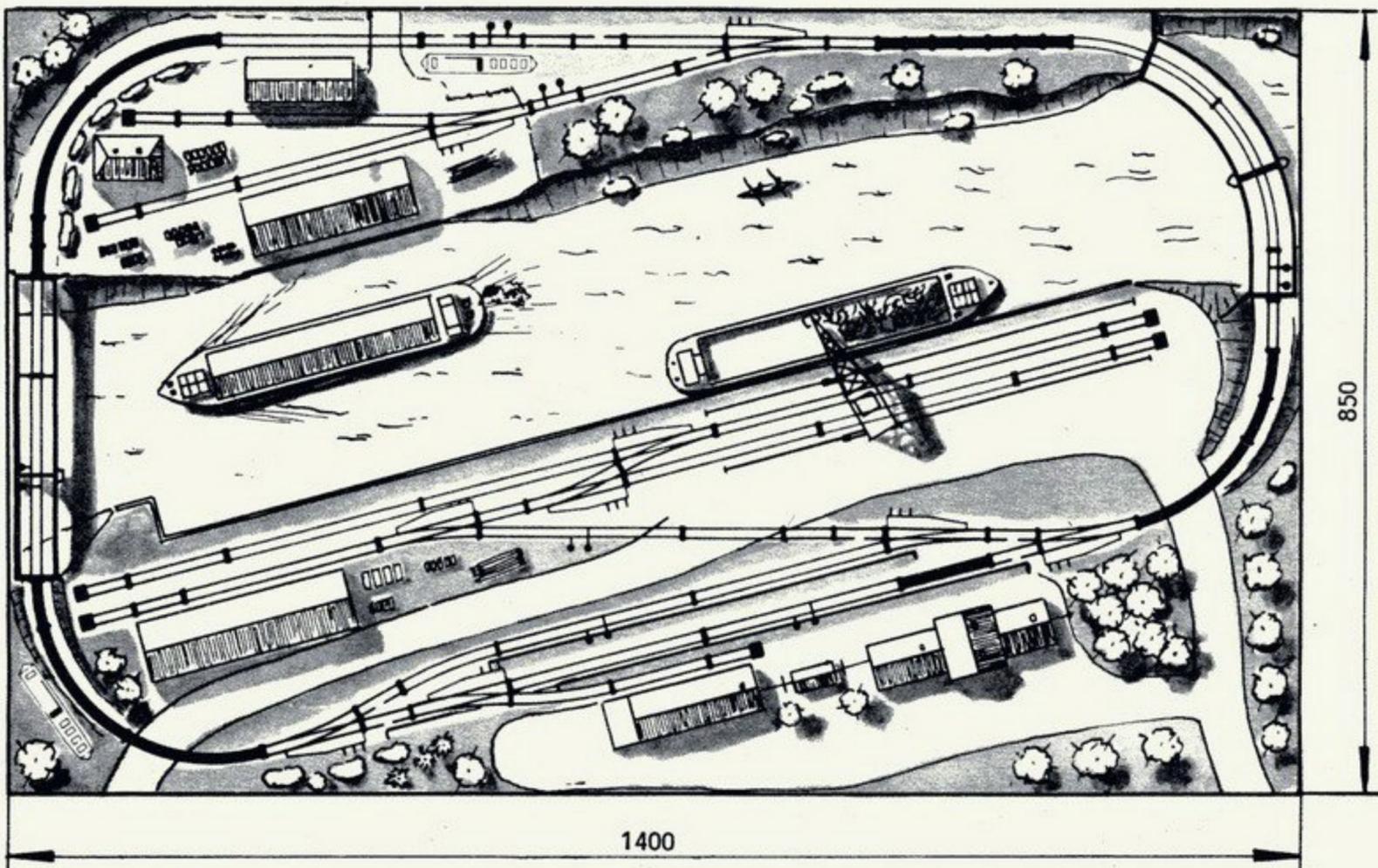
This layout includes a small intermediate station with two railway-station tracks on a branch line section, a small container railway station, not far from the railway station, a works railway transfer station and line, and several industrial sidings. This layout represents an industrial region-offering a whole lot of interesting operations. Two trains in alternate operation can be used on the branch line, which also serves the container station. Goods wagons to be moved to the works railway or from here to the branch line are made available at the transfer railway station. Here a shunting locomotive can be placed on track 6 as well. From the works railway, where you can preferably use a Diesel locomotive model T 34, industrial junctions to fuel depot, corn mills and the factory for precision tools are serviced.

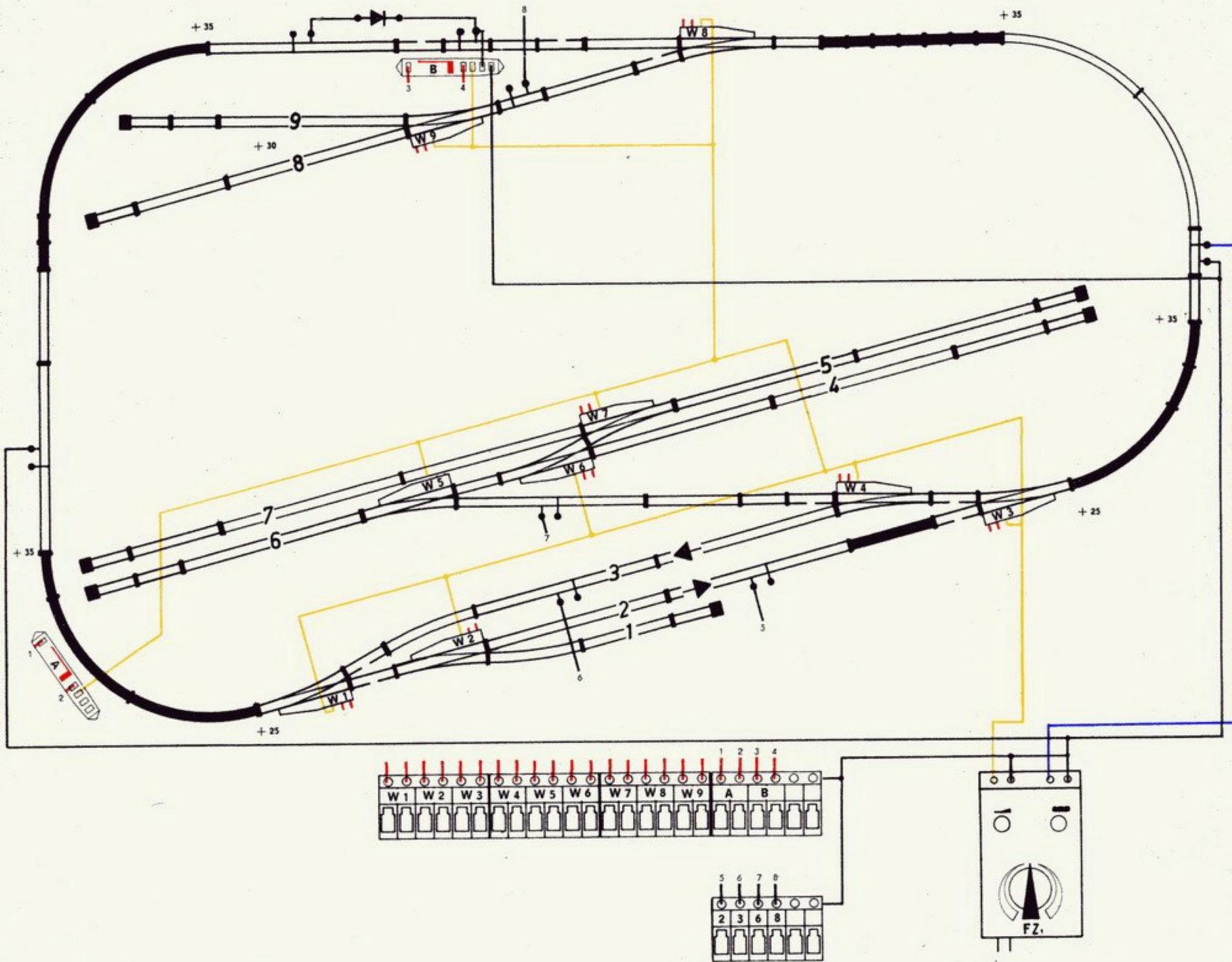
At change of shifts the diesel locomotive of the works railway pulls a passenger coach in order to bring workers to the branch line station: As already explained two trains in alternate operation can be used on the branch line while on the works-railway tracks lively shunting operations are going on. Shuntings can also be executed on the branch line to the container railway station. Both traction circuits operate independently and are represented in track layout by different colours. When transferring a locomotive from one traction circuit to the other strictly observe that both power control units have identical poles.

Track Layout 6



Track Layout 7





This set-up measuring 1,400 × 850 mm belongs to the medium-size models. This is something special for port operation enthusiasts; it includes a single-track branch line with intermediate station and sidings to the inland port. The river flowing diagonally on the layout board, and of course with real dump barges, is an "eye-catcher" in this layout.

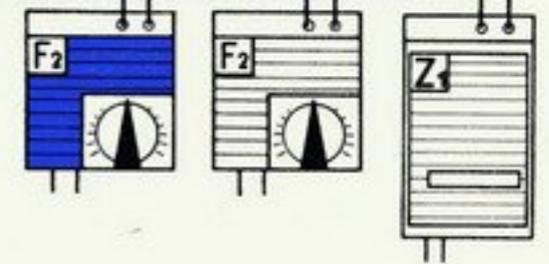
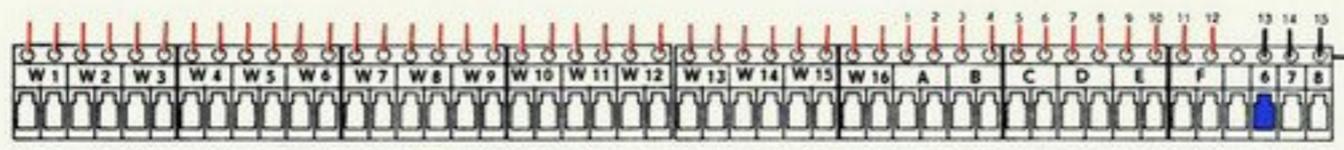
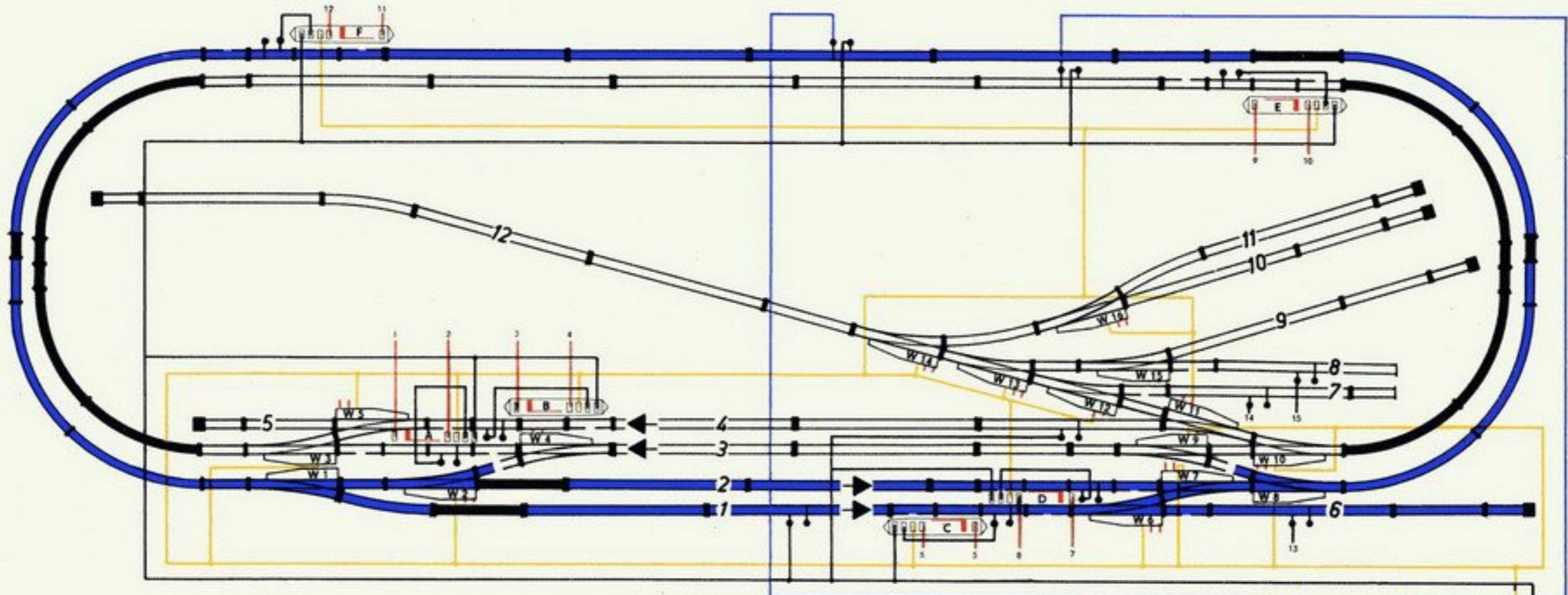
The river is crossed twice by the branch line passing over large bridges. The station itself has two platform tracks and one track to the goods shed.

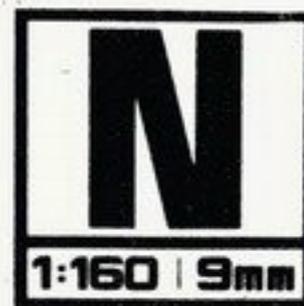
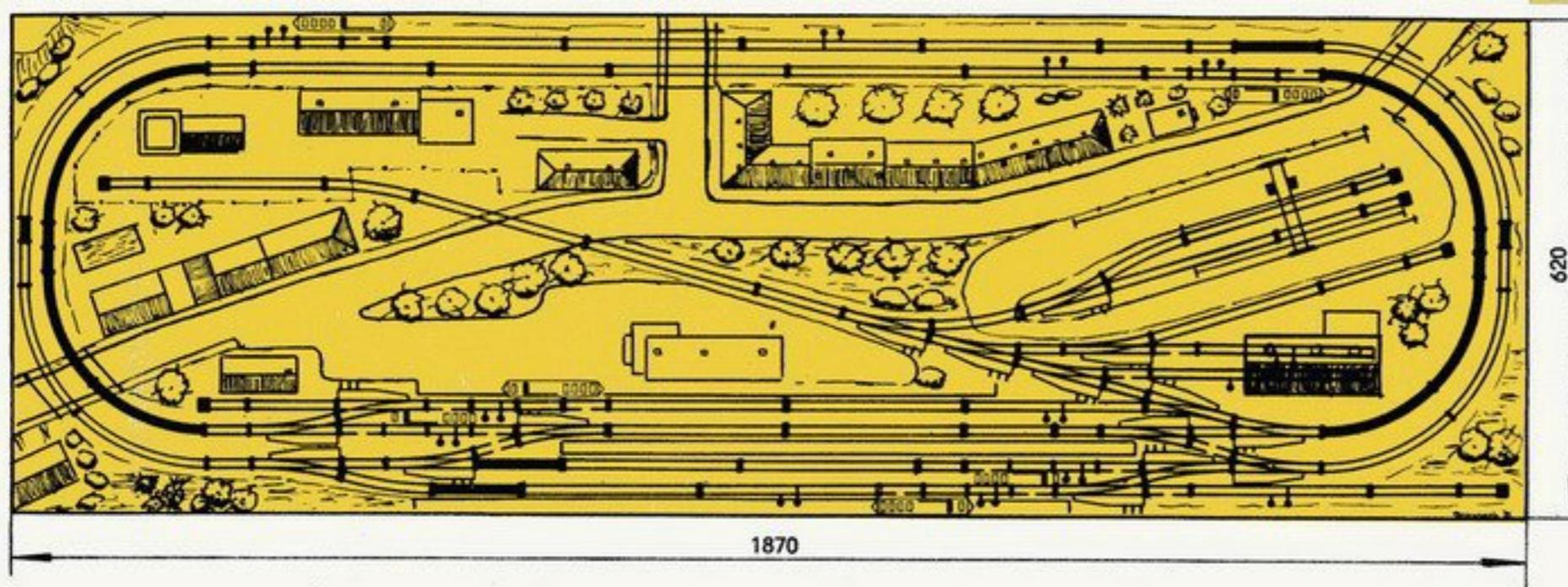
From the station sidings lead to the dock railway, whose tracks are parallel to the river. Here you have a large crane available to unload your barges.

On the other side of the river an industrial siding branches off from the line and leads to a chemical factory, this siding is serviced from the railway station by way of transfer traffic. This system is electrically wired so that two trains in alternate service can be used on the branch line. Since signal B, in contrast to station signal A, is connected to a train-controlling device, a train can be stopped from there, while transfer traffic to the industrial siding is going on; here you can park the shunting unit, since in this case track 8/9 can be put out of service. In the meantime the train halted before station signal B receives a "Green" signal and continues its journey into the railway station. Here as well shuntings to the harbour branch can be executed.

This layout provides a wide variety of traffic operations.







Track Layout 8 represents a two-track main line with medium-size intermediate station. Apart from four platform tracks this station has a goods-shed track, a two-stand locomotive shed, two tracks at the approach for trucks with gantry crane for unloading container from flat wagons and a lead track to these tracks with an industrial siding (Track 12).

Railway station is situated in an average-size town in which very active passenger and goods traffic prevails.

On both sections of the two-track main line a total of two trains can be operated at the same time or a total of four trains in alternate service. All signals are connected to train-controlling devices, so that in the case of a train stopping in front of signal E, shuntings can be executed in between for example in the railway station.

Since tracks in the locomotive shed (track 7 and 8) can be disconnected, stand-by locomotives can be made available there. Track 6 can likewise be switched off so that locomotive can be changed on track 1 in the case of trains halting in the station.

If for example a locomotive should travel from one traction-circuit to the other when a locomotive is being exchanged

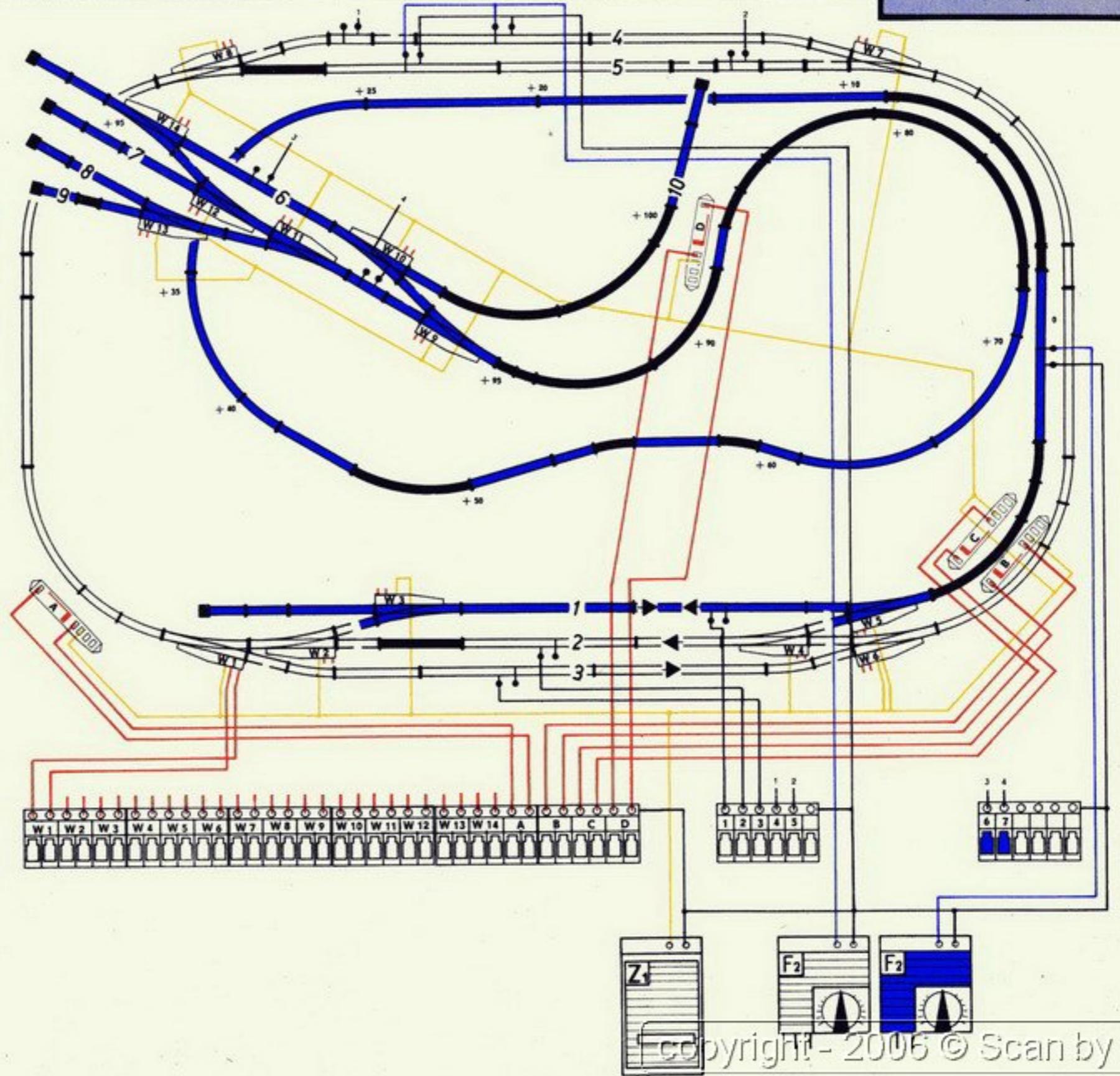
on track 1, strictly observe that both power control units have identical poles.

Later you can extend the layout by exchanging the 1/2 track-piece between points 11 and 12 against a disconnecting track, and a 2/1 replacing straight track by an appropriate siding. After that a separate power control unit can be used for tracks 7 to 12, so that in this track section shunting operations can take place, independent of trains travelling on the two-track line.

Since tracks with the gantry cranes are located at this location, where containers are loaded and unloaded, you can await plenty of shunting jobs. If you still wish for excitement you can extend automatic operation by inserting a signal in both line tracks and there you have third block system, meaning that block operation is possible on each line with two trains each.

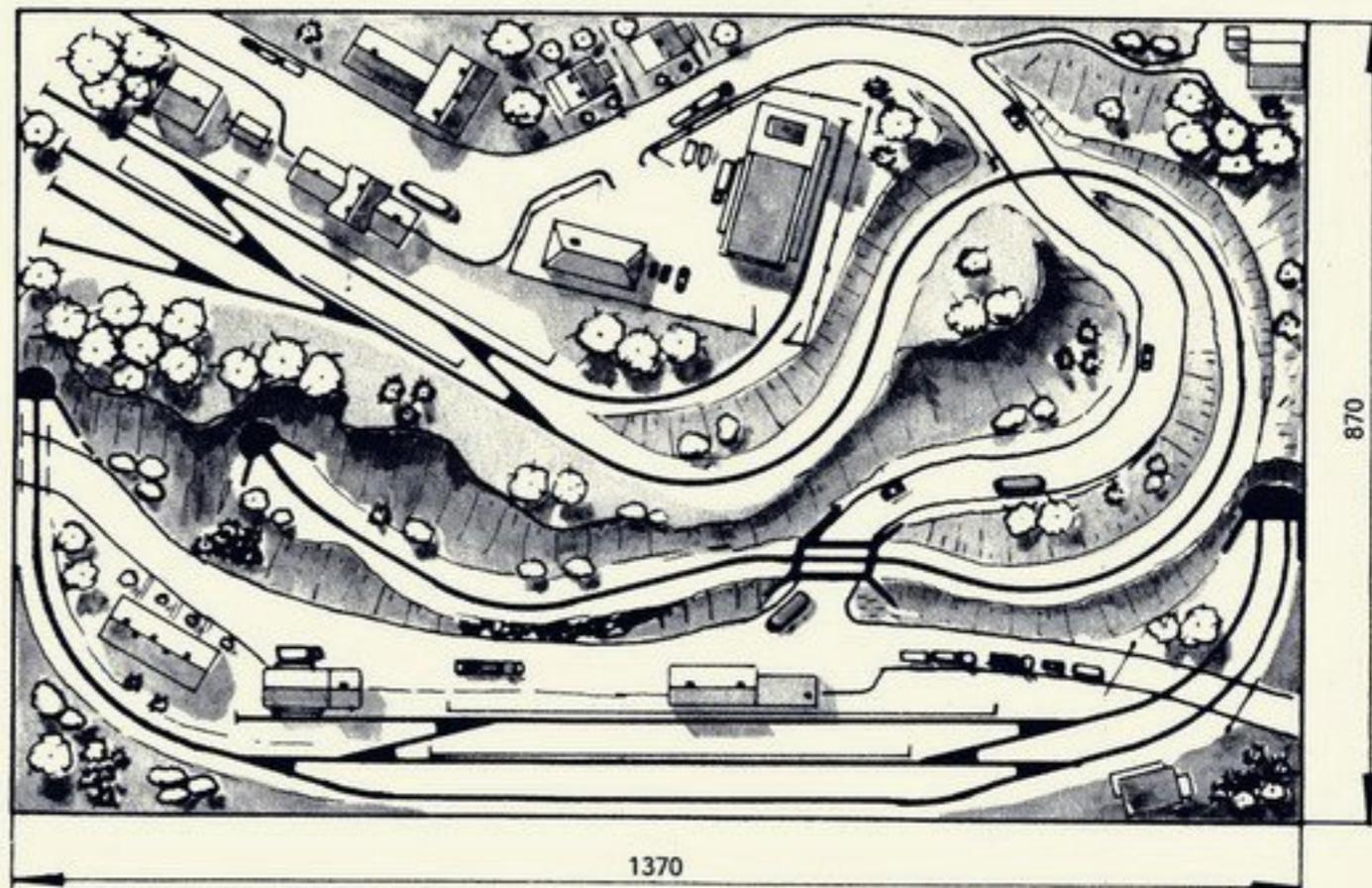
You can use any trains you want on this layout, of course you would not think of using trains with a branch line character, but instead fast and non-stopping trains, as well as containers and fast goods trains. Railway-station tracks are long enough to cater for express trains with at least four coaches type Y, a model V 180 locomotive.



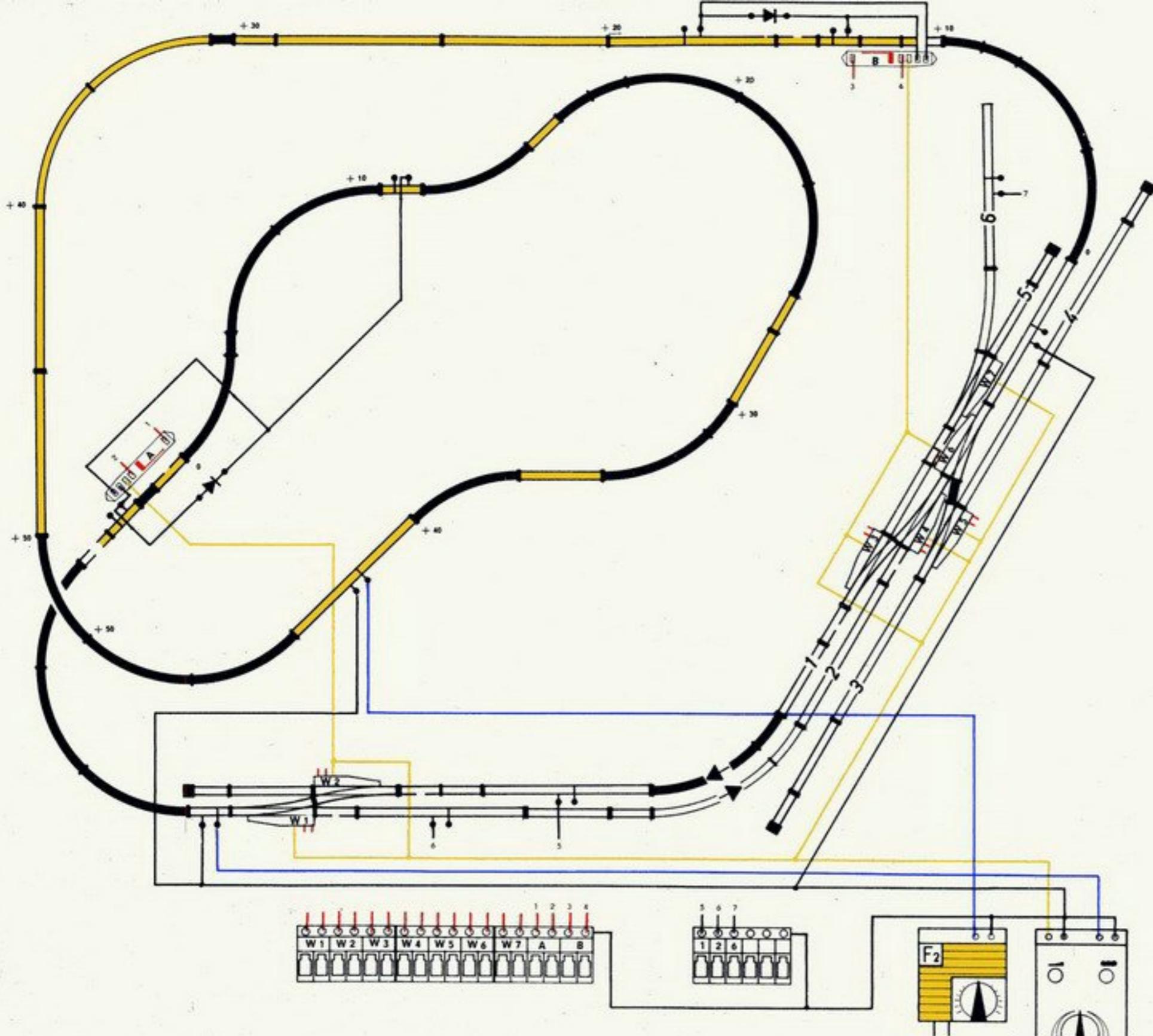


A single-track branch line branches off from an intermediate station at the single track main line to a mountain crest. The intermediate station has one platform track for main line passenger trains and one for the branch line. Track 3 is mainly intended for short-distance and through trains. A track to the goods shed completes the whole picture, and of course arrangement will just about crowd the narrow valley. The branch line winds through a steep gradient section to the mountain crest, where the terminal of this section is situated. It has two platforms and two side tracks. An industrial siding leads to a meat tinning factory; while a fast train and a goods train occupy the main line, in which case the last mentioned brings goods wagons for the branch line station, especially refrigerator wagons, a passenger train operates on the branch line, consisting of a rural line locomotive, model BR 55 and several passenger coaches, and there is also a short-distance goods train pulled by model BR 65 locomotive. (Of course it is left in the hands of each model railway engineer what locomotive he uses; we only want to assist your imagination in which way you can fix up rail service.) In addition the main line also has a hidden crossover station, this is particularly intended to "extend" travelling times of the two trains on the lower section, travelling alternately. Both trains can be parked there at one time while the single-track main line is available for shunting operations of the branch line goods train. In this instance as well strictly observe that when a locomotive is transferred from one traction circuit to the other that both power control units have identical poles.

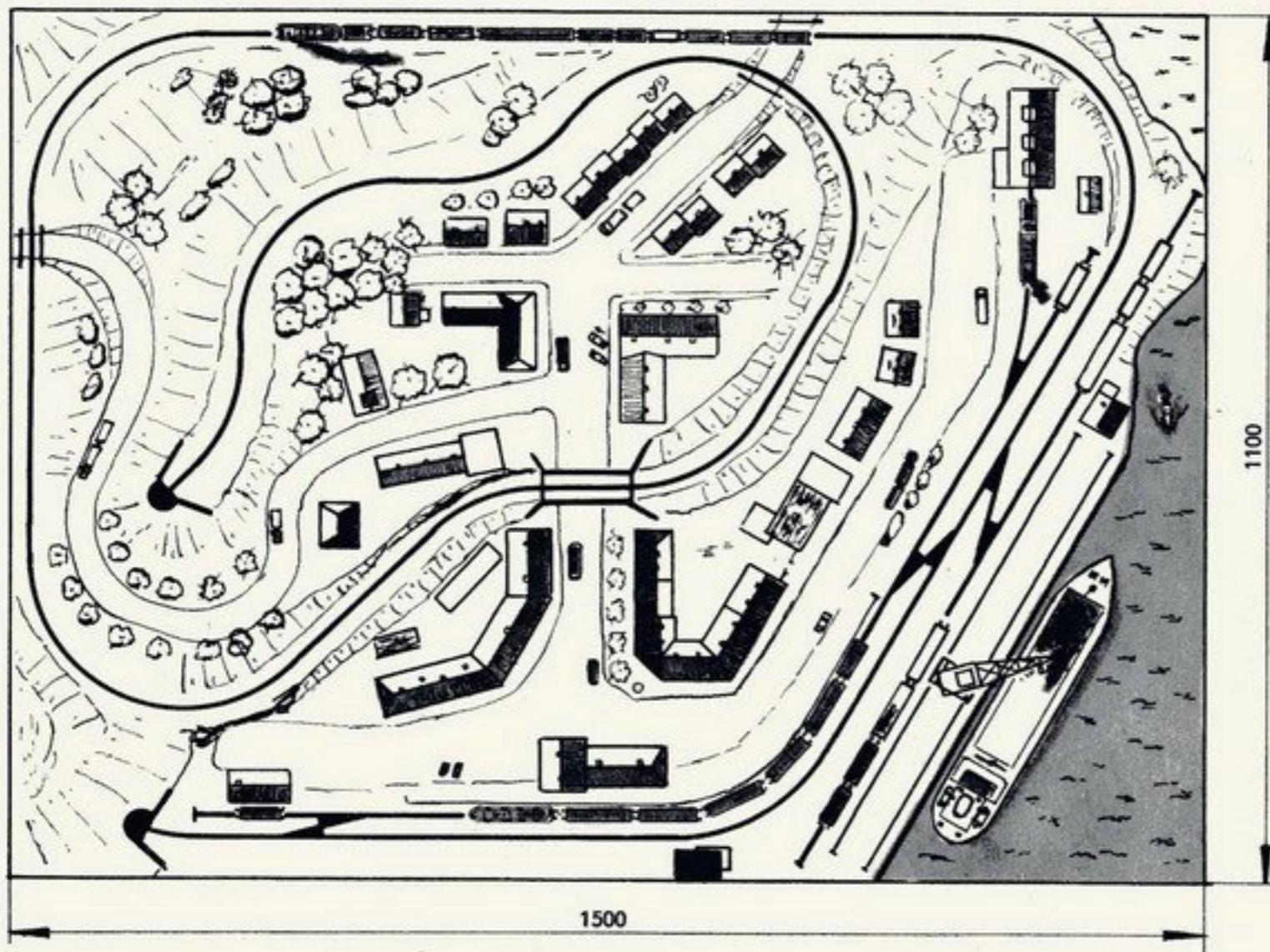
All signals are connected without train-controlling device. A total of four trains can be used with this layout; to use more trains on the main line than the two already stated is not advisable, otherwise all tracks in the visible and the hidden railway stations will be occupied.



PIKO
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N
1:160 | 9mm



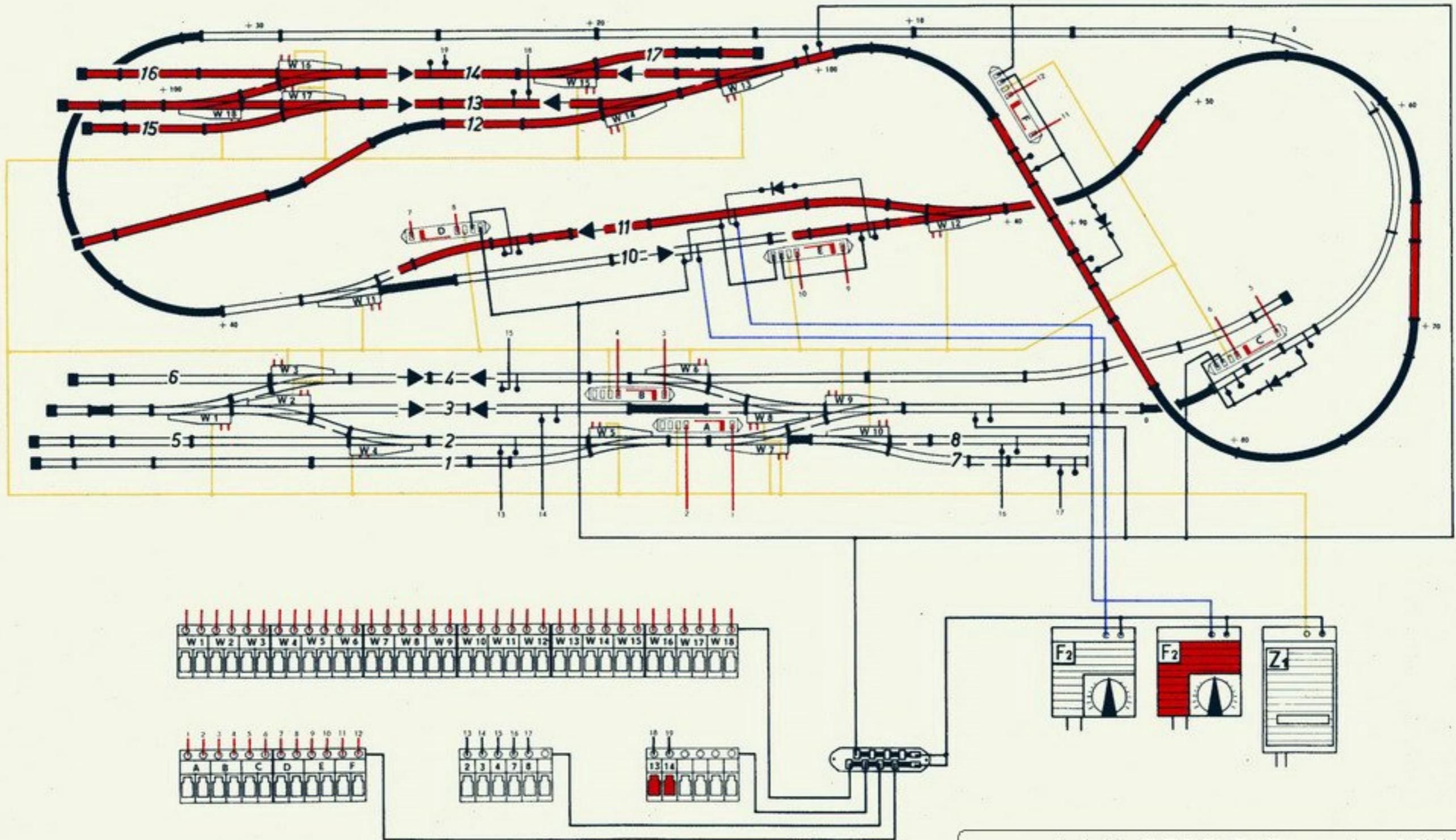
Here's a layout to please the enthusiasts interested in both model railways and ships. Of course you will have to bear in mind to use ships, barges, etc., having an approximate size matching railway vehicles. The small intermediate station is situated at an unpretentious seaport, where coal and general cargo freighters unload their goods. A track at the wharf serves to line up the goods wagons, most of which will be open.

A platform track is available at the station to deal with passenger trains, whereas track 2 serves for freight traffic. Also included in the railway station trackage are a track at the freight shed, a shunt line, and a track leading to the small locomotive shed.

The single-track branch line, which leads inland, by-pass the sea-side town in a wide sweep.

This track layout is equipped with two power control units, but before the start one power control unit, in this case model FZ 1, is all you need.

Model F 2 power control unit is provided for the clear line only, since it has a considerable length, where at corresponding speed, the trains could be a long time on their way. In the meantime shunting can be carried out at the railway station and on the dock line. Signals A and B are connected with the train-controlling device. Operators should keep in mind of course that with signals at "Go" the power control unit for the station service must be poled identically to the power control unit intended for line service.





In this case an exposed track layout has been selected; the terminal station is situated in a valley, from where a single – track branch line winds its way to a second terminal station situated in the mountains.

A crossover station is situated between the two terminal stations, which mainly serves an operational purpose, i. e. allows two trains to cross.

A small up-to-date waiting-room is included as well to invite holiday – makers or week-end likers to take a cup of well-earned tea before continuing their journey by foot to some delightful spot.

Apart from two platform lines the station in the valley has a further track for dealing with freight trains and a side track for goods and passenger wagons.

A two-stand shed is available for locomotives, and an industrial siding leading to a crushed-rock mill. Trackage of the top station consists of two platform lines, a side track and an independent loading siding at the approach for trucks. This siding track leads to a coal and fertilizer establishment.

This track layout is split up into two traction circuits, so that you can use two trains at the same time. Both traction circuits lead to the crossover station and end there in front of the disconnectible sections where signals D and E are situated.

Bear in mind that trains halted in front of the two signals must be taken over from the other respective power control unit – and of course do not forget correct poling.

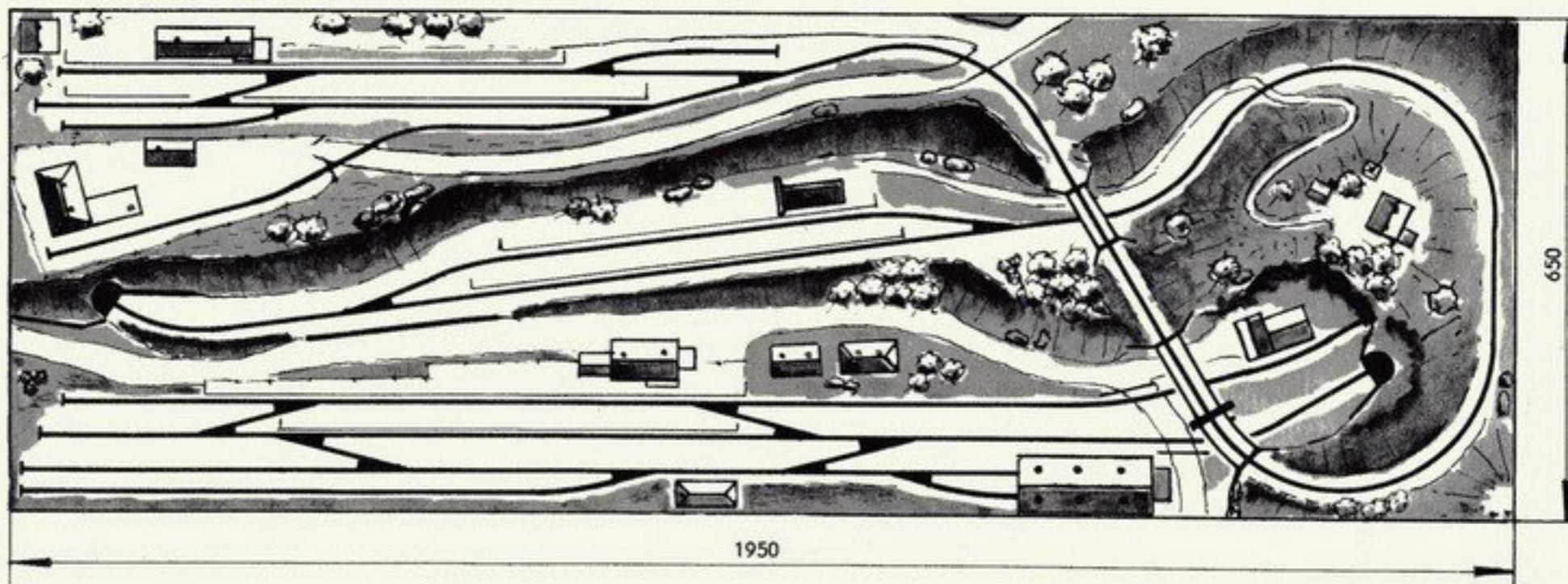
If for example a train is travelling from the station in the valley in direction of the top station it comes into track 10 and halts in front of signal E, which is at "Stop", if another train is travelling in the opposite direction, this train then comes into track 11 or continues its journey, respectively, through track 11.

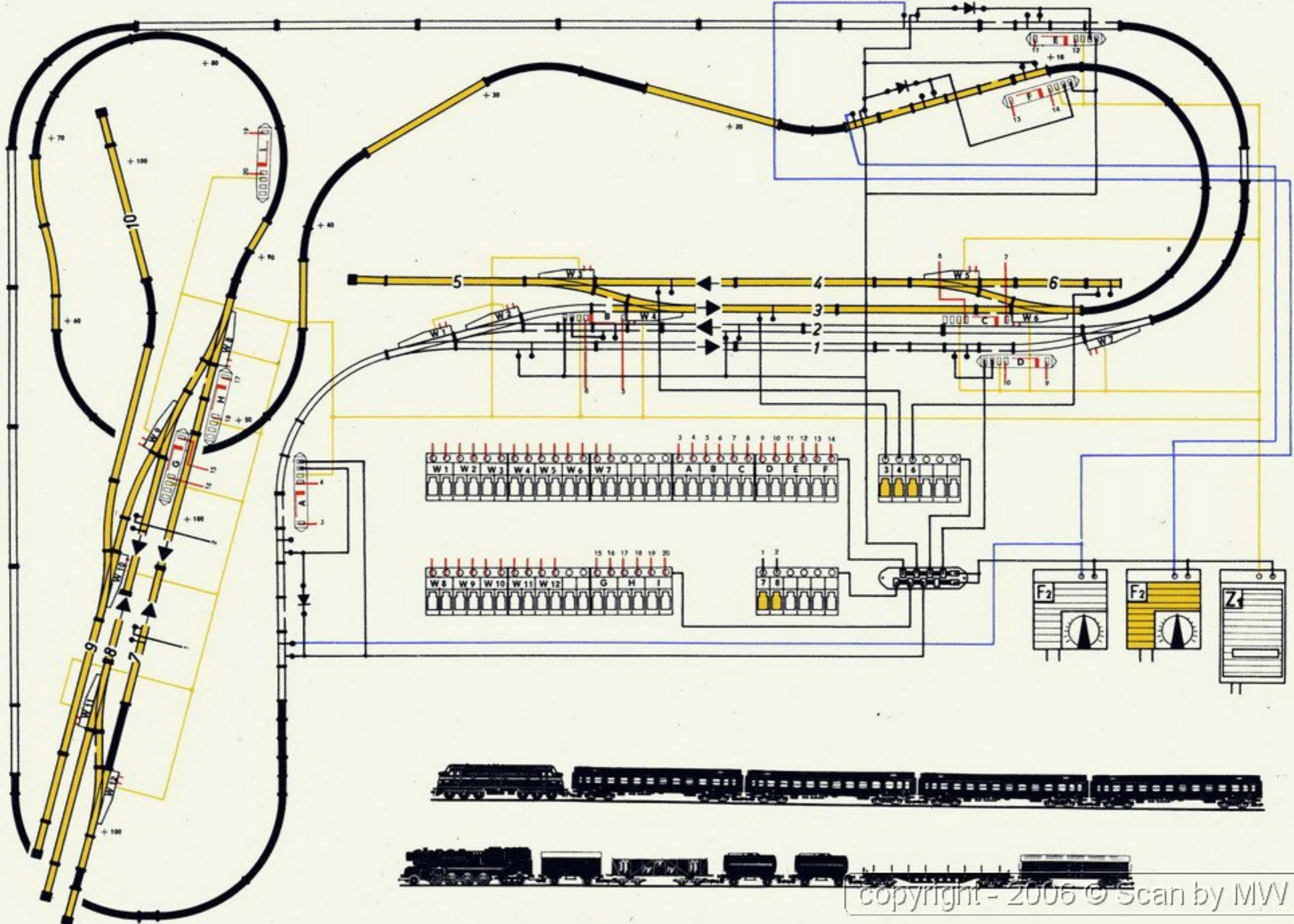
If now signal E shows the "Go" signal for the train travelling up the mountain, do not forget to reverse poles of the power control unit beforehand.

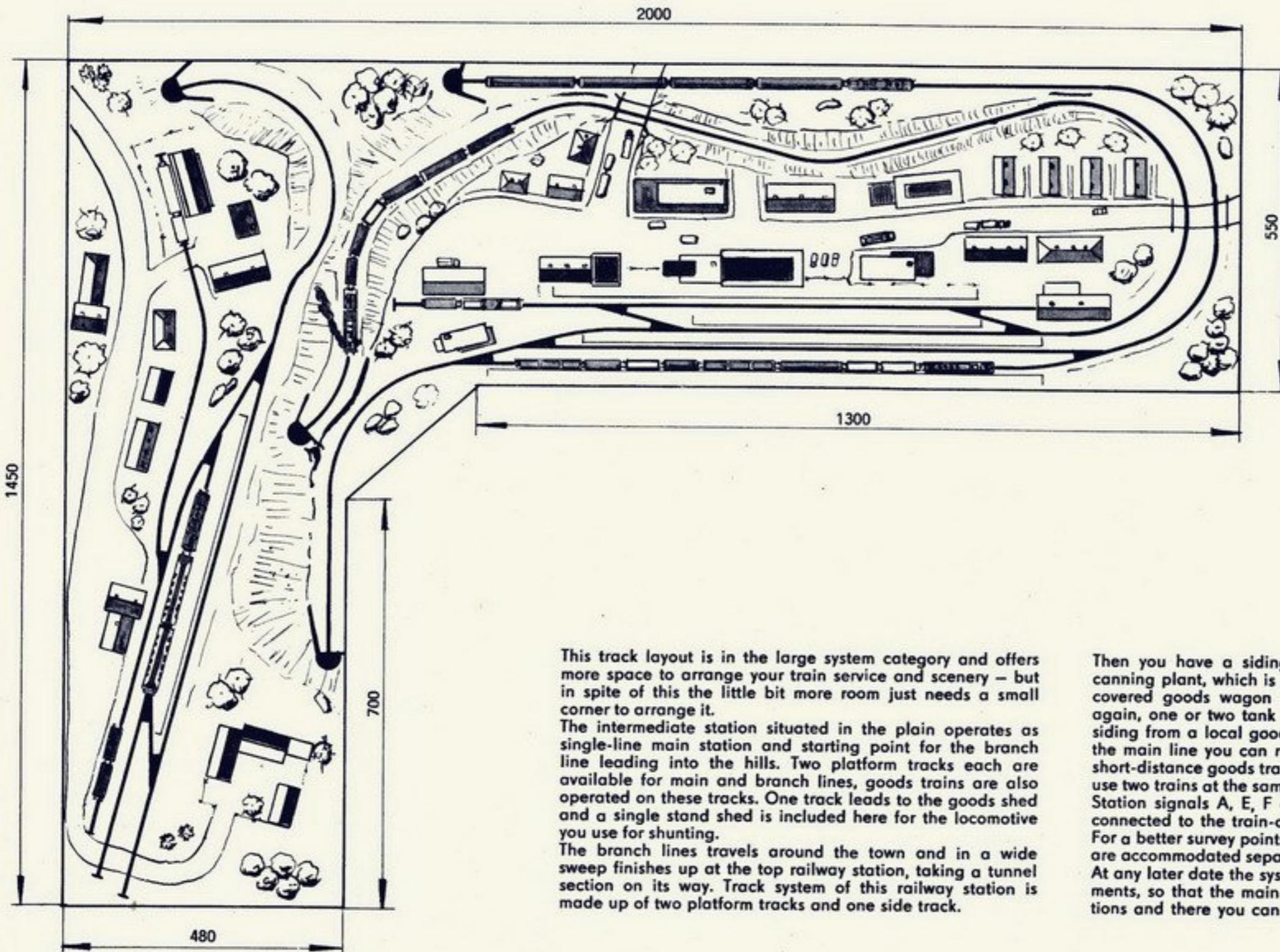
Station signals C and F as well as signals E and D are connected to train-controlling devices, but signals A and B are not.

You can use a total of four trains, and in two-way service at that!

There is still space at the valley-station to use a locomotive for shunting. System size has been kept to a minimum to allow convenient setting up.







This track layout is in the large system category and offers more space to arrange your train service and scenery – but in spite of this the little bit more room just needs a small corner to arrange it.

The intermediate station situated in the plain operates as single-line main station and starting point for the branch line leading into the hills. Two platform tracks each are available for main and branch lines, goods trains are also operated on these tracks. One track leads to the goods shed and a single stand shed is included here for the locomotive you use for shunting.

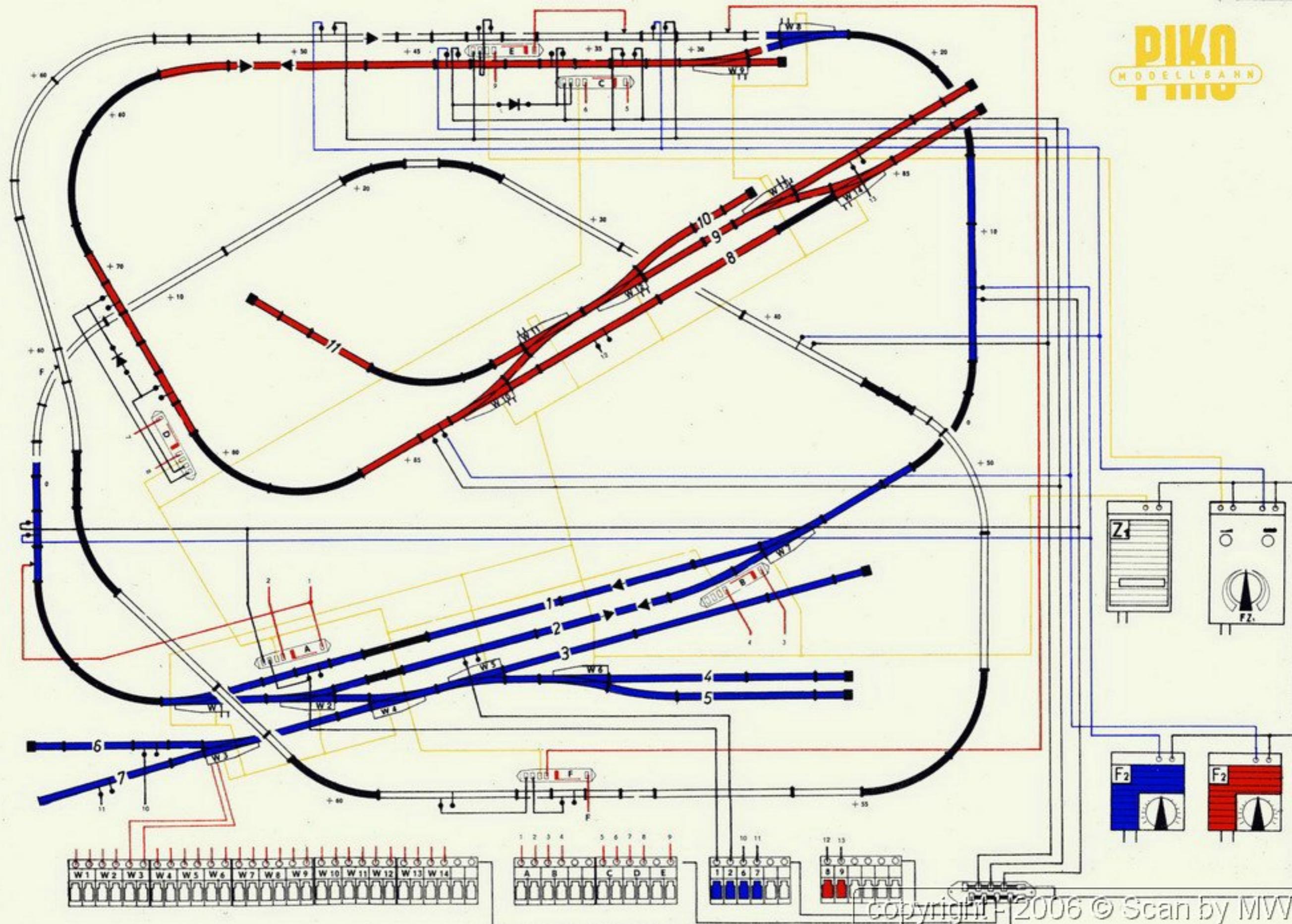
The branch line travels around the town and in a wide sweep finishes up at the top railway station, taking a tunnel section on its way. Track system of this railway station is made up of two platform tracks and one side track.

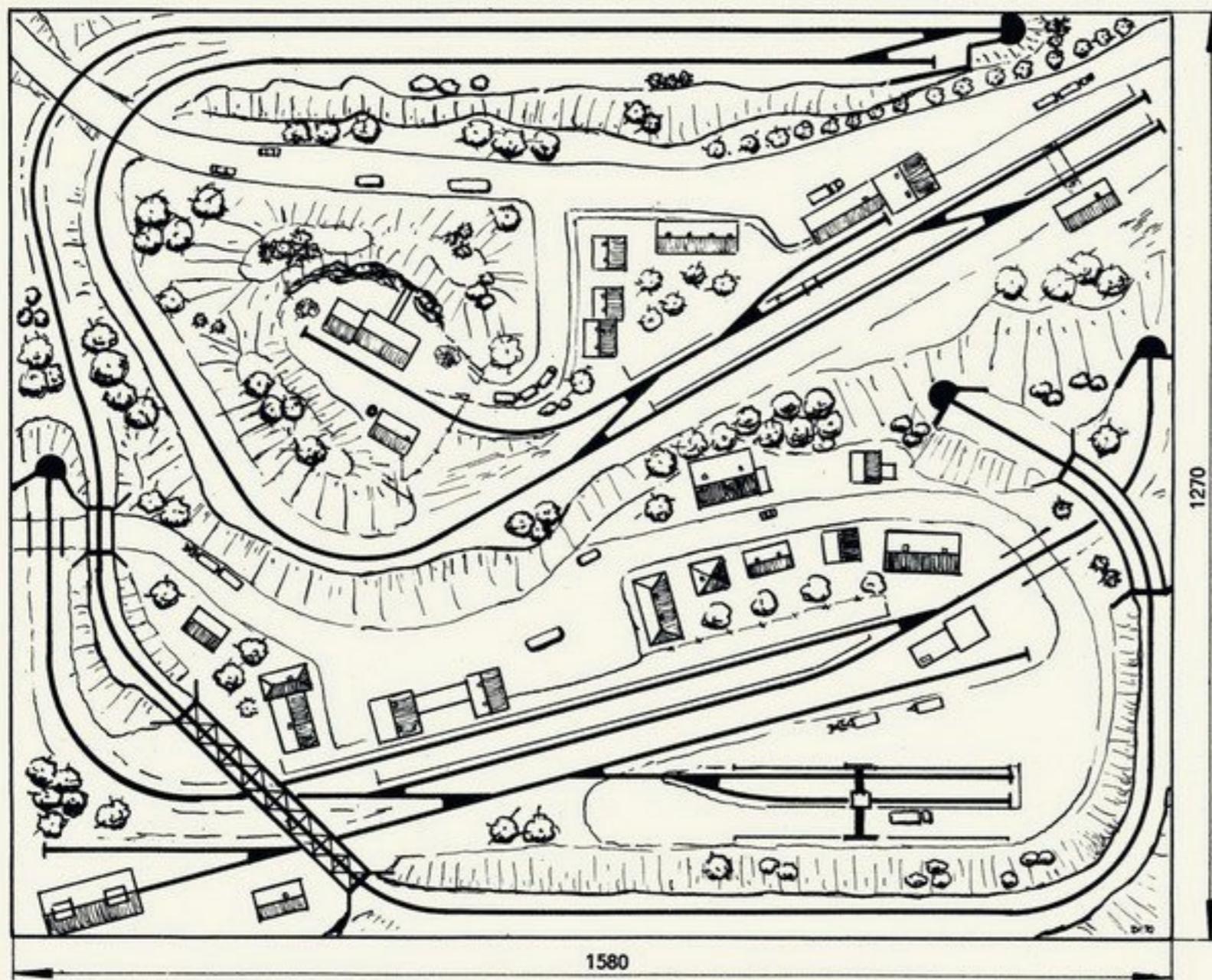
Then you have a siding leading to a vegetable and fruit canning plant, which is kept busy by refrigerator wagon and covered goods wagon deliveries and, of course, now and again, one or two tank wagons with fuel oil are pulled into siding from a local goods train to keep the plant going. On the main line you can recognize a fast passenger train and short-distance goods train, and added to this, you can always use two trains at the same time.

Station signals A, E, F and departure signals B and D are connected to the train-controlling device, all others are not. For a better survey points and signals for each railway station are accommodated separately in keyboard rows.

At any later date the system can be extended to suit requirements, so that the main line can be split up into block sections and there you can introduce automatic train servicing.

Large System Layout – Single – Track Main Line with Branch Line





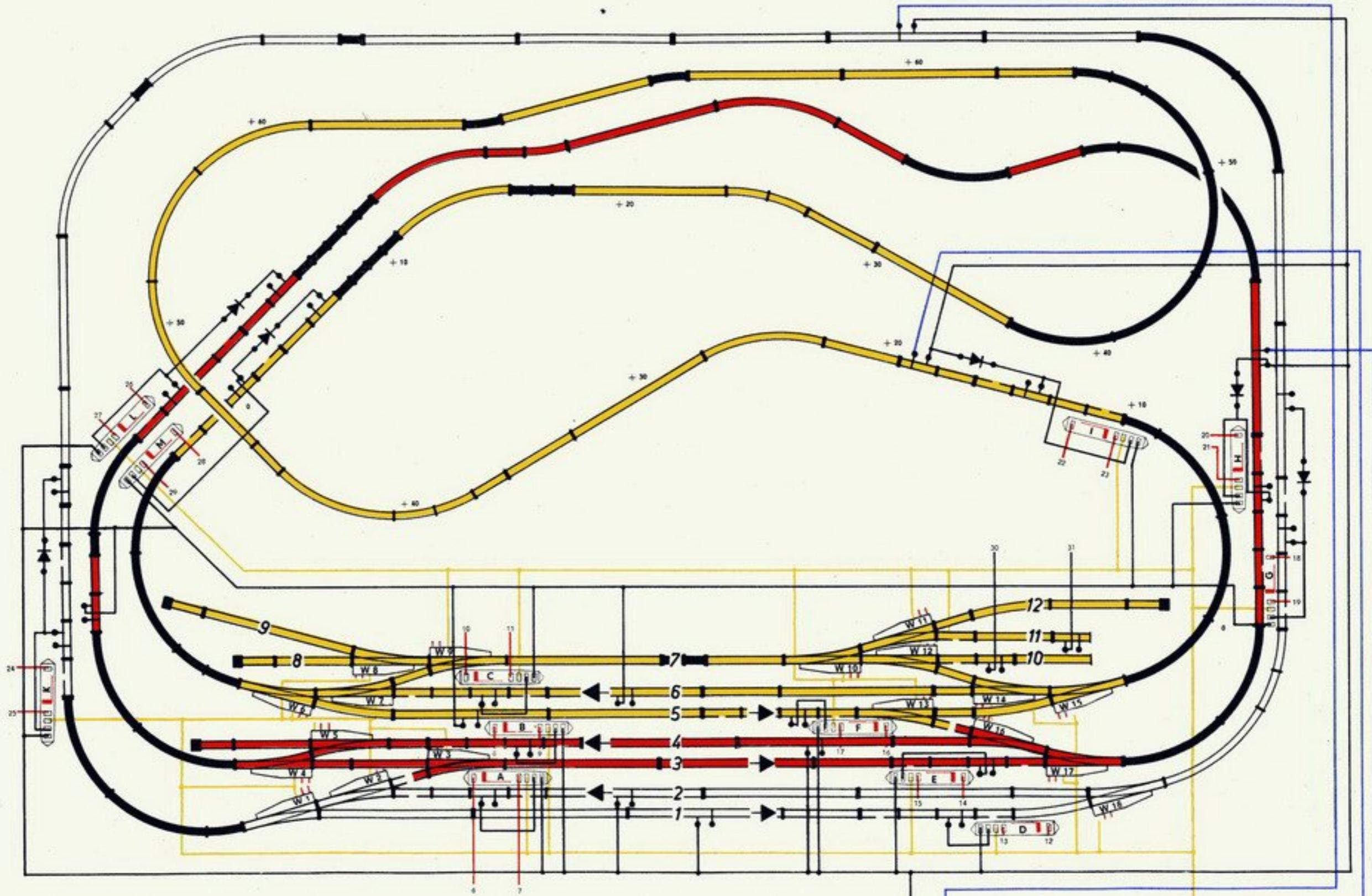
Here you have something to keep you busy from morning till night – and very interesting at that. To begin with you can use two trains in block operation, whereas on the branch line to the top railway station two trains can operate in alternate service. If trains of the main line are on the clear (white) and one train is on the move to top station on the branch line section (red), you can still continue shuntings in lower station at the same time (blue section). Facilities are provided by a side track at the approach for trucks and the small container railway station; a small single-stand shed and a servicing track are available for the locomotives you use, and last but not least there are two platform lines for passenger train service. Trackage of the branch line terminal station consists of two platform tracks, one goods shed track, and a siding to a crushed-rock mill.

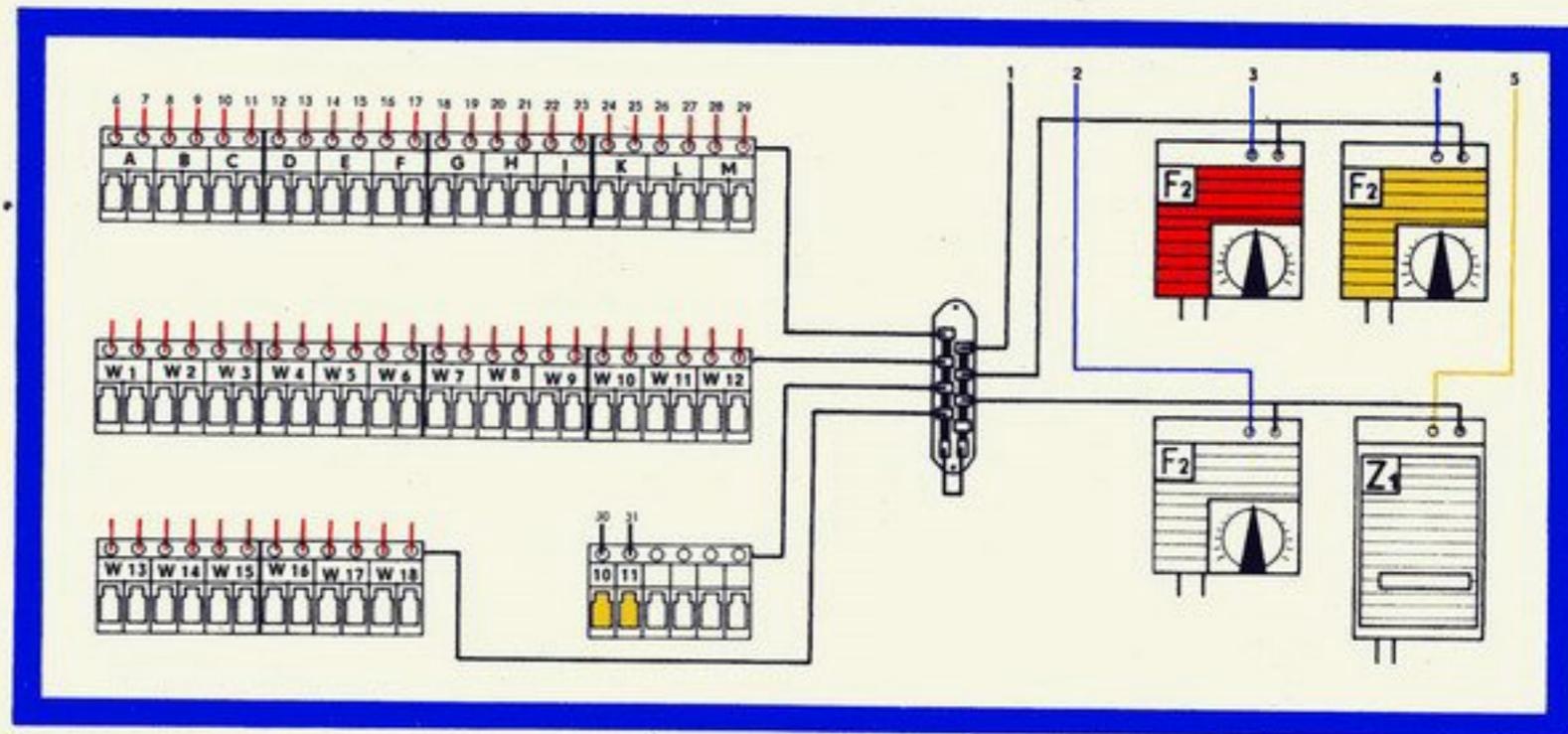
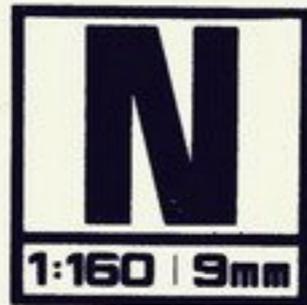
Signals A, C, D, E and F are connected to train controlling devices whereas signal A can be set to "Stop" by the train via the switching point, as also from the keyboard. Signal E is always set to "Stop" by the train, whereas signal F is switched to "Go" and "Stop" as block-signal by the train. Signals C, D and E are serviced from the keyboard, likewise signal B, which is not connected to the train controlling device.

To arrange the individual power control units to the various traction circuits just refer to the coloured markings of the track sections. Power control unit F Z 1 supplies current to the section with block sections, so that here you can use two trains concurrently. All signal drives are likewise supplied by model FZ 1, while the points drives are supplied with alternating current by power control unit Z 1.

Large System Layout – Single – Track Main Line with Branch Line

Track Layout 13





This large-scale layout represents a large junction – point railway station through which three single – track main lines pass, meaning that three trains can be used at the same time. On each section two trains can be used in alternate service, so that a total of six trains can be run with this layout.

Provided you drive the models at adequate speed it will take the trains some time to move over these specially laid out tracks.

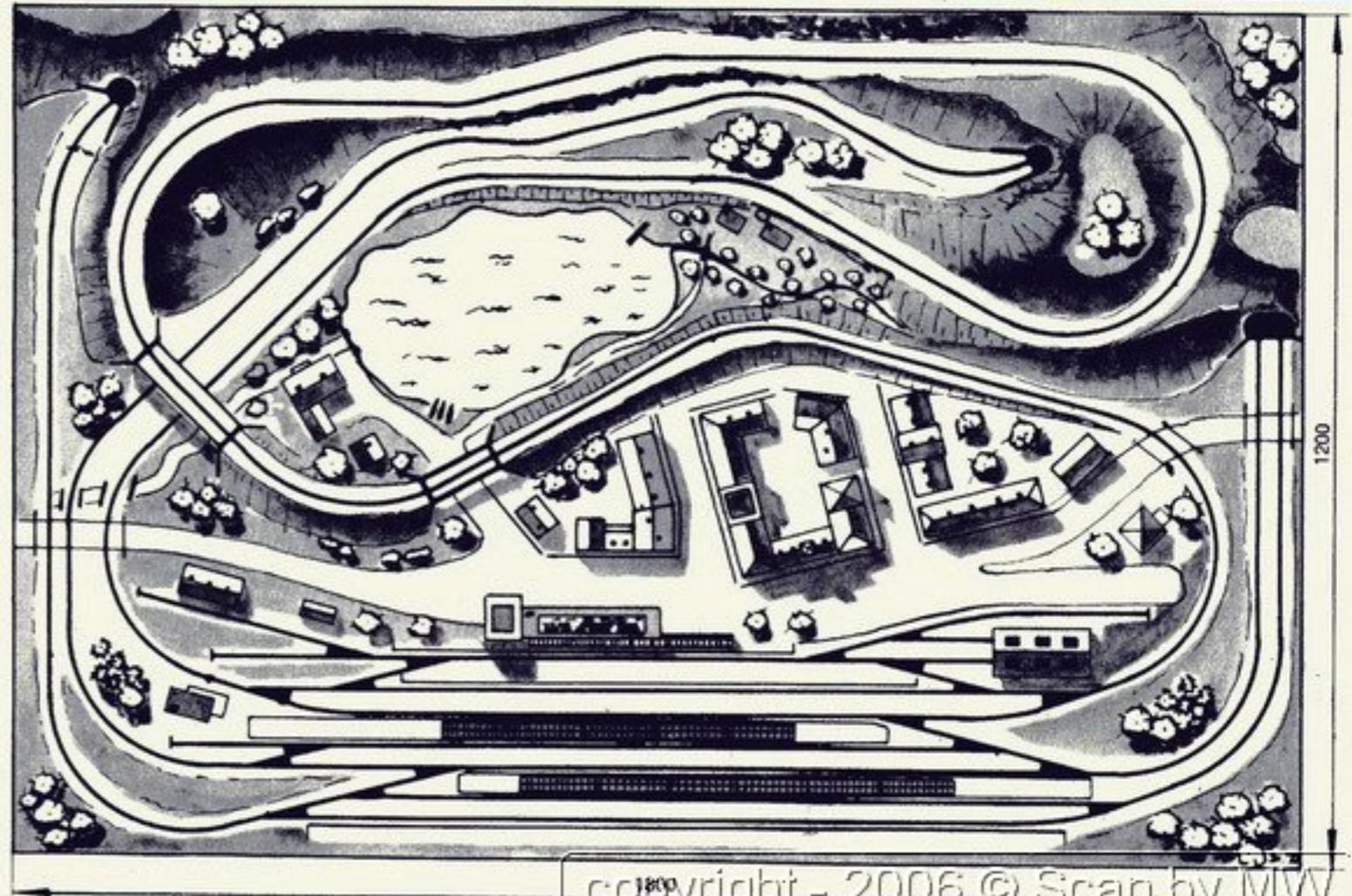
Railway station track layout consists of six platform tracks for train service, a service platform (track 7) where, however, no trains are allowed to depart, a side track (8), a goods-shed track (9), a double-stand locomotive shed (10 and 11) and an open-air loading track (12).

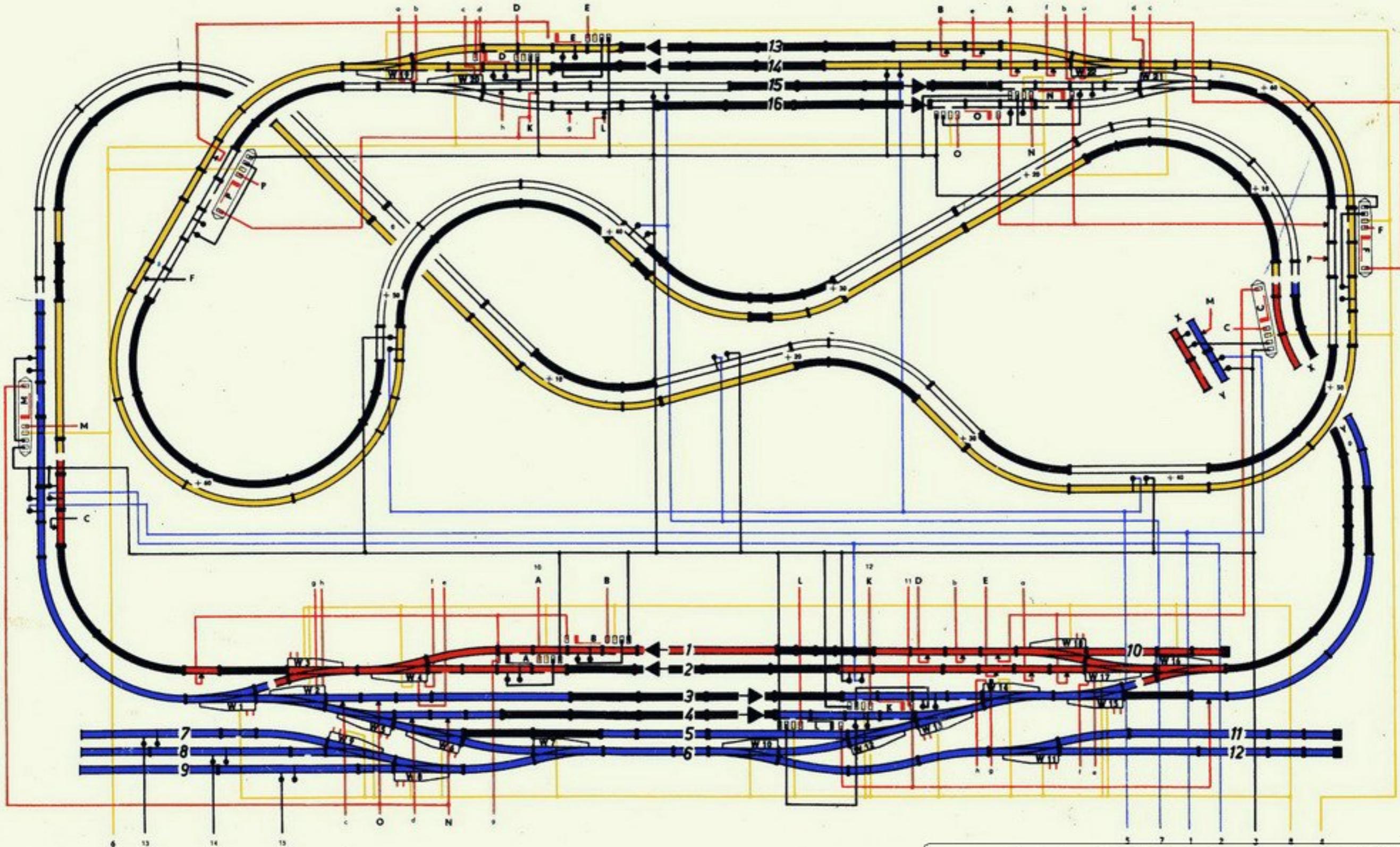
In its dimensions the station building corresponds to the extensive tourist traffic.

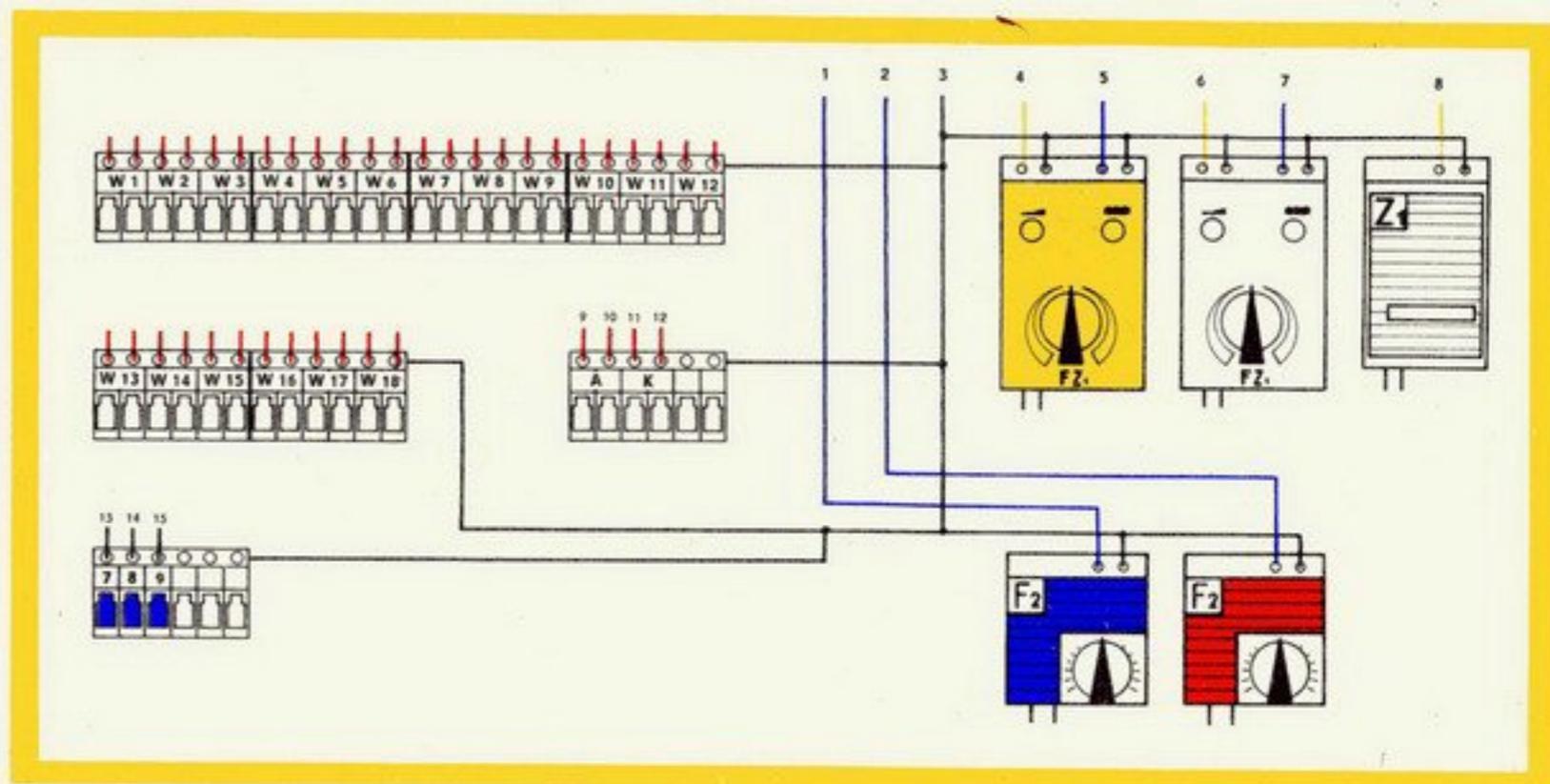
Eye-catcher of this layout is the large reservoir. There are various possibilities of arranging things to suit the surroundings, for example the mill behind the retaining dam, a beach by the lake, pleasure boating, week-end houses or even a camping site.

Even the town, neatly arranged, can also add as an ornament to this layout. All signals are connected to the train controlling devices.

Assignment of power control units to the respective traction circuits can be gathered from the coloured markings.







This layout represents a large intermediate railway station for passenger and goods traffic with an important container – handling station on a two-track line in a highlands scenery. Another intermediate station is situated, which in addition to each main line section has a platform track for each line. The entire two-track section is split up into four block sections, where automatic train service can be executed. Thus three trains can concurrently operate on each track of the two-track section, and on both tracks even six trains simultaneously.

Since tracks 1 to 15 as well as tracks 4 and 16 are included in automatic train service, five trains can be used on each track in alternate operation, meaning you have your hands full with this layout-comprising – just think – a total of ten trains!

Both tracks of the two-track section are identical in design and electric circuit.

When operations start one train each stands ready at signals A, B, C, D and E and in front of signals K, L, M, N and O. If you now set signals A or K, respectively, to "Go", automatic train service will then commence on each section.

The train departing from track 7 sets signal A to "Stop", after it has left points 3, and then signal C to "Go". Train 2, halted in front of signal C, comes into track 2, in doing so sets signal C to "Stop", the points 19 and 22 to "Branch Line" and signal E to "Go", and in conclusion is halted in front of signal A.

In the meantime train 3, halted in front of signal E, has departed; it sets signal E to "Stop" and signal F to "Go", so that train 1 can enter track 13; in doing so it sets points 4 and 17 to "Branch Line", signal B to "Go" and stops in front of signal E.

Train E standing in front of signal B departs from track 1, sets signal B to "Stop" and signal C to "Go". Now, train 3 is free to enter track 1, it then sets signal C to "Stop", points 19 and 22 to "Straight" and signal D to "Go", so that train 5 departs from track 14 in direction of signal C.

Trains operate analogously on tracks in the opposite direction.

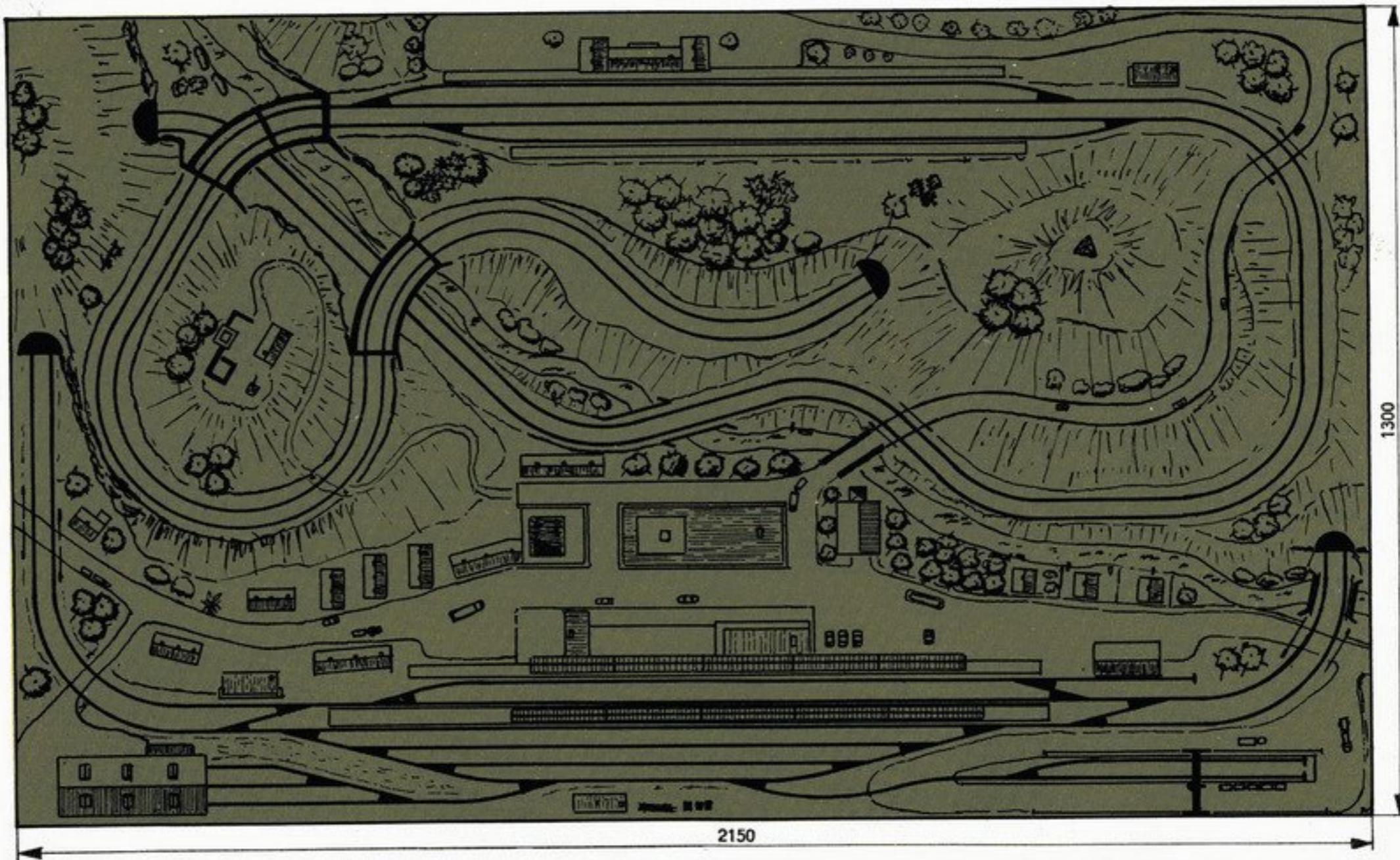
Automatic train service can be interrupted very simply when signals A or K, respectively, which had been set to "Go" by one of the trains, are directly afterwards switched from the keyboard to "Stop" by hand. This must be done, however,

before the locomotive has departed from the disconnectible section ahead of signal A or signal K, respectively. When commencing with train service points 4 and 17, as well as points 2 and 14, must be at position "Straight". During operations points 3, 16, 1 and 15 must always be at "Straight", but remember points 18, 5 and 13 must always be at "Branch Line".

All points are connected to the keyboards, so that you can execute shuntings in the railway stations as well. Set power control performers so that when a train is transferred from one traction circuit to the other no alteration in speed is caused, in other words crossing-over must not be perceivable. A treble-stand locomotive shed can be included for the stand-by locomotives provided for line or shunting service. Track 11 and 12 belong to the container-handling railway station.

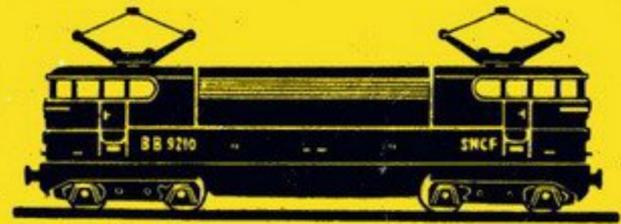
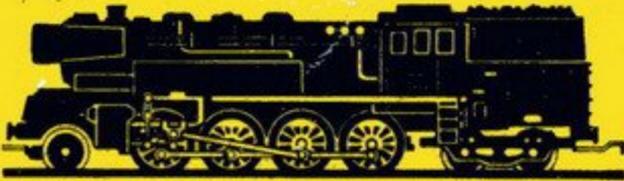
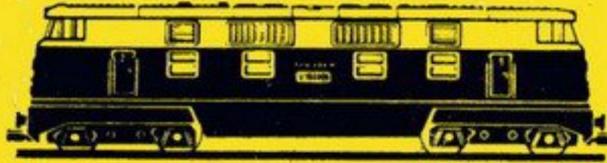
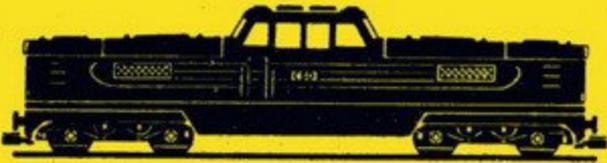
Length of trains depends on length of tracks 13 and 16. Strictly observe that when these tracks are entered the last carriage does not contact the nearest switching rail contact, respectively, with the last axle, since this can lead to faulty switchings.

Track Layout 15



Track Material And Accessories Required

Symbol	Item No.	Track Layout																	
		1a	1b	1c	1d	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	5470 5 4 5/4150	3	3	3	3	—	—	—	3	12	11	20	9	8	15	24	17	25	17
	5470/5/7 5/4151	2	3	2	2	4	2	3	4	10	8	7	9	8	16	5	16	21	14
	5470/5/12 5/4152	—	—	—	—	3	2	4	3	10	7	19	13	6	16	13	22	28	34
	5470/5/14 5/4159	—	1	—	—	2	4	7	—	5	9	6	3	4	5	10	8	17	15
	5470/5/13 5/4160	—	—	—	—	—	—	—	—	1	1	3	2	—	2	2	2	—	33
	5470 5/3 5/4153	8	8	4	8	6	10	16	9	6	5	8	11	18	12	23	14	21	25
	5470/5/11 5/4154	—	—	—	—	—	—	6	2	1	3	—	7	6	9	11	7	9	12
	5470/5/16 5/4155	—	—	—	—	—	—	—	—	—	—	—	2	—	1	—	—	—	—
	5470/5/10 5/4156	8	8	8	8	8	8	4	—	10	2	8	9	3	3	1	4	11	25
	5470/5/17 5/4157	—	—	—	—	—	—	—	—	4	—	—	14	1	1	2	2	7	13
	5470/5/18 5/4158	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—
	5470/5/6 5/4163	2	2	2	2	1	—	1	—	5	2	4	—	1	9	6	5	4	13
	5470/5/5 5/4164	1	1	1	1	—	—	2	3	2	5	7	7	6	9	7	8	8	7
	5470/5/19	—	—	—	—	3	2	1	1	3	3	6	3	4	8	9	12	19	18
	5470/5/15 5/4170	—	—	—	—	—	2	—	—	2	—	2	2	2	3	1	3	2	6
	5470/5/1 5/4162	—	—	—	—	4	—	4	5	5	8	14	12	7	15	17	17	26	25
	5470/5/20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—	26
	5470/213/3	—	—	—	—	1	1	2	2	7	7	6	6	4	10	5	9	4	3
	5470/5/8 L 5/4165	1	1	1	1	2	3	3	3	8	5	12	6	5	10	4	7	8	13
	5470/5/8 R 5/4166	1	1	1	1	1	2	1	2	5	4	4	8	2	8	8	7	10	9
	5410/519/13 5911/519/81	—	—	—	—	—	—	2	2	4	2	6	4	2	6	9	6	12	12
	545/146	—	—	—	—	2	2	3	3	7	5	8	8	4	10	10	9	11	8
	5510/545/210	—	—	—	—	—	1	—	—	2	—	2	2	1	2	2	2	3	2
	5510/5/3 5/005	—	—	—	—	1	1	1	1	—	1	—	—	1	—	—	1	—	2
	5540/5/1 5/1756	—	—	—	—	—	—	—	—	1	—	1	1	—	1	1	1	1	1
	GY 100	—	—	—	—	—	—	—	—	—	1	—	—	2	3	3	2	6	—



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