ROSS CUSTOM SWITCHES
TURNTABLE INSTALLATION INSTRUCTIONS MANUAL

01-20-11

1. THERE IS A 1" LEDGE ALL AROUND THE TOP. YOU CAN USE THAT LEDGE TO SUPPORT YOUR TURNTABLE. THE SQUARE HOLE YOU NEED IS 6" BIGGER THAN THE LENGTH OF THE BRIDGE. ONE WAY TO MOUNT IT IS TO SCREW SOME 1X3'S AROUND THE BOTTOM PERIMETER OF YOUR SQUARE HOLE SO THEY STICK OUT ¾-1". THEN LAY THE UNIT RIGHT ON TOP OF THEM AND SCREW IT DOWN. TEST FIT FIRST AND THEN IT IS EASIER TO INSTALL THE BRIDGE ON THE WORKBENCH.
2. INSTALL THE BRIDGE. TAKE IT EASY WITH THIS STEP. IT'S THE ONLY TEDIOUS PART. PLUG THE WIRES FROM THE BRIDGE INTO THE WIRES COMING UP THROUGH THE CENTER SHAFT. REMOVE THE TWO SHOULDER SCREWS FROM THE GRAY SHAFT BLOCK SIDES. DO NOT PUSH DOWN ON THE TOWER SUPPORTS THAT PROTRUDE OUT FROM THE BOTTOM SIDES OF THE BRIDGE! CENTER THE BRIDGE OVER THE GRAY CENTER BLOCK. GET ONE END STARTED AND CAREFULLY WIGGLE THE BRIDGE DOWN OVER IT. **DO NOT PUSH DOWN ON THE TOWER SUPPORTS THAT PROTRUDE OUT FROM THE BOTTOM SIDES!** IF YOU BREAK IT OFF YOU CAN GLUE IT BACK ON WITH REGULAR MODEL AIRPLANE GLUE. MAKE SURE THE BRIDGE WHEELS ARE ON THE PIT RAIL. LOOK INTO ONE OF THE TWO MOUNTING HOLES ON THE SIDE OF THE BRIDGE. YOU WILL SEE THAT THE HOLES IN THE GRAY BLOCK DO NOT QUITE MATCH UP WITH THE HOLES IN THE BRIDGE. FLEX THE BRIDGE DOWN SLIGHTLY SO THE HOLES LINE UP AND INSERT THE SHOULDER SCREW. 3/32 allen. REPEAT ON THE OTHER SIDE.
3. FOR MANUAL, (LINE UP BY EYE) TURNTABLES, THERE IS A RED WIRE INCLUDED WITH THE CONTROLLER. PLUG IT INTO THE HOLE LABELED TRACK POWER. CONNECT THE OTHER END OF THE RED WIRES, ONE EACH TO THE WIRES COMING FROM THE TURNTABLE MOTOR. THIS CONTROLLER GIVES VERY FINE CONTROL OVER THE TURNING OF THE BRIDGE. USE THE DIRECTION SLIDE SWITCH TO CHANGE DIRECTION.
4. CONNECT TRACK POWER TO THE TWO BRASS FINGER SCREWS ON THE BOTTOM TOWARDS ONE END OF THE UNIT. ONE IS LABELED CEN FOR CENTER RAIL. THE OTHER IS FOR THE OUTSIDE RAIL.
5. THE TRACK ON THE BRIDGE IS MOVEABLE BOTH END TO END AND SIDE TO SIDE. EYEBALL IT SO IT IS PRETTY WELL CENTERED BOTH WAYS. (LOOK AT BOTH ENDS OF THE TRACK AND THE BRIDGE). LOCATE WHERE YOU WANT YOUR FIRST TRACK TO BE AND LINE THE BRIDGE UP TO IT. MOVE THE BRIDGE TRACK BACK AND FORTH TO BE SURE IT CLEARS THE OUTSIDE TRACK AND HAS A NICE SMALL GAP BETWEEN THE TRACK ON THE BRIDGE AND THE OUTSIDE TRACK. ALSO NOTE IF THE RAILS LINE UP AT THE TOPS. YOU MAY NEED TO SHIM THE OUTSIDE TRACK UP WITH PAPER OR BUSINESS CARD MATERIAL TO GET THEM EVEN. SWING THE BRIDGE AROUND 180 DEGREES AND MAKE SURE THAT THE OPPOSITE END CLEARS AND HAS ABOUT THE SAME GAP. NOW YOU ARE READY TO GO TO TOWN FINISHING UP THE REST OF YOUR TRACKS.
6. HOLD THE BOTTOM OF THE TOWER SUPPORTS UP WITH YOUR FINGER **(BE CAREFUL NOT TO PUT DOWN PRESSURE ON THE SUPPORT!**) AND WIGGLE THE TOWER ONE SIDE AT A TIME INTO THE SUPPORT. YOU CAN GLUE IT IN IF YOU WANT BUT IT'S A PRETTY TIGHT FIT. . HAVE FUN AND HAPPY RAILROADING!

ROSS CUSTOM SWITCHES INDEXED TURNTABLE INSTRUCTIONS

03/01/2016

READ ALL INSTRUCTIONS FIRST!!

NOTE THAT **EVERY TIME YOU POWER UP THE ELECTRONICS THE BRIDGE WILL MOVE!** THIS MEANS WHEN YOU PLUG THE POWER INTO THE WALL TO POWER UP THE SYSTEM THE BRIDGE WILL MOVE TO HOME. IF YOU LEAVE ANY ROLLING STOCK PART WAY ON THE BRIDGE AND PART WAY ON THE WHISKER (OUTSIDE TRACK) IT COULD BE DISASTROUS. **USE ONLY THE WALL WORT POWER SUPPLY PROVIDED!**

OVERVIEW

Your new Ross turntable/transfer table electronics are state of the art and work very much like an industrial CNC machine tool. You can operate them from the included electronics, your Lionel TMCC/ Legacy system or an Apple IPAD! When it is plugged in the bridge will move to a position called home. From home the bridge knows where all the tracks (whisker tracks) you have set up are located. You can set up a whisker track anywhere you desire! (up to 48 tracks around a 33" turntable) There are three settable speeds that the bridge will move at. The bridge starts and stops incredibly smoothly due to the speed ramping up and down when it moves.

BASICS

- Up Arrow – Move cab end of bridge to whisker track #. I.E. press 22 for whisker track #22 and up arrow. Cab end of bridge will move to track #22
- Down Arrow – Move non cab end of bridge to whisker track #. I.E. if you want the end of the bridge without the cab on it to go to a track press 22 for whisker track #22 and down arrow. If you want to rotate the bridge 180 degrees to turn it around from any track simply push the # of the track you are on and the up or down arrow.
- Help button is the emergency stop button.
- Red button labeled 2nd is pushed to configure all stops, speeds, etc. Once that button is pushed you will see 2nd on the display. Then a number is pushed 1-9 (see below) to tell it what mode to put it in. You will then push other # buttons to tell it where to go/what to do.
- Enter button is to execute the command you just gave it. This saves the command or moves the bridge to where you told it to go/what to do above.
- You only need to set up your system one time and it will remember what you did the next time you run it.
- Clear button exits configuration mode to run mode.

SETUP TUTORIAL

Here I will show you how to set up your first whisker track. Don't worry about where this track is set, let's just do this as a learning example. There are 9,600 spots (steps) you can make the bridge stop at which means you can put a track virtually anywhere. So let's start by;

1. Power up system let bridge home. Push red button labeled 2nd. 2nd will show on display, then press 1. This puts us in "move bridge to a place" mode. Notice the display now says 2nd1.The next #s you push will tell it where/what place to go. Give the display time to catch up with the buttons you push. So just for demonstration sake press 2 4 0 0 (watch the display) then push the enter button. The bridge will immediately move ¼ of the way around the turntable circle. This is because 2400 is exactly ¼ of 9600 steps you can make it go to. Cool huh? The end of the bridge with the cab (little house) on it is where the track will be set. Now push the 2nd button, then the up arrow button three times in succession. Give a little time between pushes. Check out the bridge moving ever so slightly in a clockwise direction. This is so you can fine tune where the bridge stops, or to match a track you already have. Notice the display now says 2403. Now push the down arrow button three times and the bridge will move back three steps to where we started.
2. Now lets store that position. As always when configuring, push the red 2nd button. Then 2. This 2 command tells the electronics that we are going to set a whisker track. The display will read 2nd2. Now press 1 and then enter. Congrats you have just stored your first whisker track! Any time you want to set a whisker track at the spot the cab end of the bridge is at …. this is how you do it.
3. OK lets have some more fun. Push 2nd1 then 4 8 0 0 then enter. The bridge will move half way around the turntable circle from the original home we started at back before step 1. (9600 divided by 2=4800 or half way around) Now press 2nd2 and then 2 and then enter. You just set your second whisker track. Now lets see what you did. Press clear to get out of configuration mode then 1 and then the up arrow. Check out the cab end of the bridge move to the first whisker track you set! Now press 2 then the up arrow. Cab end back to track 2. Awesome! The display tells you where the cab end is.
4. Now that you know how to set up your tracks there is one more thing to do before you start setting them up to your preferences. This step is a pain in the butt but you only have to do it once. The track on the bridge can move. It can move both side to side and end to end. This is because many times folks want to use their own brand of track on the bridge. (you can wiggle the track out of the end of the bridge and reinsert other kinds like GarGraves, Atlas, or Lionel tinplate. We need to get the track centered so both ends of the track on the bridge line up to the whisker tracks. From either track 1 or 2 that we just set up, place a loose piece of track about 1/8" to ¼" away from one end of the track on the bridge. Line it up carefully by eye. Now if you have the cab end of the bridge at track 1, push 1 and then the down arrow.

The bridge will rotate 180 degrees and stop. Its likely that the track on the bridge will not line up with the loose piece. Slide the track on the bridge sideways until it lines up with the loose piece and note the distance from it. Now press 1 and then the up button. The bridge will swing around 180. Note again how the track on the bridge lines up with the loose piece both side to side and how far away from it. Move the track on the bridge to adjust. Repeat this as many times as it takes until you are satisfied both ends of the track are centered, meaning they are both lined up with the loose piece and are the same distance from it. The whisker tracks will need to be appx 1/8" or so away from the bridge track to clear as the bridge turns. You can put a drop of super glue near each end of the track on the bridge to hold it in place on the bridge. However the track will usually stay in place on its own. Now you are ready to setup and operate!

SETUP

Home the turntable. You can do this by either unplugging and plugging in the electronics or pushing 2nd9 and then pushing enter. The bridge will home itself. Move the cab (house end) of the bridge to wherever you want the first whisker track to be. Trial and error will teach you to get near where you want each track. Don't forget you can jog the bridge one step at a time in either direction to get an exact location (bottom of step 1). The display tells you exactly where you are as it did in the tutorial. Or this way; once the bridge is homed simply divide 9600 by where you want the first track to be. Or you can set whisker track 1 at that home spot if you like (step 2). As a mathematical example if you followed step 1 but inputted 0026 instead of 2400 the bridge will move one degree. (9600 divided by 360 = 26 steps) So for instance our roundhouse for a 33" turntable is set at 7.5 degrees for each of its 6 stalls. So 7.5 x 26 is 0195 steps for each track. A ten degree roundhouse would mean 0260 steps for each track. (its actually 0266 steps but explained this way for clarity. A one degree step is actually 0026666 steps but we can only input 4 digits) If you get confused go back to trial and error method (-:

ALL FUNCTIONS

Pressing HELP button is the emergency stop. Pressing clear after help will resume normal operation. There are other functions you can set as well such as the speed the turntable bridge moves. Here are the commands;

1. 2nd1… after entered push the # of steps you want the turntable to move to for setting up whisker tracks. (any number 1-9600) then push enter. Turntable will move desired # of steps.
2. 2nd2… once you have the cab end of the bridge where you want it push 2nd2 then the # of the whisker track (1-48) you want this position to be. If you want to clear a track push 2nd2 then 0 then the track # you wish to clear then push enter.
3. 2nd3…Not used
4. 2nd4 then 1 or 2 or 3 then enter……speed bridge moves. 1 is the slowest. Experiment.
5. 2nd5 then 1 or 2 then enter. This is the initiation mode. Pressing 1 the turntable will move to home when powered up. (factory setting) Press 2 and the turntable will home then move to the last position (such as whisker track) before it was powered down.
6. 2nd6 is to do a table offset. This function should never be needed but we added it in case the home micro switch ever has to be replaced or is accidentally moved. This could also be needed if the pulley on the motor became loose. Using this feature will keep you from having to reset all your whisker tracks in that event. Upon power up the bridge will move to the home position and then apply an offset move. This has the effect of skewing ALL the whisker tracks a set amount. The setting range is 1-1999. 1000 is home or zero offset. To do an offset …Go to any whisker track. Lets say you went to track 1. Note which way the bridge needs to move to realign with track one. Now push 2nd1 to get into configuration mode. If the bridge needs to move clockwise, push the up arrow repeatedly until the bridge lines up with track 1. If counterclockwise push the down arrow. The display will tell you how many steps you moved to get things to line up. Lets say it was 20 steps clockwise. Note this #. Now to lock in the offset, push clear, 2nd6 then the amount the display you noted plus 1000, (1000+20=1020) in this case 2nd6 then 1020 then enter. If you made the bridge move counterclockwise to line up, the command would be 2nd6 then 980 then enter. (1000-20=980) Now on power up the bridge will home then move to the offset you programmed every time, and all of your whisker tracks will line up again without resetting each one.
7. 2nd7 7 7 7 7 enter. Demo Mode. Bridge will move continuously to random locations until help is pressed or power off. Press clear to resume normal operation after pressing help.
8. 2nd8…is another configuration mode. Pressing 2nd then 8 then the # below then enter will;
   #1 = Turntable Mode. Controls a Turntable.
   #2 = Transfer Table Mode. Changes Turntable Controls to our Transfer Table Controls.
   #4 = Clear Speed Setting To Factory Mode. (see all functions #4 above)
   #5 = Clear Initiation Mode to Factory Setting. (see all functions #5 above)
   #6 = clear Home Offset to Factory Home. (see all functions #6 above)
9. 2nd9 then press enter. Bridge will home. Do this if bridge is moved accidentally misaligning tracks.