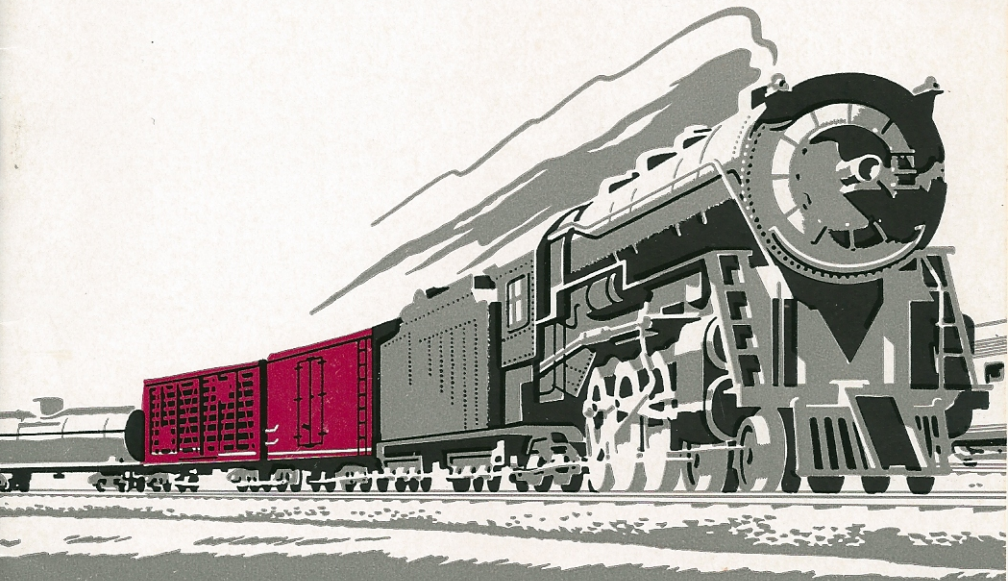
INSTRUCTIONS

for assembling and operating

® GILBERT HO TRAINS



The only HO trains with
REAL PUFFING SMOKE and
CHOO-CHOO SOUND EFFECTS

This booklet will give you a fairly complete story on the Gilbert HO train line, its assembly, maintenance and operation.

For best results with your Gilbert HO Trains, it is advisable to read the book carefully and follow the recommendations and maintenance rules.

The Gilbert HO line is the result of much planning and research by the Engineers at the Gilbert Hall of Science. All locos, cars and equipment are made to true HO scale, scaled down from original blueprints furnished to us by many of the leading railroads in the United States and the suppliers of their equipment.

All couplers, wheels and track meet the NMRA Standards. The trains will work on any HO layouts having a 15″ or larger radius track.

Parts for these HO trains are precision made to close tolerances and are built to give long wear. You will find, like in a new automobile, the performance will be better after a good break-in period. The trains will run smoother, quieter and faster after all bearings and moving parts have had a chance to wear in and seat properly.

Treat your Gilbert HO train as you would any quality made piece of machinery and it will give you long and faithful service.

Erector Square, New Haven 6, Conn., U.S.A.

M3817

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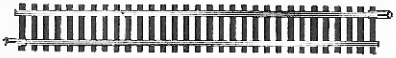
Track and Track Work

The most important phase of model railroading is track work. The performance of the train will be only as good as the track it is run on. If the track is poorly laid and connected, you cannot expect the locomotive and cars to function properly. The Gilbert HO train line has the following types of track and with them practically any type layout can be constructed.

GILBERT HO TRACK



STRAIGHT SECTION (FULL)

⅔ STRAIGHT SECTION

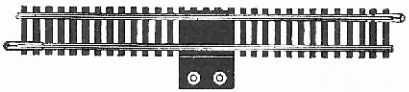
⅓ STRAIGHT SECTION

15" RADIUS CURVED SECTION

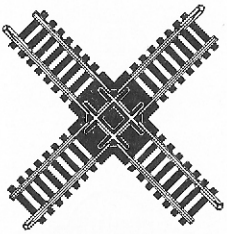
½ 15" RADIUS CURVED SECTION

18" RADIUS CURVED SECTION

½ 18" RADIUS CURVED SECTION

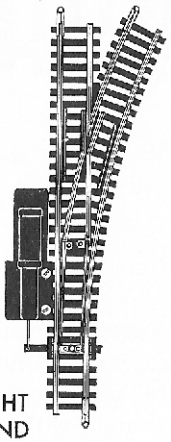


TERMINAL STRAIGHT SECTION

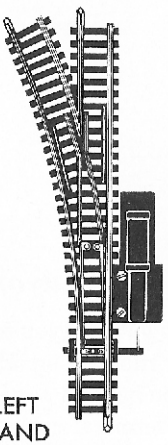


90° CROSSING

BUMPER



RIGHT HAND SWITCH



LEFT HAND SWITCH

RERAILER

TERMINAL CURVE 18" RADIUS

Joining The Track

The track furnished with all Gilbert HO trains is a "snap" type track and sections are easily assembled together by inserting the rail end into the rail joiner so that both rails are locked together. Be sure no gap or rough spot remains. Push track together so both rails butt. See Figures 1 & 2.

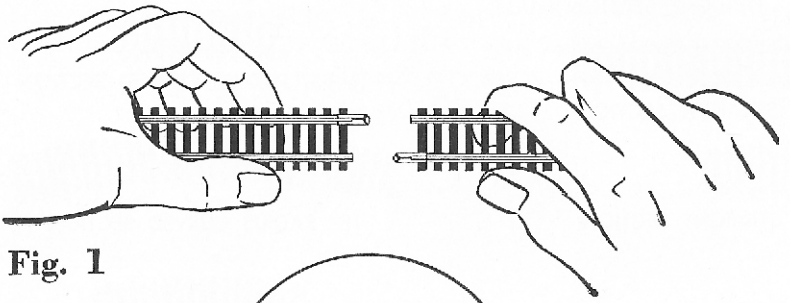


Fig. 1

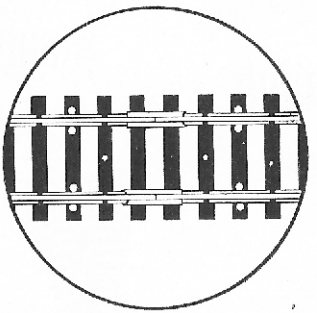


Fig. 2

Track Layouts

When you acquire your first ready to run Gilbert HO Train, you will find you have 11 sections of 18″ radius curve, 1 terminal curve, 1 9″ straight with re-railer, 1 9″ straight with uncoupler, and, on some sets, 2 regular 9″ straight sections also.

This will make a basic oval of track which will be 36″ wide and 45″ or more in length (Figure 3).

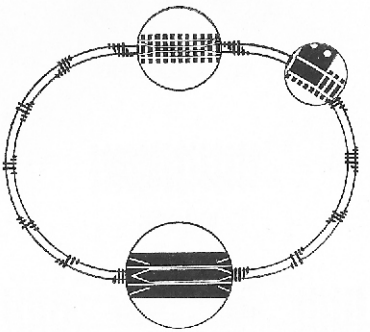
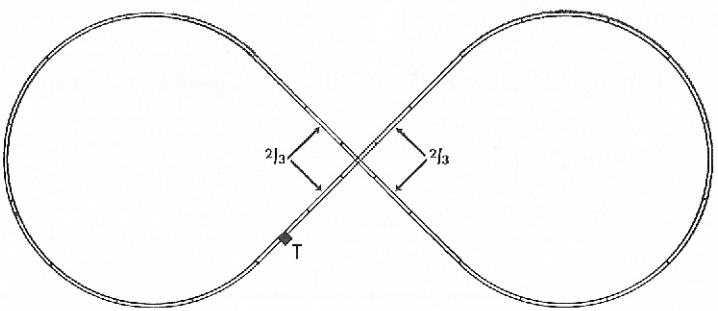


Fig. 3

You will soon find you want to do more than just run your train around an oval and will start to build up your railroad empire. You will want to add additional lines, spurs, crossings, bumpers, bridges, and scenic effects to simulate a real railroad with all its glory.

The following diagrams will show what trackage is needed to build various types of layouts. These are only proposed plans but will give you some idea what can be built into a given space and since every one's idea of railroading differs, you may come up with a much better layout than we have shown.

All straight track shown are full length, unless otherwise noted. All curve are 18" radius, full length, unless otherwise noted.



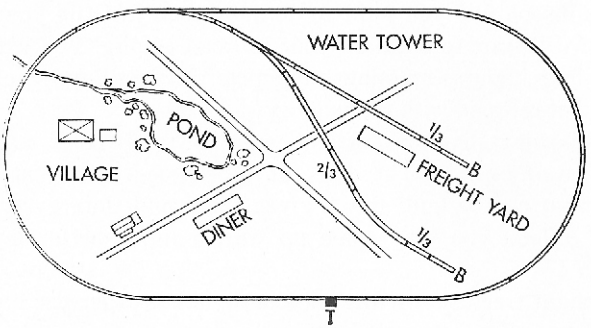
Layout 1 – Approximate size 39" x 90" – 18" Radius 33" x 66" – 15" Radius

This "Figure 8" layout can be made with either 15" or 18" radius curve track.

Drawing shows layout made with 18" radius curves and 4-2/3 straight sections. If 15" radius track is used, the 2/3 straight sections should be replaced by 4-1/3 length straight sections.

TRACK EQUIPMENT USED IN ABOVE LAYOUT

1 Terminal Straight	1 Crossing
3 Straight	If using 15" Curve,
18 Curve	replace (4) 2/3 Straight
4 2/3 Straight	with (4) 1/3 Straight



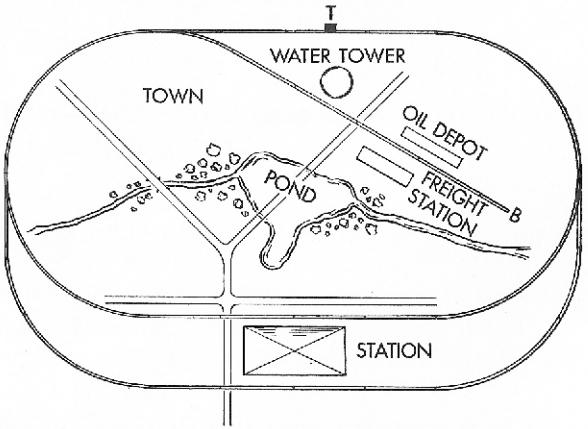
Layout 2 – Approximate size 39″ x 75″

The above drawing shows two operating sidings added to a basic oval for more interesting operation.

TRACK EQUIPMENT USED IN ABOVE LAYOUT

1 Terminal Straight	1 2/3 Straight
9 Straight	13 18″ Curve
2 1/3 Straight	2 Right Hand Switches

2 Bumpers

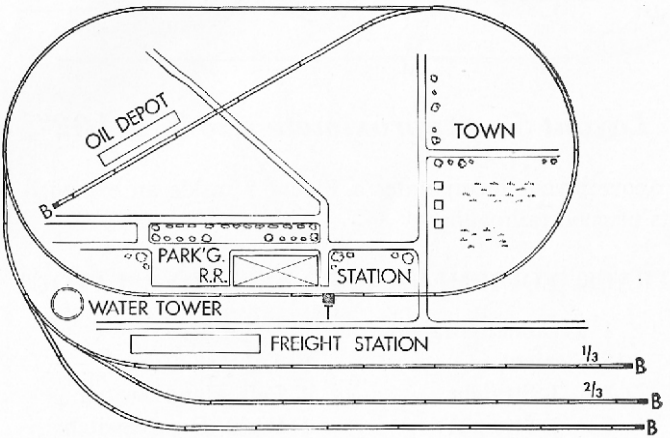


Layout 3 – Approximate size 48″ x 72″

The above layout can be lots of fun with two trains. One can stand on the inner track as the other goes racing through and cars can be shuttled onto the siding to the oil depot or any other work area desired.

TRACK EQUIPMENT USED IN LAYOUT NO. 3

1 Terminal Straight	1 Left Hand Switches
14 Straight	2 Right Hand Switches
16 Curve	1 Bumper



Layout 4 – Approximate size 60″ x 75″

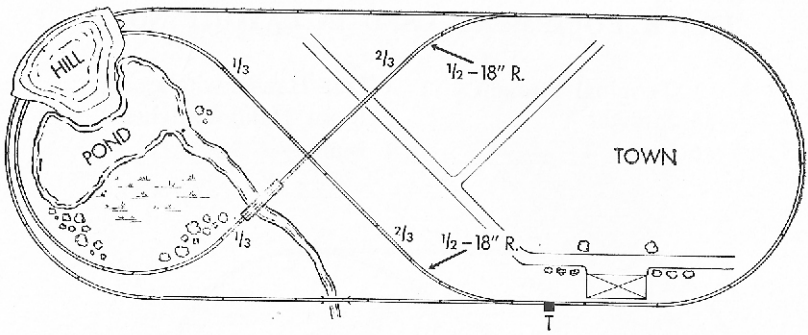
The above basic oval with siding and work yards makes a fine layout for classification work and lots of operation.

TRACK EQUIPMENT USED IN ABOVE LAYOUT

1 Terminal Straight	15 18″ Curve
27 Straight	3 Left Hand Switches
1 1/3 Straight	1 2/3 Straight

4 Bumpers

NOTE: *All straight track shown are full length, unless otherwise noted. All curve are 18″ radius, full length, unless otherwise noted.*

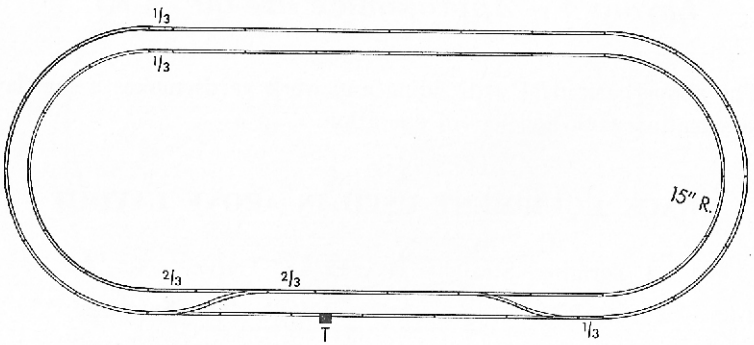


Layout 5 – Approximate size 3" x 102"

The above layout incorporates a Figure 8 inside an extended oval and makes lots of good railroading.

TRACK EQUIPMENT USED IN ABOVE LAYOUT

1 Terminal Straight	9 15" Curve
15 Straight	2 1/2 18" Curve
2 1/3 Straight	1 Left Hand Switch
2 2/3 Straight	1 Right Hand Switch
12 18" Curve	1 Crossing



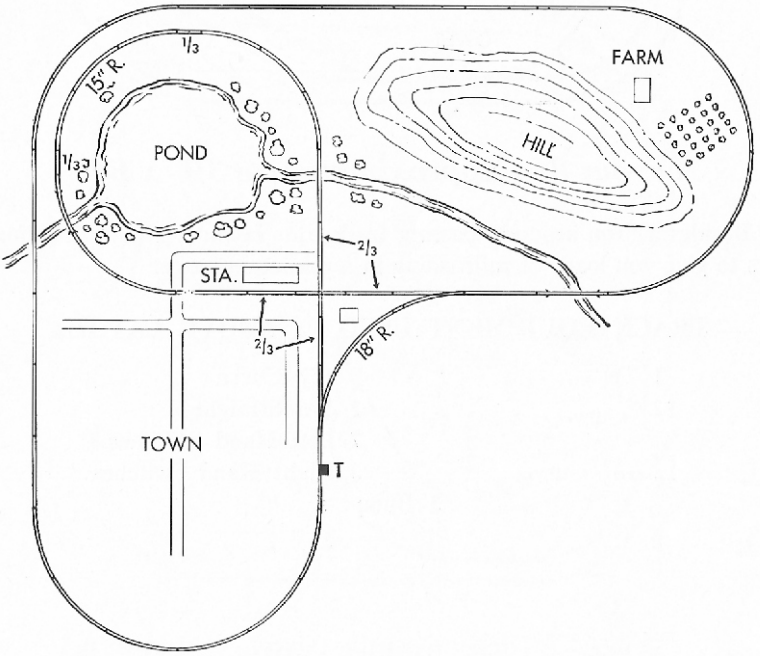
Layout 6 – Approximate size 39" x 96"

This layout forms two complete ovals connected to make two crossovers so trains can be run from one oval to another.

It can also be used to operate two trains, each controlled independently.

TRACK EQUIPMENT USED IN LAYOUT NO. 6

1 Terminal Straight	12 18″ Curve
18 Straight	12 15″ Curve
3 1/3 Straight	2 Left Hand Switches
2 2/3 Straight	2 Right Switches

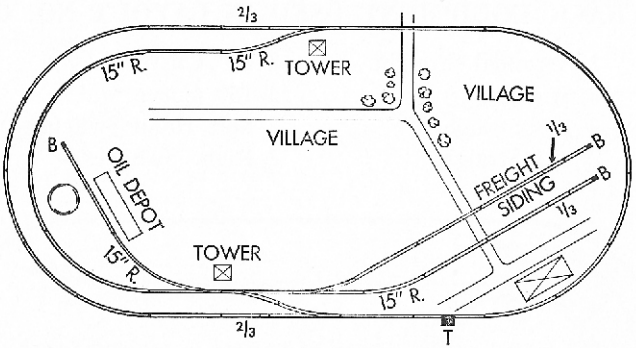


Layout 7 – Approximate size 96″ x 96″

This corner type "L" shaped layout can be used to quite an advantage and allows quite a variation of landscaping while still giving plenty of railroading fun.

TRACK EQUIPMENT USED IN ABOVE LAYOUT

1 Terminal Straight	16 18″ Curve
15 Straight	9 15″ Curve
2 1/3 Straight	1 Left Hand Switch
4 2/3 Straight	1 Right Hand Switch
1 Crossing	



Layout 8 – Approximate size 39″ x 84″

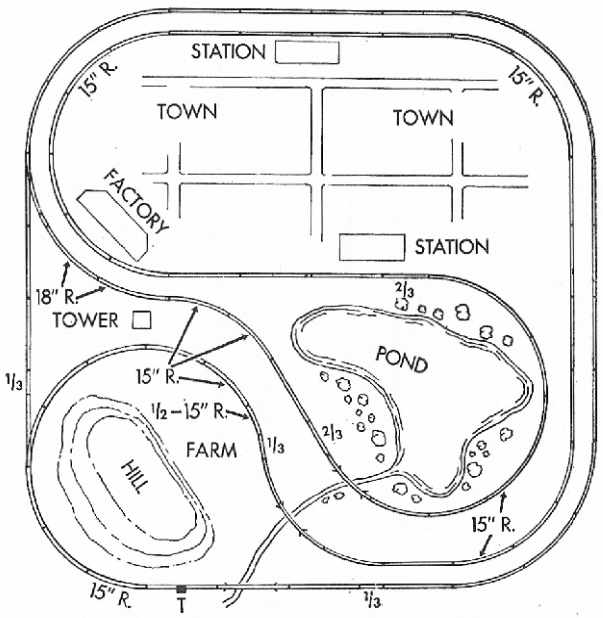
Besides a "run around" passing track, this layout contains 3 sidings or spurs to give you loads of railroading in a minimum space.

TRACK EQUIPMENT USED IN ABOVE LAYOUT

1 Terminal Straight	9 15″ Curve
12 Straight	2 1/3 Straight
2 2/3 Straight	2 Left Hand Switches
12 18″ Curve	3 Right Hand Switches

3 Bumpers

NOTE: *All straight track shown are full length, unless otherwise noted.l.*
All curve are 18″ radius, full length, unless otherwise noted.



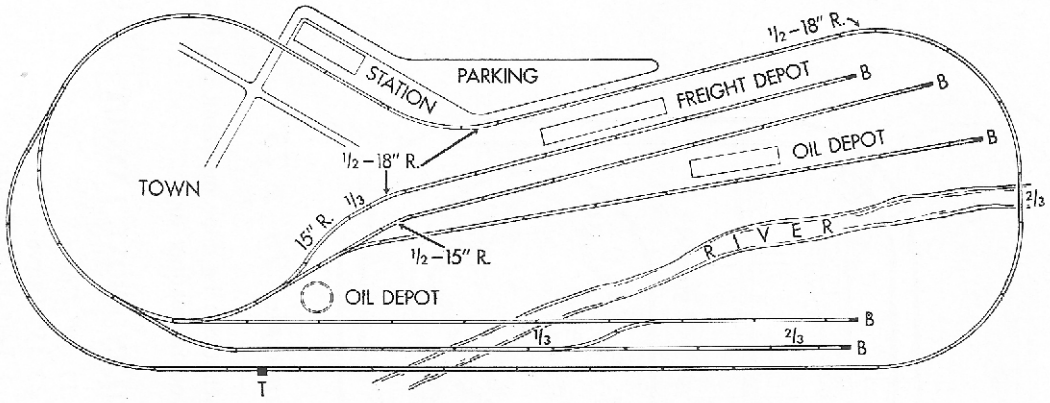
Layout 9 – Approximate size 75" x 75"

The above gives you some idea of what can be done on about a 6-foot square table; lots of landscaping and good railroading too.

TRACK EQUIPMENT USED IN ABOVE LAYOUT

1 Terminal Straight	11 18" Curve
26 Straight	32 15" Curve
3 1/3 Straight	1 Left Hand Switch
2 2/3 Straight	1 Right Hand Switch

1 15" 1/2 Curve



Layout 10 – Approximate size 48" x 126"

The above layout has plenty of good railroad yards and still has ample space for good landscape effects.

TRACK EQUIPMENT USED IN ABOVE LAYOUT

1 Terminal Straight	3 1/2 18" Curve
49 Straight	1 15" Curve
2 1/3 Straight	1 1/2 15" Curve
2 2/3 Straight	6 Left Hand Switches
17 18" Curve	1 Right Hand Switch

5 Bumpers

NOTE: *All straight track shown are full length, unless otherwise noted. All curve are 18" radius, full length, unless otherwise noted.*

Fastening Down The Track

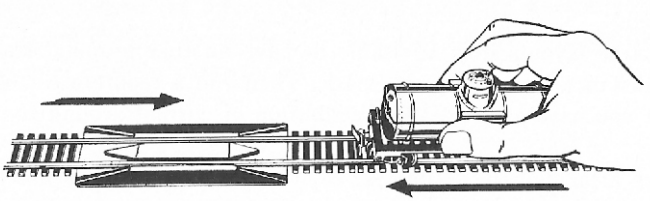
Gilbert HO track can be laid on the floor or table for a temporary type set-up and need not be fastened down but care should be taken that it is level and not cramped out of shape. However, the results from a permanent type, fastened down track will be much better. There are several ways of fastening the track to the top of the train table or board. It can be cemented down, using a few small spots of regular household or model airplane cement to each section of track. Place the cement on the bottom of the ties. Then in case you decide to change the track plan, the track can be easily removed without damage.

Track can be spiked down using HO track spikes or small headed brads which can be purchased in your local hobby store. If the table top is not too hard, spikes can be inserted with a long nose pair of pliers or tacked in with a light hammer. Holes are provided in every fourth tie to accommodate the spikes or brads. It is not necessary to use a brad in every hole as several brads to a section of track are sufficient. You can also use a small headed brad and nail it next to a tie so the brad holds onto the tie instead of through the holes.

Installing The Rerailer

Each Gilbert HO train has a 34632 rerailer packed with it. This item is built right onto a piece of 9″ straight track and enables you to place the locomotive and cars onto the track very quickly. It will automatically rerail a truck which has come off the track while the train is in operation.

To place cars on the track, just set car in position and shove it over the rerailer back and forth once or twice until you feel the flanges of the wheels are in the proper position and the car moves freely.



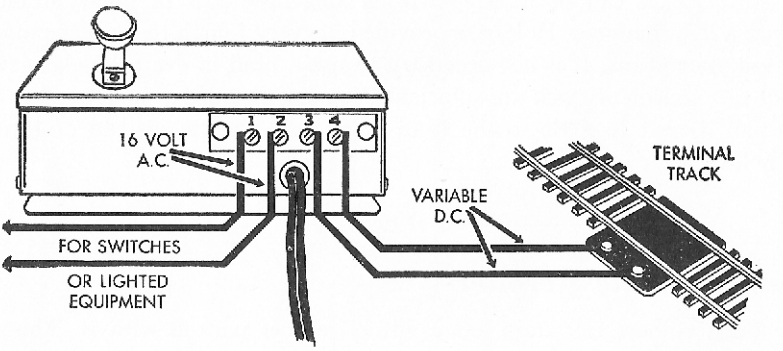
If for some reason a truck should leave the rails while the train is running, the truck will be rerailed when it passes over the rerailer. Therefore, it is wise

to have a rerailer underneath mountains and in hard to get at places where it would be troublesome if you should have a derailment.

Connecting The Power Pack

Since all Gilbert HO locomotives are made with a permanent magnet type motor, they must be run on direct current only. This current is supplied by the Gilbert power pack which has four terminals for wire connections. Two terminals are marked D.C. These are for the connections to the track. The two marked A.C. are for lights, switches or accessories.

Note the diagram below for the hook-up of wires to the terminal track.



Now that the wires are connected from the power pack to the terminal section, you are ready to put current in the track. As the control lever on the power pack is pushed to the right, the voltage increases up to 12 volts D.C. By throwing the button on the direction switch, the polarity of the current is changed in the two rails and the direction of travel of the locomotive will be changed.

On large layouts it is advisable to have another terminal track at the farthest distance from the power pack. Then run a separate set of wires to it so that you have a more even distribution of current around the complete layout.

When attaching the second set of wires, make sure they are hooked to the right terminals on the terminal track. Have the current on and touch the wire to the terminal post first. If a spark occurs, put the wire on the other post. Terminal sections can be added at any place in the layout in place of a full straight section.

Circuit Breaker Protection

Each Gilbert HO Power Pack is equipped with a self-setting thermostatic circuit breaker.

In case of a short circuit or an overload, this circuit breaker will open and cut off the power to the track, thus eliminating burn-outs. Since the breaker is a thermostatic device and operates by heat, it may take a few moments after the short circuit has been connected for the contact to again close.

In case of overheating by overload, it is advisable to remove the plug from the wall socket to allow the entire unit to cool off.

The 32652 2½ ampere power pack has a manual reset circuit breaker mounted on the top of the case and can be reset by pushing the release spring down so it catches in position.

Placing The Train On The Track

Now that the track is wired, turn the power pack handle to the "off" position, place the locomotive on the track, push it over the rerailer, make sure all wheels are on the rails. Then, turn handle of the power pack on slowly. Allow the loco to run around the track a few times to see that all track joints are smooth and properly connected. Next, add the cars one at a time, just push the car through the rerailer, then back the loco to the car and as they meet, the couplers will automatically become coupled.

Coupler Height

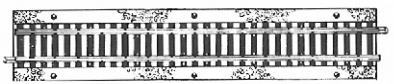
The couplers are installed and adjusted at the factory so the centerline of the coupler face is 25/64" above the rail and the lowest portion of the coupler is just above the top of the rail.

All couplers used on the Gilbert HO Trains are known as the X2F design, designed and recommended by the HO Coupler Committee of the National Model Railroad Association.

Rubber Roadbed

To add the final touch of realism to the layout and to insure quiet operation, we now have a rubber roadbed available for the HO track. This is a moulded rubber roadbed with simulated grey stone ballast along the side of

the track. This roadbed is made in a 9″ straight length and in a 18″ curve full length which is flexible enough so you can use it on any type curve track. When using with shorter lengths it can be cut to length. The ballast edges can be cut away with a scissors or knife wherever necessary for terminal track and rerailers. It can be split down the center and inserted underneath the edges of switches to give them a ballast effect.

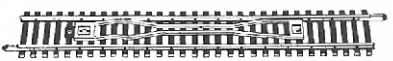


Laying The Rubber Roadbed

To install the roadbed you can either glue the roadbed to the underneath side of the track first, or lay out the track and then insert the roadbed underneath the track as you go along — fastening it in place with small brads or staples driven through the roadbed itself and not through the track ties.

HO Uncoupler

The 34629 uncoupler track is designed to uncouple the X2F Couplers on the Gilbert HO line. It is mounted on a regular 9″ straight section of snap type track.



As long as a train is running either forward or reverse it will pass through the uncoupler without uncoupling, but if you back into the uncoupler then change direction of the train while the coupler ends are engaged in the ramp the uncoupling will take place. The uncoupler should be used to drop cars on sidings as well as along the main line.

Operating And Lubricating The Hudson Locomotive

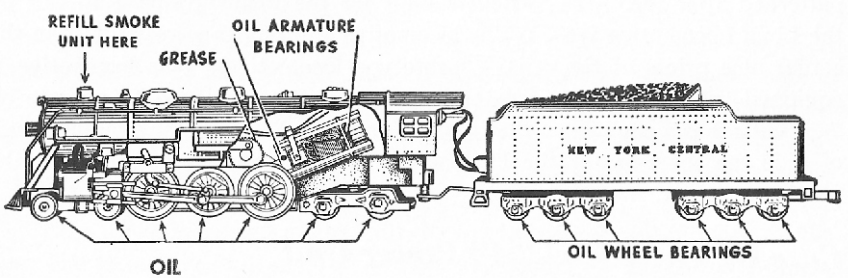
This locomotive is equipped with an Alnico permanent magnet motor and is designed to operate on 7-15 volts Direct Current, and reversing the locomotive can only be done by changing the polarity of the current in the track.

The locomotive is equipped with a smoke and choo-choo unit and while running real smoke puffs from the stack and you get a definite choo-choo sound from the locomotive. When the smoke diminishes and a refill is needed, insert the small funel into the tube in the smoke stack, then cut off the end of the nozzle on a smoke cartridge tube and squeeze the liquid into it. Be sure to use the 23025 Smoke Cartridge which is designed to be used with this unit.

This locomotive of yours, like its prototype, must be kept well lubricated at all times to insure perfect performance, long life and to be maintained at proper operating efficiency. To do this we recommend that your locomotive be oiled every four hours of actual operation and after they have been put away for any length of time.

A small drop of oil is all that is necessary; apply oil with a toothpick or needle. Always keep in mind that too much oil can be just as harmful as no oil at all, as it will run onto the brushes and the commutator and cause the motor to "gum up." It will also run down on the wheels and the track causing loss of traction and poor electrical pick-up. The drive gear and worm can be lubricated with a good grade of fine grease or vaseline.

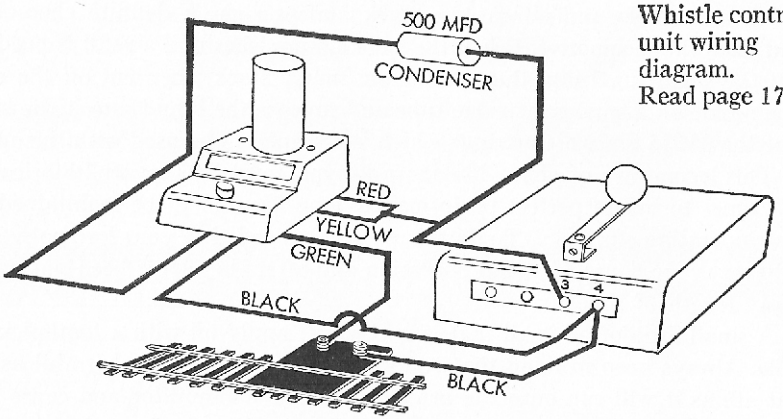
Study the following drawing and oil the spots indicated.



After oiling, run the train around the track a few times, then wipe the rails to remove any oil that might have run down on them. The Hudson locomotive and tender is made with and without whistle.

No. 31006 Hudson comes equipped with a speaker-type whistle installed in the tender and the necessary control box to make it blow. The whistle control unit should be installed as shown in the drawing below.

After control box is wired to the track and power pack, press control box button and whistle should give off a scale whistle sound usually found on the old prototype steam locomotives.



Whistle control unit wiring diagram.
Read page 17.

Instructions For Operating And Lubricating The Pennsylvania 0-6-0 Switcher

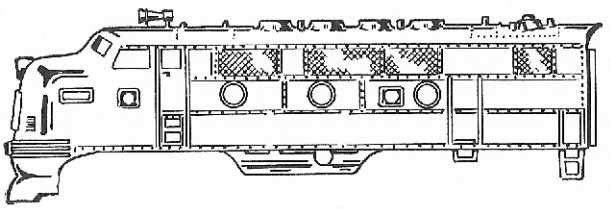
The Pennsylvania 0-6-0 Switcher Locomotive and tender has been patterned after the 0-6-0 Switchers built for the Pennsylvania Railroad by the Lima Locomotive Works. The locomotive and tender were built from the actual blue prints of the original prototype locomotives. This locomotive is equipped with an Alnico permanent magnet motor, designed to operate on 7-15 volts, has a coupler on the front and rear, and the care and maintenance of it is the same as for the Hudson locomotive which is described in the previous chapter.

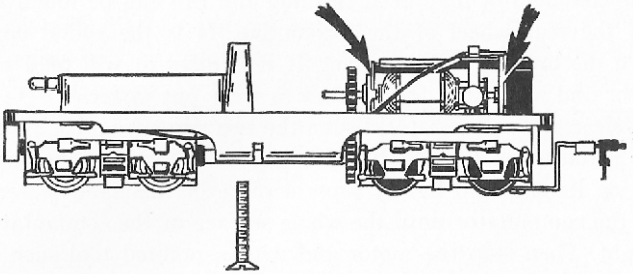
Care Of The Diesel "A" Power Unit

Maintenance of the Diesel loco is basically the same as on the other locos.

To get at the motor, it is necessary to remove the one mounting screw in the center of the chassis on the underneath side.

The entire motor and chassis unit can then be lifted from the cab.





Next, supply a few drops of good light oil to the wicks (felt washers at each armature bearing. The rear washer is between the bearing and the square magnet). Arrows point to wicks.

Place a drop of oil where the axles ride in the trucks.

Make sure metal wheels are clean.

Testing The Steam Locomotive

If your locomotive refuses to run, first see that current is being supplied to the track. To do this be sure that all connections from the power source to the track are correct and firmly fastened. Then turn the power supply on and hold a screw driver blade on the outer rail and lightly touch the end of the screw driver to the other rail. If there is current in the track a small spark will be seen.

If the spark is evident at the rails, be sure all wheels are in place on the rails. The locomotive will not run without the tender as the current for the locomotive is picked up by alternate metal wheels on the tender. Be sure the metal wheels on the front truck of the tender are on one rail and those on the rear truck are on the other rail. If the locomotive still does not run, throw the direction switch on your power source back and forth several times.

Check the various piston and valve rods to see that they are not bent and binding.

Look for loose and broken connections in the locomotive. Examine the brushes to see that they are not worn out and that they make good contact with the commutator.

If the wheels move, but slowly and a higher voltage than is customary is required, simply cleaning and lubricating the motor may be all that is necessary.

The commutator may need cleaning and this can be found above and in back of the rear wheel of the locomotive. It is the round copper surface on which the brushes make contact. If it is dirty, it will tend to slow down the motor and will cause the brushes to wear out faster.

To clean the commutator, fasten the two wires from the power supply to the two metal truck frames on the tender and start running the locomotive. Turn it on its side and lightly press a piece of fine sand paper 00 or finer against the commutator until the whole surface of the commutator is smooth and bright. Then stop the motor and with a pointed tool such as a needle, clean out the slots between the segments of the commutator. It is essential that the copper dust from the worn brushes or commutator be thoroughly cleaned from the slots between the segments.

Be sure to see that the metal wheels on the tender trucks are kept bright and shiny as a formation of dirt on these wheels will cause poor electrical pick-up resulting in slow and jerky operation of your locomotive.

Diesel Locomotives

Maintenance of diesel locomotives is similar to steam locomotives. The cabs are removed by taking out one screw. The motor can be oiled and commutators cleaned. All wheel axles should be lubricated with oil, and gears with a light grease.

Car Maintenance

These cars of yours, like their prototypes, must be kept well lubricated at all times to insure perfect performance. To do this we recommend that your cars should be oiled every four hours of actual operation, also before operating when you first get the train and after it has been put away for any length of time. A small drop of oil is all that is necessary. Apply the oil with a toothpick or needle to the wheel bearings; always keep in mind the fact that too much oil is just as harmful as no oil at all. After oiling the cars allow them to run around the track a few times, then wipe the track off to remove the surplus oil which may have run down onto the wheel rims and track, as this oil will result in loss of traction and poor electrical pick-up.

Maintaining The Track And Right Of Way

To have your train in perfect working order, you must have a regular system of maintenance. It is necessary to see that the track is level and all

track joints are tight. It is important to keep the track clean and free of oil. Clean the running surface regularly with a fine sand paper, then clean the rails with a rag dampened with a NON-INFLAMMABLE cleaning fluid. This will insure a good electrical contact to the pick-up wheels on the tender at all times. Always make sure that your power supply is turned off before cleaning the track with a cleaning fluid.

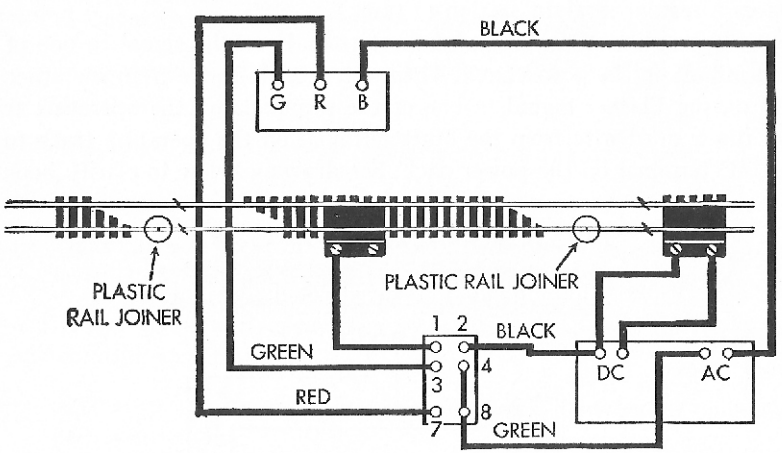
HOOK UP AND OPERATION OF HO BLOCK SIGNAL

The HO Block Signal 35710 and operation of the train in the block is controlled by the control box.

When the block signal light is green the train will proceed through the block. If the light is red, the train will stop.

To get this operation the wiring should be done as follows:

First decide where the block signal should be located in the track layout and remove two of the metal rail joiners from one rail of the track so there are two or three sections of track that will be controlled. Replace these metal rail joiners with the plastic insulating rail joiners.



Place the block signal and control box in position. Connect a long black wire from one AC terminal on the power pack to the unmarked terminal on the signal. Connect a green wire from the other AC terminal on the power pack to terminals 8 and 4 underneath the control box. To do this, strip about 2″ of insulation from one end of the green wire.

Connect the red wire from terminal 7 on control box to the center terminal (marked red) on the signal. Connect the green wire from terminal 3 on the control box to the end terminal (marked green) on the signal.

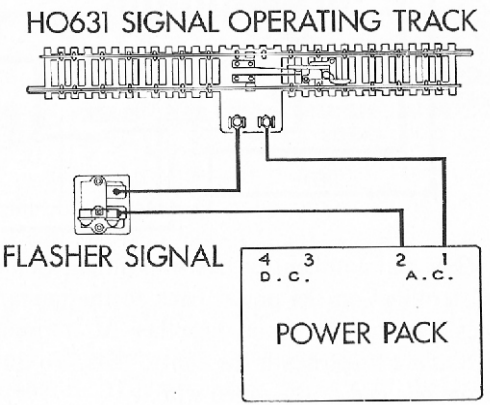
Now the lights will operate on the signal as the control lever is moved from red to green and back.

To control the operation of the train connect a black wire from terminal 2 on the control box to the DC terminal which supplies power to the rails which has the insulated section. Connect another black wire from terminal 1 on the control box to the insulated section of track. This wire can be connected to a straight terminal section as shown, or inserted under the rail. To do this carefully insert a pen knife blade between the rail and the roadbed and ties — raise just enough to insert the bared end of the wire — then remove the knife. If a soldering iron is available the wire can be soldered to the outside of the rail near the bottom flange. The signal will now be ready to operate and control the movement of the train in the insulated block.

To Operate The Gilbert 35711 Flasher Signal

Place the operating track in the layout at the desired location (this replaces a regular straight section of track).

Next, run a wire from one of the terminals on the signal to one of the AC terminals on the power pack. Then, run a second wire from the other terminal on the Flasher Signal to one of the terminals on the operating track. Now, run a third wire from the other terminal on the operating track to the other AC terminal on the power pack. See drawing below to clarify hook-up.



When the train passes over the operating track, each wheel flange will close the circuit and cause the lamps to flash on.

If it is desired to have flasher operate when train comes from either direction, a second 34631 Signal Track will be needed.

To Change Lamp

Just turn contact on back of signal so lamps are exposed and they can be lifted out of their sockets. Replace with Gilbert 36791 Red Lamp.

IMPORTANT THINGS TO REMEMBER

DO — Read carefully the instruction sheets packed with each train and item of equipment.

DO — Oil locomotive and equipment bearings frequently.

DO — Wipe the tracks regularly with a non-flammable cleaning fluid and fine sand paper.

DO — Clean wheel rims and tires regularly with a rag and cleaning fluid.

DO — Make sure the track layout is level.

DO — Run additional wires or feeders from your power supply to a point in the track farthest down the layout to prevent trains from slowing down.

DO — Remove the power supply plug from the outlet when you are through operating your train.

DO — Make sure you have the proper electrical current before plugging in the power supply.

DO — Make sure that all wire connections are clean and tight.

DO — Make sure that any article which is being returned for repair is well packed and correctly addressed, and a letter of explanation accompanies it and a return address is inside as well as on the outside of the package.

KEEP THESE TIPS IN MIND

DON'T — Over oil your locomotive or smoke unit.

DON'T — Put oil on the commutator.

DON'T — Put oil on the brushes.

DON'T — Get sand or dirt into the locomotive.

DON'T — Store the train or equipment in damp places.

DON'T — Get water on the train or tracks.

DON'T — Step on the track.

DON'T — Bend or distort the track.

DON'T — Drop pieces of metal or Christmas tree tinsel across the tracks, as it causes short.

DON'T — Place locomotive or cars on the track while current is turned on.

DON'T — Run trains at full speed around the curves or through switches.

DON'T — Attempt to use 110 volt current without the Power Pack.

DON'T — Plug the Power Pack into Direct Current or any current not specified on the item.

DON'T — Connect equipment or lamps to a higher voltage than recommended.

DON'T — Clean the track with the Power Pack turned on.

DON'T — Try to operate your locomotive with a transformer.

DON'T — Use anything but No. 25 Smoke Cartridges to refill your smoke unit.