



Built-ups

933-2849 HO 90'
933-2850 HO 130'
933-2616 N 130'

MODERN TURNTABLE WITH DCC CONTROL BOX MANUAL

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1. Operational Overview

Characteristics of the electronic control in your new Turntable include:

DC (Analog) & DCC (Digital) Operation

Your Turntable can be used on DC- or DCC-powered layouts running Motorola or DCC format. In DC operation, the Turntable is run via the control box. In digital operation, the turntable can be operated using a digital control unit via the control box.

The control automatically recognizes if it's running on analog or digital, and the digital format being used.

Settings

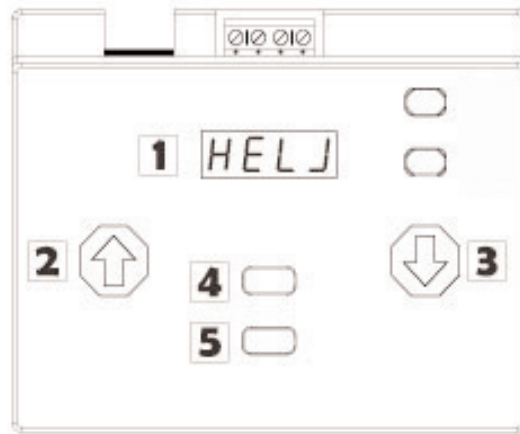
Please refer to "Planning Your Installation" for additional information on planning and setting stops.

The electronic control allows you to program 58 individual stops (29 service tracks total). Individual stops can be added or deleted at any time. Both ends of the bridge need to be programmed for every service track — each will have two stop numbers, one for each end.

Running

The motor driving the bridge has a starting and braking delay to replicate the operational characteristics of the prototype.

2. Display and Function Keys of the Control Box



1 Display

The display has four digits. During operation and while programming settings, all relevant information is shown here. A flashing display indicates that you can make settings or that the bridge is moving.

2 Function Key “UP” and **3** Function Key “DOWN”

“UP” and “DOWN” are used:

- to scroll in the menu or
- to alter values to be set
- to return to the normal display after an “ERR 1” reading.

Where several values are available, the keys have a repeating function: press and hold the key to advance through them quickly.

4 Function Key “ESCAPE”

“ESCAPE” is used to quit a menu point. If settings have been made they will not be saved.

5 Function Key “GO/SET”

“GO/SET” is used:

- to enter into a menu point or
 - to save settings
 - to initiate bridge movement
- operating with the control box in the “Tr” (operating) mode. If the bridge is stopped at an operating position, pressing “GO/SET” will turn the bridge 180° from that point: for example, the Control Box shows Tr 1, pressing “GO/SET” will move the bridge 180° to position two.

3. Operation with the Control Box

Getting Started

Place the bridge in the turntable pit, plug the gray cable into the control box and switch on your power supply. The word “HELJAN” will move across the display. The first time the bridge is operated, it must be reset following the steps below. NOTE: When operating on DCC layouts, the circular contact ring and wipers must always be kept clean — any time the bridge is removed, both parts should be cleaned before replacing it.

- Scroll through the menu to rES
- Press “GO/SET;” rES will flash in the display (if needed, press “ESCAPE” to cancel)
- Press “GO/SET” again. The display shows a flashing y to the left and a flashing n to the right
- Confirm by pressing: “UP” for yes to reset, or “DOWN” for no/escape.
- After pressing “UP” to reset, the display returns to the reset.
- Finish by calibrating the bridge – see “Calibrating the Bridge / Menu point CAL”

Control Box Menu

The control commands for the control box are organized in a menu:

Menu point	Remark
tr	→ Moving the bridge to set a stop. The display shows tr followed by a number (1 – 48) to show the current stopping point.
CAL	→ Calibrating the 0-position of the bridge This should be done: - after placing the bridge in the pit - after repositioning the bridge by hand - if the power was interrupted while the bridge was moving after you have set a programmed stop - before programming a track stop
Prog	→ Setting a stopping point for the bridge with an ID number
dEL	→ Deleting a stop
Adr	→ Setting the turntable’s digital address
bl	
rES	→ Performing a reset/restoring the factory settings

Navigation through the Menu

- Choosing a Menu Point: Press the Function Keys “UP” or “DOWN” to scroll through menu entries
- Reading a Menu Entry: Press the Function Key “GO/SET.” The name of the menu entry shown in the display screen starts flashing. To cancel, press “ESCAPE.”
- Choosing a value. Press the Function Keys “UP” or “DOWN” to change the value in the display. The keys have a repeating function; pushing and holding the keys will change them more quickly.
- Saving a chosen value: Press the Function Key “GO/SET.”

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Moving the Bridge to a Programmed Position with the Control Box / Menu Point Tr—

To change the bridge's position:

1. Scroll to the menu point Tr. The two-digit number shows the current position of the bridge.
2. Press **“GO/SET.”** The display starts to flash **“tr.”** To cancel, press **“ESCAPE.”**

NOTE: To avoid accidentally moving the bridge's position when pressing **“UP”** or **“DOWN,”** press **“GO/SET”** before choosing a new position for the bridge. Pressing the function keys **“UP”** or **“DOWN”** simply scrolls from one menu point to another.

3. Press function keys **“UP”** or **“DOWN”** to choose the desired track position where you wish to move the bridge. Only positions that have been programmed will be shown.

4. Press **“GO/SET”** again, **“tr”** slowly flashes on the display, and the bridge will move to the next track position.

5. To quickly move the bridge 180 degrees from a programmed position, press **“GO/SET”** twice. (Refer to “Setting a Programmed Stop.”)

Calibrating the Bridge / Menu point **CAL**

During normal operation, the bridge automatically calibrates when traveling clockwise or counterclockwise, after passing the zero position (the point where the sensor is located in the side of the pit). There are times however when you will want to calibrate the bridge (see the Control Box Menu). To calibrate, follow these instructions:

1. Scroll to the menu point CAL.
2. Press **“GO/SET.”** CAL in the display starts to flash: to cancel, press **“ESCAPE”**.
3. Press **“GO/SET”** again. CAL will flash slowly. The bridge will turn until it passes the zero position and stops at the factory-programmed position one (this position is not reprogrammable).

Setting Programmed Stop / Menu point **Prog**

If you haven't already done so, calibrate the bridge. Once calibrated, the bridge will stop at track position number one. The display will show tr1. Before setting a “programmed stop,” always start from track position #1... tr1.

NOTE: For the 90' HO (#933-2849) and the 130' N (#933-2616) Turntables: the programming sensor is on the same end as the cabin; align the cabin end with the lead track when programming each stop.

NOTE: For the 130' HO Turntable (#933-2850): the programming sensor is on the opposite or plain end with no cabin; align the plain end with the lead track when programming each stop.

Next, use an arrow button to scroll through the menus until Prog is displayed. Press and release the Go/Set button. You are now in the programming mode and Prog is flashing. Start the bridge moving by pressing and releasing an arrow button. Stop the bridge by pressing an arrow button again. Slowly advance the bridge to the desired location using the **“UP”** and **“DOWN”** arrows — move the bridge in the same direction you started, either clockwise or counterclockwise. The first programmable stop will be #3 (stops tr1 and tr2 are set at the factory) — the display shows the new location number. ie:tr--. You can change this number using an arrow button or you can keep the number displayed. Save it by pressing **“Go/Set,”** or press **“Escape”** if you don't want to save this programmed stop.

After pressing Escape, Prog will be displayed. To continue setting programmed stops, press **“Go/Set,”** Prog will start flashing. Move the bridge as before to the next desired location.

NOTE: If you accidentally push **“Go/Set”** when you wish to stop at a desired position, the display will flash a suggested position number. Press **“Escape.”** The bridge stops and the display shows Prog. Push **“Go/Set”** and then push the **“UP”** or **“DOWN”** key twice, and find the correct position. Always stop in the same direction you were moving the bridge.

NOTE: If you lose power (on contact with the bridge) during programming; the turntable will “lose” its position. After reestablishing power, do a “calibrate” which should allow you back to the last stop you programmed. Otherwise do a “reset” and start over programming your stops.

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PLEASE NOTE: The programming does not allow you to skip numbers. For example, you have programmed four stops (assigned #1 to 4) and you’re ready to add a new stop, which will be the fifth. The unit will automatically suggest #5, or you can choose a lower (#1 - 4) number. If you select a lower number, the unit will automatically rename the stops.

	Old stops				New stop
Original Numbers	1	2	3	4	—
Stop Numbers with Fifth Stop Added	1	2	3	4	5
Stop numbers if a Lower Assigned Number is Selected (in this example, #2)	1	3	4	5	2

Deleting a Bridge Stop/Menu Point dEL

To delete any of your programmed stopping positions:

- Scroll through the menu to dEL
- Press “GO/SET;” dEL will flash in the display (if needed, press “ESCAPE” to cancel)
- Press “GO/SET” again. The display shows a flashing d and the stop number where you are positioned
- Press “GO/SET” again to delete the stop. If you wish to delete a position other than the one selected, use the “UP” or “DOWN” keys to select the desired position, and press “GO/SET.” All positions with numbers higher then the one deleted will be automatically renumbered. After deleting a position, the display will always show Tr 1.

Setting the Turntable’s Digital Address / Menu Point ADr

Follow these steps to change the turntable’s digital address:

- Scroll through the menu to ADr
- Press “GO/SET;” ADr will flash in the display (if needed, press “ESCAPE” to cancel)
- Press “GO/SET” again. The display shows a flashing A and the current three-digit address
- Choose a new address using the use the “UP” or “DOWN” keys (press and hold them to advance the numbers more quickly; input values are 1 – 248 and the default value is 57)
- Save the new address by pushing “GO/SET” again: please note that the set value is not the same as the digital address (this is an accessory decoder address). See “Operation in Digital Mode.”

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Performing a Reset / Menu Point **rES**

To restore the factory settings — all settings you have programmed will be deleted — follow these steps:

- Scroll through the menu to **rES**
 - Press **“GO/SET;”** **rES** will flash in the display (if needed, press **“ESCAPE”** to cancel)
 - Press **“GO/SET”** again. The display shows a flashing **y** to the left and a flashing **n** to the right
 - Confirm by pressing: **“UP”** for yes to reset, or **“DOWN”** for no/escape.
 - After pressing **“UP”** to reset, the display returns to the reset.
 - Finish by calibrating the bridge – see **“Calibrating the Bridge / Menu point CAL”**
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4. Operating in DCC (Digital Mode)

Your turntable can be operated with a digital command station. The model is actually fitted with an accessory decoder, and uses its commands to move the bridge. Normally, decoders of this type are used with turnouts, which is why switching commands **“branching”** and **“straight on”** appear in the two right-hand columns of the accompanying chart. The left-hand column shows the decoder’s address.

Accessory Address = [(DCC Address - 1) x 4] + 1

For example, if the DCC address equals 57, then [(57 - 1 x 4) + 1 = 225

This address (57) is already entered into the control box, so there’s no need to recalculate; just use the address in the chart.

The following example demonstrates how to use DCC to move the bridge to track stop number two...tr2.

Please Note: The control box must be in the **“Track Mode”** (Tr displayed on the control box) to move the bridge from track to track using your DCC command station.

First look at the chart and find the address and switching command that corresponds with track stop number two...tr2. In this example, the address is 226 and the switching command is **“straight on.”**

Using your DCC keypad, push the button labeled **“select accessory”**. Next, you’ll be asked to enter a value, enter 226. Finally, you’ll be prompted to select **“branching”** or **“straight on.”** Choose **“straight on”** and the bridge will move to track stop number two...tr2.

The terminology may be different for your DCC system, but the idea is the same. Look at the chart and find the address and switching command that corresponds with the track stop you want. Enter the information using the accessory function on your keypad and move the bridge.

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Accessory decoder's address	Position shown on control box	Points to "straight on" or branching or position 1 or 2
225	tr1	1st Programmed Position at factory; A end of Bridge
226	tr2	2nd Programmed Position at factory; B end of Bridge
227	tr3	Customer Programmable Position; A end of Bridge
228	tr4	Customer Programmable Position; B end of Bridge
229	tr5	Customer Programmable Position; A end of Bridge
230	tr6	Customer Programmable Position; B end of Bridge
		Repeat for additional lead tracks

Note: When moving the bridge to a new position using DCC, the control box's display starts to flash – independent of the menu point currently chosen. To show the number of the chosen stop set the control box to tr. Note: The "select position" on your DCC controller can be 1 or 2 (Makes no difference).

Note: When choosing an accessory decoder's address that has not been assigned to a stop, the bridge runs automatically to the last stop set. Example: You've set the turntable's digital address to "57" and the accessory decoder's addresses 225 to 249 are used for the turntable. In case you have set six stops, the highest accessory decoder's address for the turntable is "228". If you choose the address "229" or higher, the turntable automatically runs to stop number six.

6. Operating Instructions and Hints

1. If the bridge stops during operation, there could be dirt on the contacts in the center of the pit, and the metal rings on the bottom of the post located on the underside of the bridge. We use CRC 2-26, designed especially for cleaning electrical contacts, however rubbing alcohol also works to clean these areas. Whatever you choose, make sure it's compatible with plastic and nonabrasive. Finally, make sure the contacts in the pit are at the same height. When you're finished, put the bridge back into the pit and recalibrate as explained in section 3 "Calibrating the Bridge."
2. Positions #1 and #2 are factory programmed stops and are not programmable positions; start with track #3 when you program tracks.
3. Be sure to keep ballast and other debris away from the pit.
4. There are gears located at the end of the bridge, keep them clean. Do not put oil or grease on the gear teeth, it attracts dirt and the gears will jam.

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6A. FAQs

Problem: Stops are out of numerical order

Cause: Stop numbers are set semi-automatically (see “Setting a Stop of the Bridge” in chapter 3).

Problem: When moving the bridge, it doesn’t stop exactly at the programmed position

Possible Causes:

- The bridge was removed from the pit
- Bridge Position was altered by hand
- Power supply was interrupted while the bridge was moving or after a programmed stop was just set

Solution: Recalibrate the bridge (see “Calibrating the Bridge” in chapter 3).

Problem:Final stop during programming was not made in the same direction

Solution: Scroll to Delete and removed the program stop. Scroll to Program to set a new stop.

Problem: DCC layout short circuits when the turntable was moving and now stops at random positions

Solution: Recalibrate the bridge (see “Calibrating the Bridge” in chapter 3).

Problem: Turntable has moved to a programmed position, but display is still flashing and DCC won’t respond

Solution: Press ESC on the control box to restore the display and DCC operation

Problem: Bridge can’t be moved from stop to stop using the DCC command station

Possible Causes: Control box is not in Tr mode. The display on the control box must read Tr to move the bridge with the command station.

7. Technical Specifications

Data Formats:	Motorola and DCC (NMRA standard)
Power Supply:	16 Volt AC
Power Consumption:	approx. 110 mA
Maximum Amount of Accessory Decoder Addresses:	1020
Protection:	IP 00
Ambient Working Temperature:	32 to 140 Degrees Fahrenheit; 0 to +60 Degrees Celcius
Ambient Not-operating Temperature:	14 to 176 Degrees Fahrenheit;-10 to +80 Degrees Celcius
Maximum Humidity:	85%