

STANDARD CHANGE-MAKERS CHANGERS

Standard Change Makers- SC models

The SC5, or Rhino, is a special case of SC series- see the end of the SC section.

For a machine with 500E or 600 verifier, the first thing to do is to program the “kill relay” in the STD. Acceptor. You will need the later type data terminal (T-handle w/blue buttons). Press F4 (options), F2 (setup). Advance through the settings until you get to the one for KILL RELAY, and set it to NO (F2). Press F5 to return to main screen. Turn OFF the machine you are working on. If it’s a double machine, repeat the above and turn them both OFF. **There is a small possibility that early 600 units can not 'talk' to a later style data terminal and will also not count bills at CHANGERVUE. Call to discuss if you are in this case.**

The Standard SC machine is what we consider a "pulse type" machine; so you will be connecting to CHANGERVUE via our supplied 8-wire cable (or your own equivalent). All of the connections you will make in the SC models will be made at the acceptor harness that runs from the power supply up to the bill acceptor. If you are working in a “double” machine such as an SC34RL-DA; then everything will be done twice. The easiest thing will be to remove the power supply–acceptor harness from the machine and make the new wiring connections, and then reinstall the harness back into machine with the new cable connected. First we see the harness already removed from the machine. (fig 31) Select a location about 12” from the power supply end and carefully cut open the outer harness cover so you can access the harness wires. Be careful to not damage the wires inside. Spread apart the harness wiring so that you can make the new connections (fig 32).

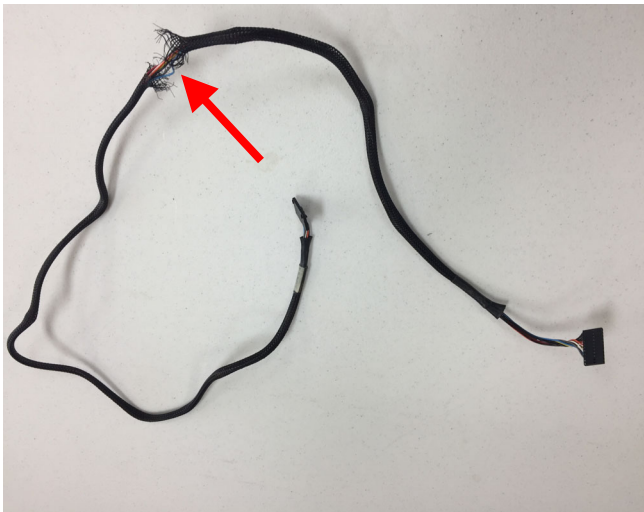


Fig 31

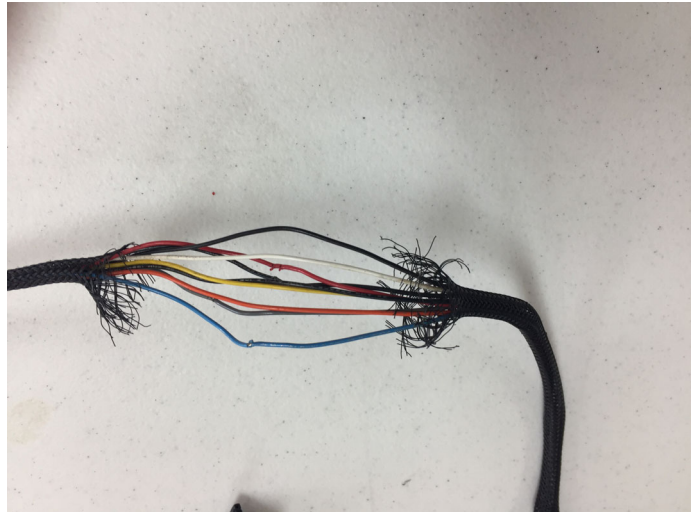


Fig 32

Now we will splice the new CHANGERVUE connection harness into the Standard harness. You are going to connect to 6 existing wires. You will want to keep them near each other; but staggered a little bit to spread them out. You should strip-back the outer cover of the CHANGERVUE cable about 6-7” for these connections. Use the supplied

tap-on connectors discussed earlier, in the GENERAL section, pages 26-27. Here are the connections to make:

Type 1 pulse hardware-

<u>Standard harness</u>	<u>CHANGERVVIEW cable</u>	<u>usage</u>
Slate Grey wire (#9)	Red	\$1 vend
Black wire- any of three	Green	vend comm
Blue wire (#8)	Brown	out -
Orange wire (#5)	Black	power +
Black wire- any of three	White	power -
Red wire (#4)	Blue	out +

When you are finished; it should look like this in fig 33.

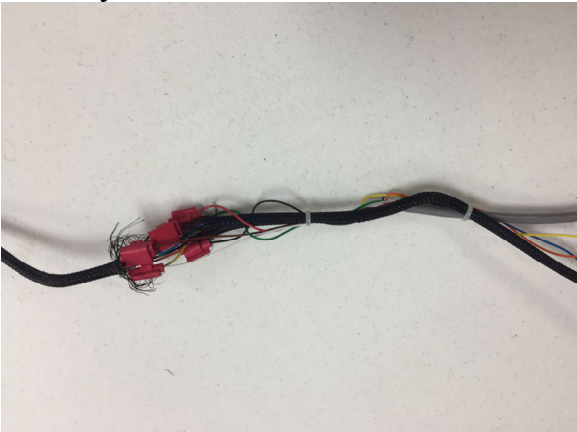


Fig 33

Arrange all the connections so they are close to the original harness and secure with wire ties or tape.

Reinstall harness into machine and route the new CHANGERVVIEW cable so it is out of the way and out of the cabinet through the hole you have chosen earlier.

CONNECTIONS at the CHANGERVVIEW INPUTS-

Here’s where you will be making wiring connection to the CHANGERVVIEW unit. Determine the path you will use to route CHANGERVVIEW cable to the CHANGERVVIEW unit, and anchor it neatly in place. Determine where to cut your cable based on which connection board you are going to use. I suggest you give yourself about an extra foot of cable (cheap insurance). Strip back the cable outer covering about 3”+ for these connections. Strip the insulation on each wire about 3/16”. Based on the wire colors suggested earlier, here are your connections:

<u>CHANGERVVIEW cable</u>	<u>CHANGERVVIEW type 1 pulse input board</u>	<u>circuit</u>
Green	Vend comm.	vend comm
Red	\$1 vend	\$1 vend
White	power -	power -
Black	power +	power +
Brown	out -	out -
Blue	out +	out +

1 shunt at center of \$1 jumper pins

Note the shunt on the center of the \$1 jumper pins (arrow). See Fig 34.

1 shunt at center of \$1 jumper pins. Nothing at \$5 jumper pins

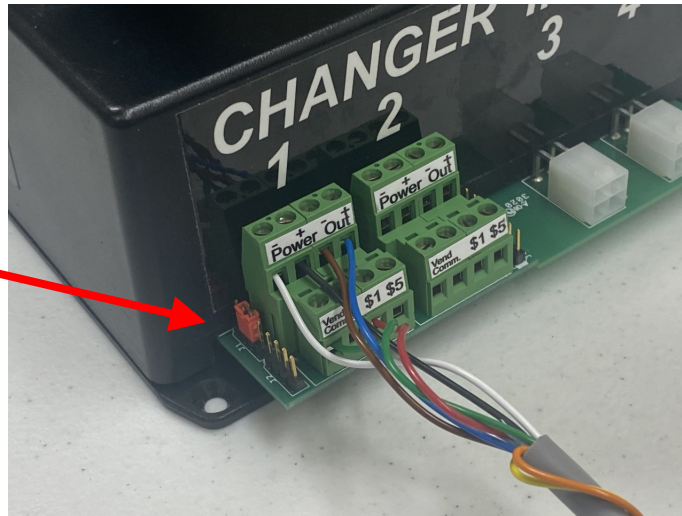


Fig 34

If this is a double machine, repeat connections for second side. When finished, turn changer power back on.

When finished with change machine connections; go to “configuring change machines” on page 22.

NOTE: when you use the Standard handheld unit to go into the changer’s program settings; this will trigger an “OUT” signal and email.

For Type 2 remote pulse unit-

The connection points into the machine are the same as type 1 in fig 31-32 on page 33. The remote pulse unit will mount inside the changer once you’re connected. Turn off power to the machine to make connections.

<u>Standard harness</u>	<u>remote pulse unit wires</u>	<u>usage</u>
Slate Grey wire (#9)	Red	\$1 vend
Black wire- any of three	Green	vend comm
Blue wire (#8)	Brown	out -
Orange wire (#5)	Black	power +
Black wire- any of three	White	power -
Red wire (#4)	Blue	out +

1 jumper shunt at the center of each jumper pin sets as in fig 28.

Isolate and tape-off unused wires.

Using the supplied Velcro, anchor the remote pulse unit out of the way in the cabinet. The following connections will have to be made from the remote pulse unit output screw terminals to the pulse input connection at the main CHANGERVUE unit using a multi-conductor cable. At the remote unit, connect separate wires to terminals #1, 2, 3, and 5.

Route this cable out of the changer cabinet through the hole chosen, or created, earlier. Connect the wires you are using at ‘side A’ or ‘side B’ of the pulse input board at

the CHANGERVUE unit. Connect each wire to the same terminal number used at the remote unit. (i.e.- #1-to-#1, #2 -to-#2, etc). See Fig 26.
If this is a “double” changer; repeat for second half. After all connections are made, return power to changer(s).

When finished with change machine connections; go to “configuring change machines” on page 22.

NOTE: when you use the Standard handheld unit to go into the changer’s program settings; this will trigger an “OUT” signal and email.

For SC5 machine- system 200/200A verifier

Type 1 pulse hardware-

Slightly different wire connections are as follows:

<u>bill acceptor harness</u>	<u>CHANGERVUE cable</u>	<u>usage</u>
W/GR (any)	White	power -
Black (any)	Black	power +
Gray (any)	Green	vend comm
Brown	Red	\$1 vend
<u>"out" harness</u>		
Brown/White	Blue	out +
White/Orange	Brown	out -

Connections at the CHANGERVUE unit are the same as normal SC models.
(bottom of p. 31)

If this is a double machine, repeat connections for second side. When finished, turn changer power back on.

When finished with change machine connections; go to “configuring change machines” on page 22.

Type 2 remote pulse unit-

Connections into the change machine harnesses

<u>bill acceptor harness</u>	<u>Remote pulse unit wires</u>	<u>usage</u>
W/GR (any)	White	power -
Black (any)	Black	power +
Gray (any)	Green	vend comm
Brown	Red	\$1 vend
<u>"out" harness</u>		
Brown/White	Blue	out +
White/Orange	Brown	out -

1 jumper shunt at the center of each jumper pin sets as in fig 28.

Isolate and tape-off unused wires.

Using the supplied Velcro, anchor the remote pulse unit out of the way in the cabinet. The following connections will have to be made from the remote pulse unit output

screw terminals to the pulse input connection at the main CHANGERVEW unit using a multi-conductor cable. At the remote unit, connect separate wires to terminals #1, 2, 3, and 5.

Route this cable out of the changer cabinet through the hole chosen, or created, earlier. Connect the wires you are using at 'side A' or 'side B' of the pulse input board at the CHANGERVEW unit. Connect each wire to the same terminal number used at the remote unit. (i.e.- #1-to-#1, #2 -to-#2, etc). See Fig 26.

If this is a "double" changer; repeat for second half. After all connections are made, return power to changer(s).

When finished with change machine connections; go to "configuring change machines" on page 22.

NOTE: when you use the Standard handheld unit to go into the changer's program settings; this will trigger an "OUT" signal and email.

STANDARD EC models-

The Standard EC machine is what we call a "pulse type" machine; so you will be connecting to CHANGERVUE via our supplied cable (or your own equivalent). Fig 35 shows the EC controller and machine wiring you are connecting to. It will be easiest to unplug the machine harnesses from the controller so you can work on them. Choose locations on the harnesses that will be out of the way when reassembled. Carefully remove the harness outer covering to expose the internal wires as in fig. 36.

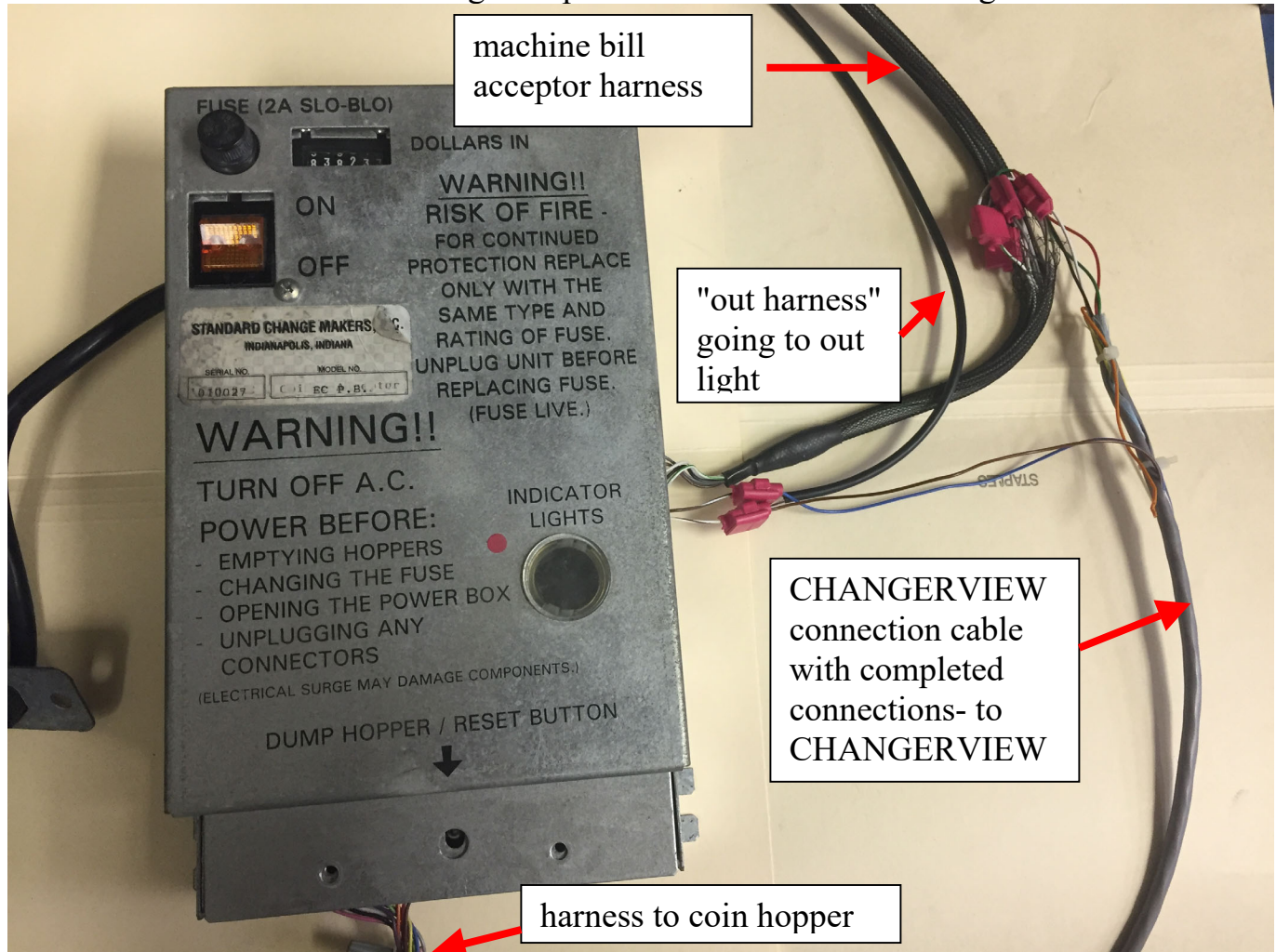


Fig 35

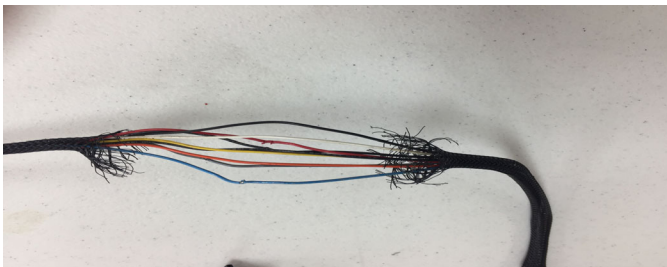


Fig 36

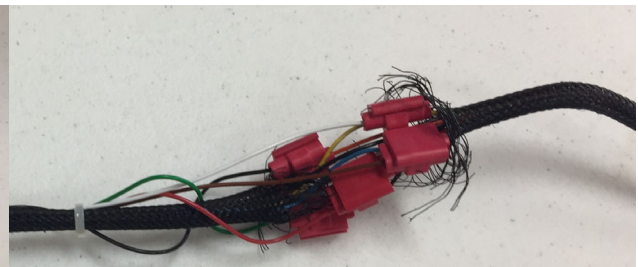


Fig 37

Fig 36 shows the machine harness with outer cover cut away, and inside wires spread apart so they can be worked with. Fig 37 shows the completed connection. You should strip-back the covering on the CHANGERVUE cable about 8" to make your connections.

Type 1 pulse hardware-

Connection inside the EC machine:

bill acceptor harness

W/GR (any)
Black (any)
Gray (any)
Brown

CHANGERVVIEW cable

White
Black
Green
Red

usage

power -
power +
vend comm
\$1 vend

"out" harness

Brown/White
White/Orange

Blue
Brown

out +
out -

Arrange the new connections so they are compact, and secure to original harness with wire ties or tape. Tuck the harnesses back into the machine and route the CHANGERVVIEW cable out of the machine cabinet through the opening you chose, or created, earlier. Route and secure the new harness heading toward the CHANGERVVIEW unit in a neat manner.

Connections at CHANGERVVIEW:

You will be connecting to a CHANGERVVIEW pulse type 1 input board, Either an "A side" or "B side". Both sides are equal.

cable

White
Black
Green
Red
Blue
Brown

CHANGERVVIEW pulse input board

power -
power +
vend comm.
\$1 vend
out +
out -

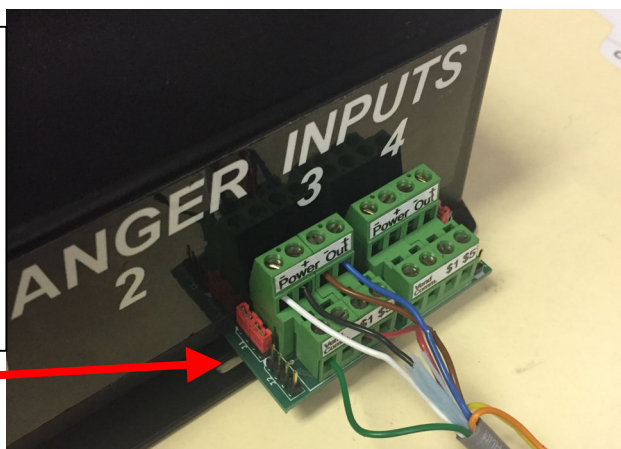
circuit

power -
power +
vend comm
\$1 vend
out +
out -

2 shunts on the \$1 jumper pins

Fig 38

Here is a completed EC machine connection at the CHANGERVVIEW pulse type 1 input connection. This happens to be on the "A side". Note the 2 shunts installed on the \$1 jumper pins; and none on the \$5 jumper pins.



If the changer is a "double machine", repeat for second half. When finished with change machine connections; turn power back on and go to "configuring change machines" on page 22.

Type 2 pulse remote unit-

Connection inside the EC machine: (similar to type 1)

<u>bill acceptor harness</u>	<u>remote pulse unit wires</u>	<u>usage</u>
W/GR (any)	White	power -
Black (any)	Black	power +
Gray (any)	Green	vend comm
Brown	Red	\$1 vend
<u>"out" harness</u>		
Brown/White	Blue	out +
White/Orange	Brown	out -

2 shunts on each set of jumper pins on remote unit- see Fig 29.

Isolate and tape-off any unused wires. Arrange the new connections so they are compact, and secure to original harness with wire ties or tape.

Using the supplied Velcro, anchor the remote pulse unit out of the way in the cabinet. The following connections will have to be made from the remote pulse unit output screw terminals to the pulse input type 2 connection at the main CHANGERVEW unit using a multi-conductor cable. At the remote unit, connect separate wires to terminals #1, 2, 3, and 5. Tuck the harnesses back into the machine and route the CHANGERVEW cable out of the machine cabinet through the opening you chose, or created, earlier. Route and secure the new harness heading toward the CHANGERVEW unit in a neat manner.

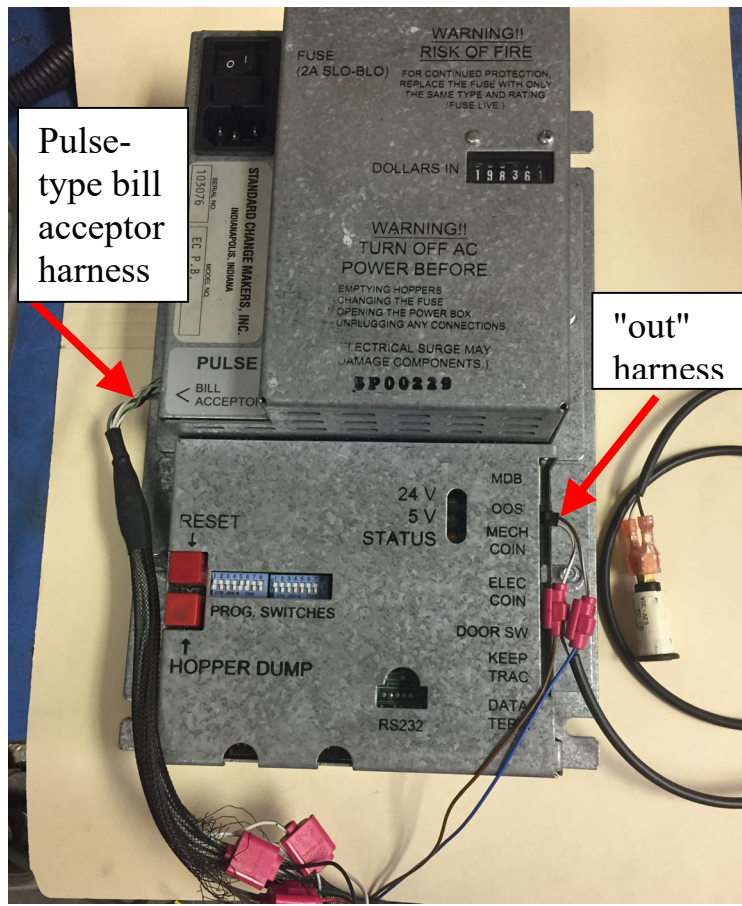
Connections at CHANGERVEW-

Route this cable out of the changer cabinet through the hole chosen, or created, earlier. Connect the wires you are using at ‘side A’ or ‘side B’ of the pulse input board at the CHANGERVEW unit. Connect each wire to the same terminal number used at the remote unit. (i.e.- #1-to-#1, #2 -to-#2, etc). See fig. 26.

If this is a “double” changer; repeat for second half. After all connections are made, return power to changer(s).

When finished with change machine connections; go to “configuring change machines” on page 22.

Standard EC+ machines:



The Standard EC+ machine can be used with either a 110volt pulse-type bill acceptor, or a 24volt MDB type acceptor. Here we will deal with the pulse-type version. You will need to make connections to both the bill acceptor harness and the 'out' harness. TURN OFF MACHINE. It will be easiest to disconnect the machine harnesses from the controller so you can work on them to make the new connections. Choose locations on the harnesses that will be out of the way when the machine is re-assembled. Carefully open the outer cover of the harnesses to expose the wires you will connect to inside.

Fig 39

Fig 40 shows the acceptor harness cover opened up, and the wires separated to work with.

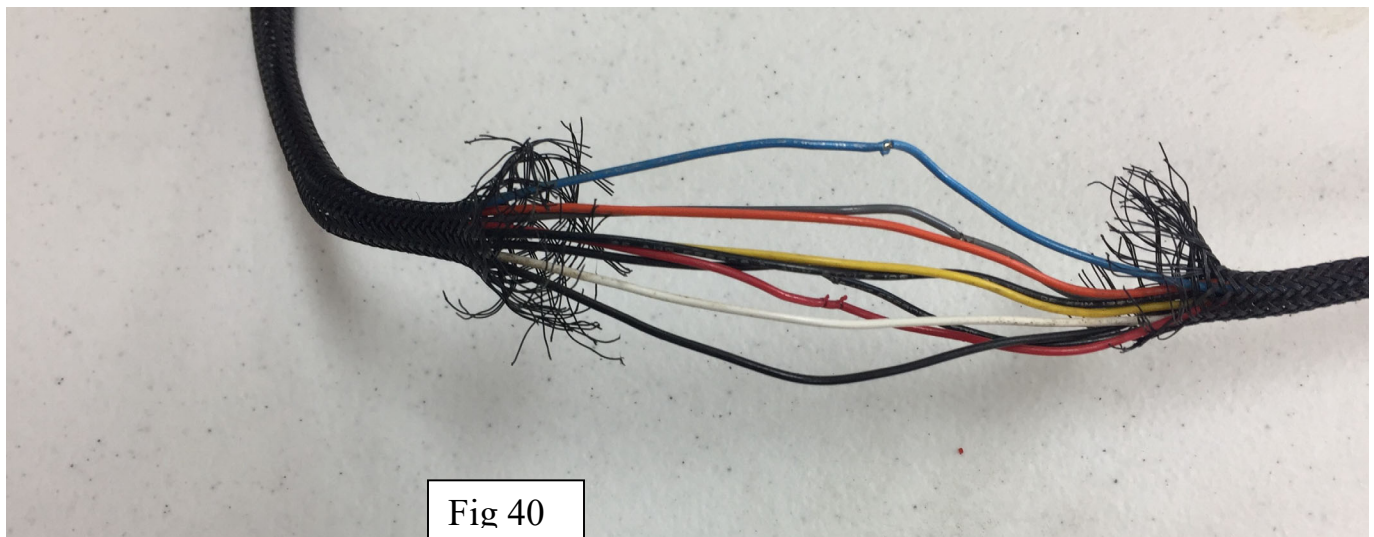


Fig 40

Pulse-type connections for the Standard EC+ machine- Type 1 pulse hardware-

You should strip back the CHANGERVUE cable 8 - 10" to make your new connections. You should use the supplied "tap-on" connectors. See pages 26 - 27.

<u>bill acceptor harness</u>	<u>CHANGERVUE cable</u>	<u>usage</u>
W/GR (any)	White	power -
Black (any)	Black	power +
Gray (any)	Green	vend comm
Brown	Red	\$1 vend
<u>"out" harness</u>		
Brown/White	Blue	out +
White/Orange	Brown	out -

Arrange and secure the new connection snug to the original harness using wire ties or tape. Re-assemble the harnesses into the machine and route the CHANGERVUE cable out of the cabinet through the opening you chose, or created, earlier. If change machine is a "double"; repeat for second half. When finished, turn changer power back on. When finished with change machine connections; go to "configuring change machines" on page 22.

Connections at CHANGERVUE -

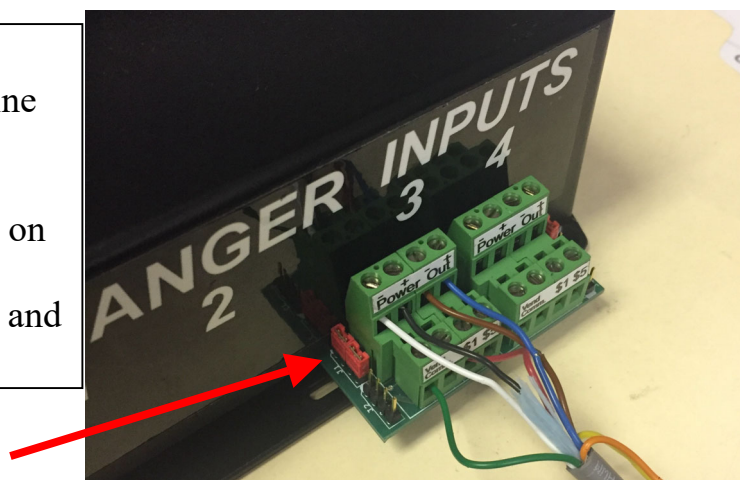
You will be connecting to a CHANGERVUE pulse type 1 input board, either an "A side" or "B side". Both sides are equal.

<u>cable</u>	<u>pulse type 1 input bd.</u>	<u>circuit</u>
White	power -	power-
Black	power +	power +
Green	vend comm.	Vend comm
Red	\$1 vend	\$1 vend
Blue	out +	out +
Brown	out -	out -

2 shunts at \$1 jumper pins

Fig 41

Here is a completed EC+ machine connection at the CHANGERVUE pulse input connection. This happens to be on the "A side". Note the 2 shunts installed on the \$1 jumper pins; and none on the \$5 jumper pins.



Type 2 remote pulse unit-

<u>bill acceptor harness</u>	<u>remote pulse unit wires</u>	<u>usage</u>
W/GR (any)	White	power -
Black (any)	Black	power +
Gray (any)	Green	vend comm
Brown	Red	\$1 vend
<u>"out" harness</u>		
Brown/White	Blue	out +
White/Orange	Brown	out -

2 shunts on each set of jumper pins on remote unit- see Fig. 29.
Isolate and tape-off unused wires.

Arrange and secure the new connection snug to the original harness using wire ties or tape.

Using the supplied Velcro, anchor the remote pulse unit out of the way in the cabinet. The following connections will have to be made from the remote pulse unit output screw terminals to the pulse input connection at the main CHANGERVUE unit using a multi-conductor cable. At the remote unit, connect separate wires to terminals #1, 2, 3, and 5. Tuck the harnesses back into the machine and route the CHANGERVUE cable out of the machine cabinet through the opening you chose, or created, earlier. Route and secure the new harness heading toward the CHANGERVUE unit in a neat manner.

Connections at CHANGERVUE-

Route this cable out of the changer cabinet through the hole chosen, or created, earlier. Connect the wires you are using at 'side A' or 'side B' of the pulse type 2 input board at the CHANGERVUE unit. Connect each wire to the same terminal number used at the remote unit. (i.e.- #1-to-#1, #2 -to-#2, etc). See fig. 26. If this is a "double" changer; repeat for second half. After all connections are made, return power to changer(s).

When finished with change machine connections; go to "configuring change machines" on page 22.

Standard EC+ used in MDB mode-

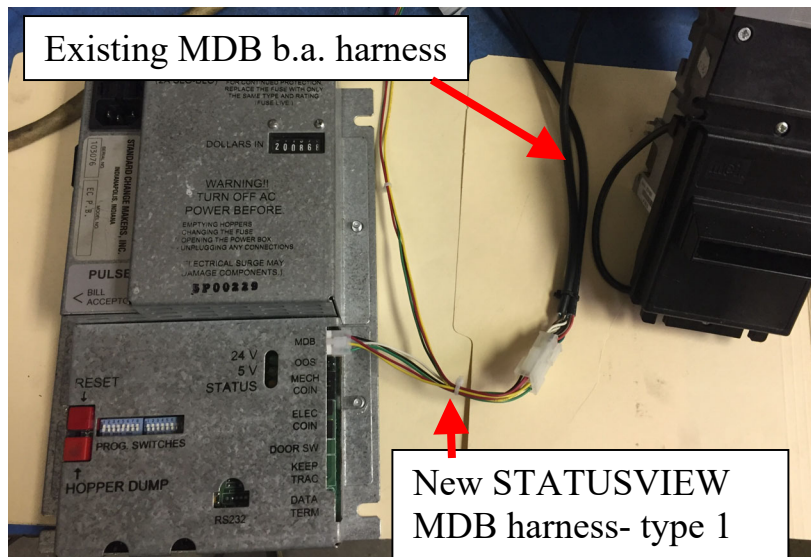


Fig. 42

Fig. 42 shows a Standard EC+ controller and the MDB bill acceptor harness connection on its right side. The CHANGERVUE harness can be spliced into the harness at the controller connection point, or farther out toward the bill acceptor at another convenient MDB connection joint. See figures 20-21.

Type 1 MDB harness-

Power off the change machine. Connect the CHANGERVUE MDB harness into the existing MDB bill acceptor harness of the machine. This can be done either at the controller box connection point, or at a white connection joint out near the bill acceptor. The former may be more accessible. Route the new CHANGERVUE MDB harness out of the machine cabinet through opening you selected, or created, earlier. Route CHANGERVUE MDB harness toward CHANGERVUE unit and secure neatly along the way. Plug the end of the harness into an available MDB connector on “MDB input type 1 board” on CHANGERVUE unit. If change machine is a “double” (has 2 controllers), repeat this install for the second half.

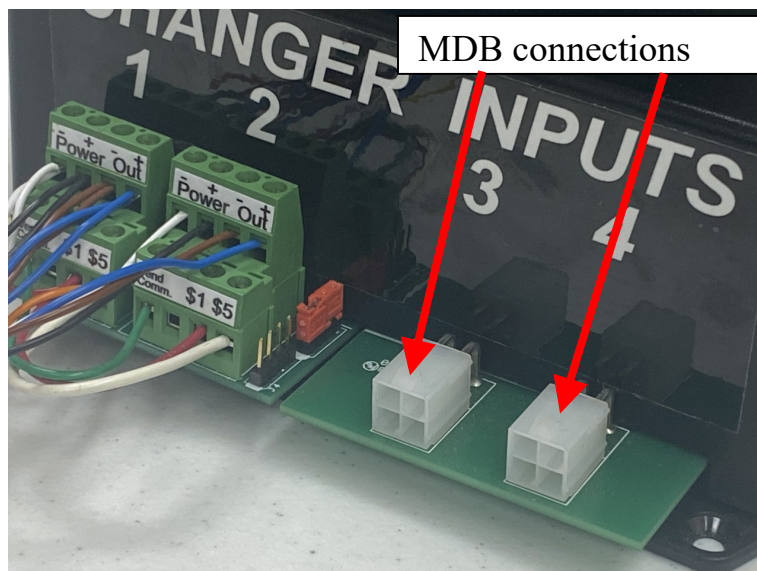


Fig 43

shows MDB type 1 connections on the right, and ‘pulse-type’ connections on the left.

When you are done making change machine connections, power changer(s) back on and go to page 22 (Configuring Change Machines) to continue.

Type 2 MDB connections-

With the newer type 2 MDB connections; you will be splicing new connecting wires into the existing machine wiring harness (see figures 13-16) and routing the new wires back to the main CHANGERVEW unit and connecting there also.

Turn power to the machine OFF. Locate the harness that goes between the MDB bill acceptor and main control device of the changer. Now choose a convenient place that will be out of the way to make your connections into the machine harness. See figs. 31-33 as guide.

<u>Machine bill acceptor harness</u>	<u>CHANGERVEW terminal connection</u>	<u>usage</u>
Orange	#1	ground
Violet	#2	master TX
White/Yellow	#3	master RX

Connections at CHANGERVEW-

Route this cable out of the changer cabinet through the hole chosen, or created, earlier. Route cable back to the CHANGERVEW main unit and connect the wires you are using at 'side A' or 'side B' of the MDB type 2 input board at the CHANGERVEW unit. If this is a "double" changer; repeat for second half. After all connections are made, return power to changer(s). When finished with change machine connections; go to "configuring change machines" on page 22.

Standard MC series- These machines are all MDB-type machines.

Type 1 MDB harness-

Power off the machine. Starting at the bill acceptor; follow its harness back toward the machine controller until you get to a white, 6-position connector. Open this connection joint and insert the new CHANGERVEW MDB harness into the machine harness. See Fig 20-23 (page 26).

Route the new CHANGERVEW MDB harness out of the machine cabinet through the opening you choose, or created, earlier. Route the new harness toward the CHANGERVEW unit and secure it neatly along the way. Plug harness end into available connection on "MDB type 1 input board" at the CHANGERVEW unit. See fig. 43. If the change machine is a "double", repeat for second half of changer. When finished, turn changer power back on. When finished with change machine connections; go to "configuring change machines" on page 22.

Type 2 MDB connections-

With the newer type 2 MDB connections; you will be splicing new connecting wires into the existing machine wiring harness (see figures 13-16) and routing the new wires back to the main CHANGERVEW unit and connecting there also.

Turn power to the machine OFF. Locate the harness that goes between the MDB bill acceptor and main control device of the changer. Now choose a convenient place that will be out of the way to make your connections into the machine harness. See figs. 31-33 as guide.

<u>Machine bill acceptor harness</u>	<u>CHANGERVVIEW terminal connection</u>	<u>usage</u>
Orange	#1	ground
Violet	#2	master TX
White/Yellow	#3	master RX

Connections at CHANGERVVIEW-

Route this cable out of the changer cabinet through the hole chosen, or created, earlier. Route cable back to the CHANGERVVIEW main unit and connect the wires you are using at 'side A' or 'side B' of the MDB input board at the CHANGERVVIEW unit, see fig. 25. If this is a "double" changer; repeat for second half. After all connections are made, return power to changer(s).

When finished with change machine connections; go to "configuring change machines" on page 22.

SPECIAL NOTES ABOUT STANDARD MC MACHINES THAT SHARE COIN HOPPERS BETWEEN MULTIPLE BILL ACCEPTORS-

As long as the machine can continue operating on 1 coin hopper and/or 1 bill acceptor: the Standard machine considers itself as still in service. The way we suggest hooking up CHANGERVVIEW (1 MDB connection at each bill acceptor), it will provide you with more realistic information. If a bill acceptor gets jammed with debris, or a bill, The Standard machine continue to operate on the remaining acceptor. With CHANGERVVIEW, the machine continues to operate, but you will receive an out of order message from the jammed bill acceptor.

Figuring settings for "low coins" can be a little tricky with multiple hoppers being shared by bill acceptors and never an exact science. Assume a machine with 2 bill acceptors and 2- \$800 capacity hoppers. Total coin capacity is \$1600. We assume that typical usage is about 50/50 on the bill acceptors, so each changer connection to CHANGERVVIEW for 'low coins' should be about 700. In the example from the previous paragraph with only 1 bill acceptor operating; it would be drawing off of the coins in both hoppers, so it could have as much coin capacity as \$1600. CHANGERVVIEW will report a "low coin" message while there are still plenty of coins left. The different being the coin capacity of the OUT OF ORDER bill acceptor not being used. You may need to experiment to come up with satisfactory settings.

Other Standard models-

Early "bill-to-bill" machines were based on the EC controller and used a pulse-style bill acceptor. Treat these the same as an EC changer.

Some medium age "bill-to-bill" machines were based on the EC+ controller. Treat these just like the EC+ machines above.

Current "bill-to-bill" machines are based on MC series hardware. Treat these as MC series MDB, and use the MDB hardwares to splice into the bill acceptor harness.

SC Conversion kit (replaces 500/600 acceptor with CoinCo/MEI)- treat as an MC series machine.

HAMILTON Change machines- traditional

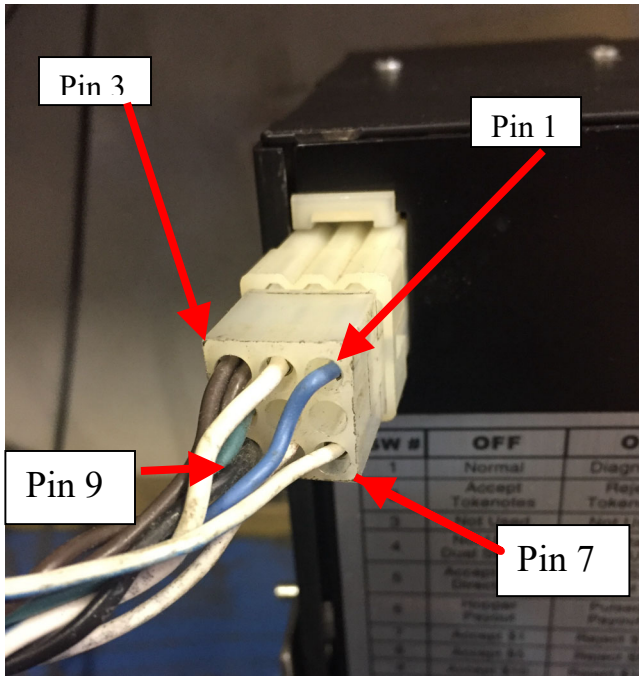


Fig 44

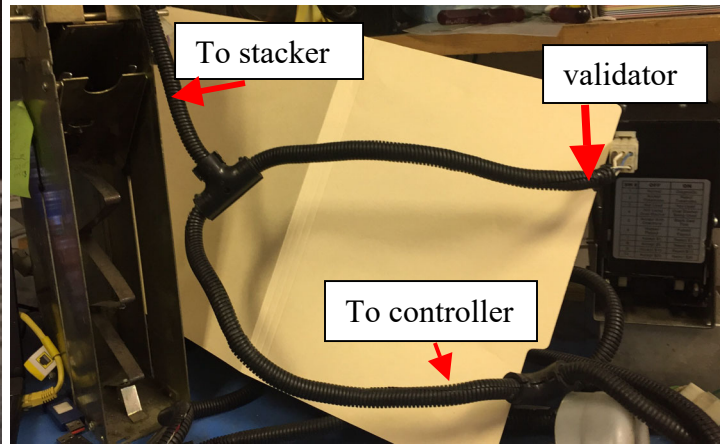


Fig 45 – main harness

Fig 44 shows the main Hamilton harness that plugs into the rear of the validator. Usually the wire colors are pretty consistent for each harness; but we have seen exceptions / abnormalities. Because of this; you will need to note what your color is for each harness connector position. We will use our colors in our harness as reference; but the important factor is harness POSITION. These instructions also apply to downstack MEI conversion kits.

If you have Hamilton's dual (separating) stacker, it will cause extra, false bill counts in the system. To solve this problem; turn the validator switch #6 to ON. This will cause all bills to go into the lower bill area. It will also slow down the coin payouts for larger bills. If this isn't acceptable" replace dual stacker with single stacker, or go with NO stacker at all and use cardboard box to collect bills.

TOKENOTES will create extra, false bill counts. There is no solution for this.

TURN OFF MACHINE POWER. Most of your connections will be in the validator harness. You will want to make these connections away from the validator and stacker, so that they will normally be out of the way in the cabinet. The approximate location to open the harness outer cover is where the "to controller" arrow is in fig 45. You will use the supplied tap-on connectors discussed previously in the GENERAL section p. 26. Fig. 46 shows the main harness opened to expose the wires you need to connect to. Fig. 47 shows the harness for the "out light" opened, and exposing its wires. You should strip back the CHANGERVUE cable outer covering about 8" to make these connections.

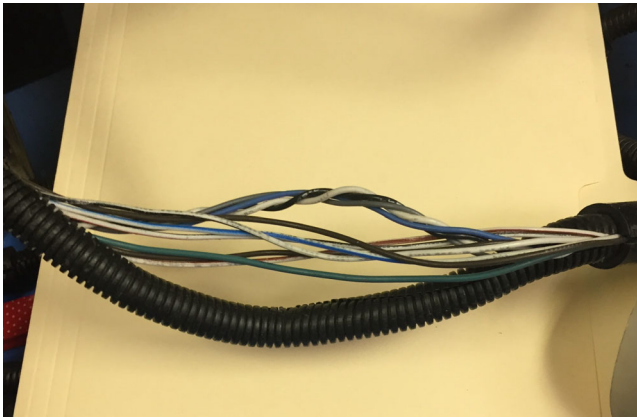


Fig 46

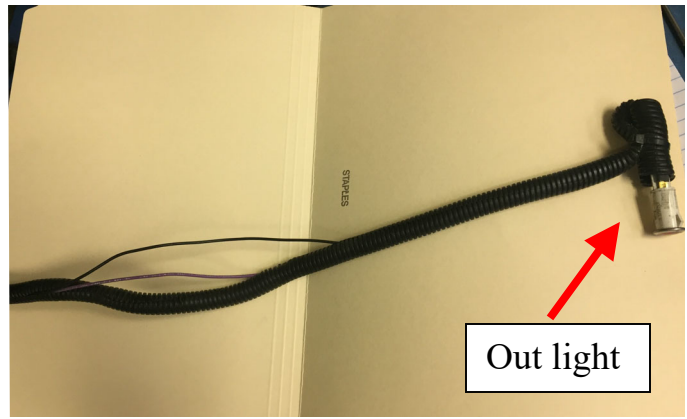


Fig 47

Validator harness connections-

Type 1 pulse hardware-

Hamilton validator harness

Black #9

White #2

Brown #3 (either of 2)

W/Blue #7

W/Red #8

CHANGERVUE cable

Black

White

Green

Red

Orange

usage

power +

power -

vend comm

\$1 vend

\$5 vend

OUT harness connections-

Black

Purple

Blue

Brown

out +

out -

Although we're showing the harness out of the machine; Fig 48 is approximately what you should have when finished. Close the harness cover as best you can, and secure your connections with tape or wire-ties so everything "stays under control".

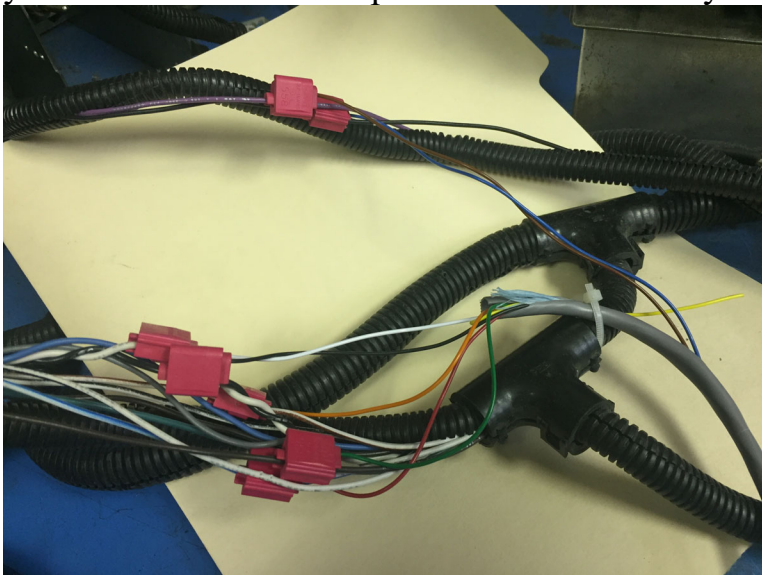


Fig 48

After tucking the new harnessing out of the way; route the CHANGERVUE cable out of the machine through the hole you chose / created earlier. IF machine is a “double”, repeat for second half.

CONNECTIONS at the STATUSVIEW INPUTS-

Here’s where you will be making wiring connection to the CHANGERVUE unit. Determine the path you will use to route CHANGERVUE cable to the CHANGERVUE unit, and anchor it in place. Determine where to cut your cable pased on which connection board you are going to use. I suggest you give yourself about an extra foot of cable (cheap insurance). Strip back the cable covering about 3” for these connections. Strip the insulation on each wire about 3/16”. Based on the wire colors suggested earlier, here are your connections:

<u>STATUSVIEW cable</u>	<u>CHANGERVUE pulse input board</u>	<u>circuit</u>
Green	vend comm.	Vend comm
Red	\$1 vend	\$1 vend
Orange	\$5 vend	\$5 vend
White	power -	power -
Black	power +	power +
Brown	out -	out -
Blue	out +	out +

If you have a Hamilton validator, both the \$1 and \$5 jumper pins for this connection assembly will require 2 shunts each (4 total). See Fig 49. If you are using an MEI (or other vending validator); then you should use 2 shunts on the \$1 jumper pins, and NO shunts at the \$5 jumper pins.

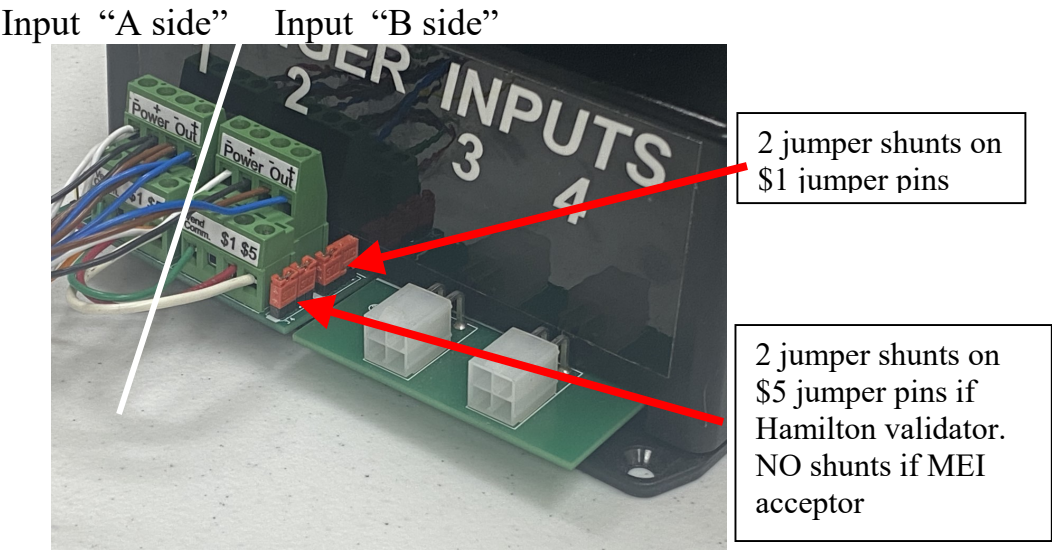


Fig 49 – Finished Hamilton connections

When you are done making change machine connections, power changer(s) back on and go to page 22 (Configuring Change Machines) to continue.

Pulse type 2 remote unit-

Turn OFF power to the machine. All the connection points inside the changer will be the same as the type 1 hardware.

Connections to pulse remote unit wires-

<u>Bill validator harness</u>	<u>Remote pulse unit wires</u>	<u>usage</u>
Black #9	Black	power +
White #2	White	power -
Brown #3 (either of 2)	Green	vend comm
W/Blue #7	Red	\$1 vend
W/Red #8	Orange	\$5 vend

OUT harness connections-

Black	Blue	out +
Purple	Brown	out -

2 shunts at each set of jumper pins on remote unit- see fig. 29 .

Arrange and secure the new connection snug to the original harness using wire ties or tape. Isolate and tape-off unused wires.

Using the supplied Velcro, anchor the remote pulse unit out of the way in the cabinet. The following connections will have to be made from the remote pulse unit output screw terminals to the pulse input connection at the main CHANGERVUE unit using a multi-conductor cable. At the remote unit, connect separate wires to terminals #1, 2, 3, 4, and 5. Tuck the harnesses back into the machine and route the CHANGERVUE cable out of the machine cabinet through the opening you chose, or created, earlier. Route and secure the new harness heading toward the CHANGERVUE unit in a neat manner.

Connections at CHANGERVUE-

Route this cable out of the changer cabinet through the hole chosen, or created, earlier. Connect the wires you are using at 'side A' or 'side B' of the pulse input board at the CHANGERVUE unit. Connect each wire to the same terminal number used at the remote unit. (i.e.- #1-to-#1, #2 -to-#2, etc). See fig. 26.

If this is a "double" changer; repeat for second half. After all connections are made, return power to changer(s).

When finished with change machine connections; go to "configuring change machines" on page 22.

Hamilton Change machines- later, 1200 / 3600

These machine models use a different harness system than the older, traditional machines. Power off the machine before doing any work with it. These machines will have a 16-pin connection in the bill acceptor line, see Fig 50 below.

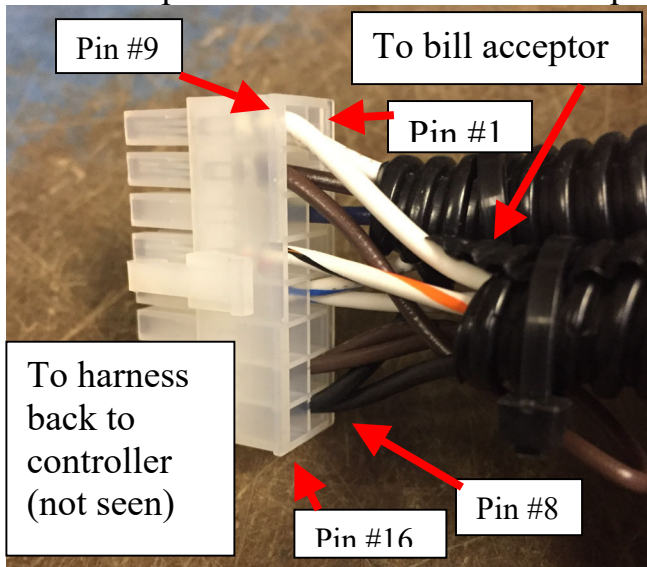


Fig. 50

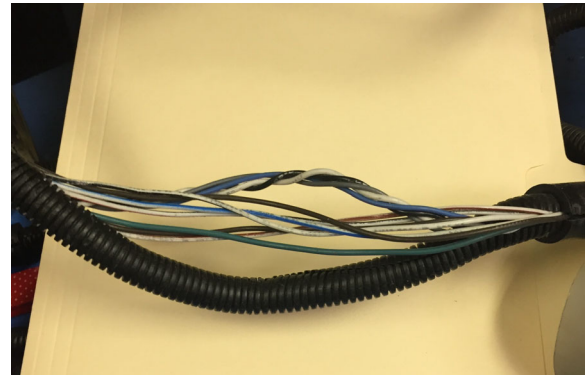


Fig. 51

Between this connection point and the main controller; find an area that it convenient to access and open the outer harness covering to access the wires inside (above, Fig 51). You will use the supplied tap-on connectors discussed previously in the GENERAL section, p. 26. You should strip back the CHANGERVVIEW cable about 8" to make these connections.

Type 1 pulse hardware-

Machine harness connections-

Hamilton validator wire

Black #8
White #9
Brown #10
W/Blue #5
W/Brown #4

CHANGERVVIEW cable

Black
White
Green
Red
Orange

usage

power +
power -
vend comm
\$1 vend
\$5 vend

OUT harness connections-

Black
Purple

Blue
Brown

out +
out -

After you've made the required connections; close the harness cover as best you can, and secure your connections with tape or wire-ties so everything "stays under control". After tucking the new harnessing out of the way; route the CHANGERVVIEW cable out of the machine through the hole you chose / created earlier.

CONNECTIONS at the CHANGERVVIEW INPUTS-

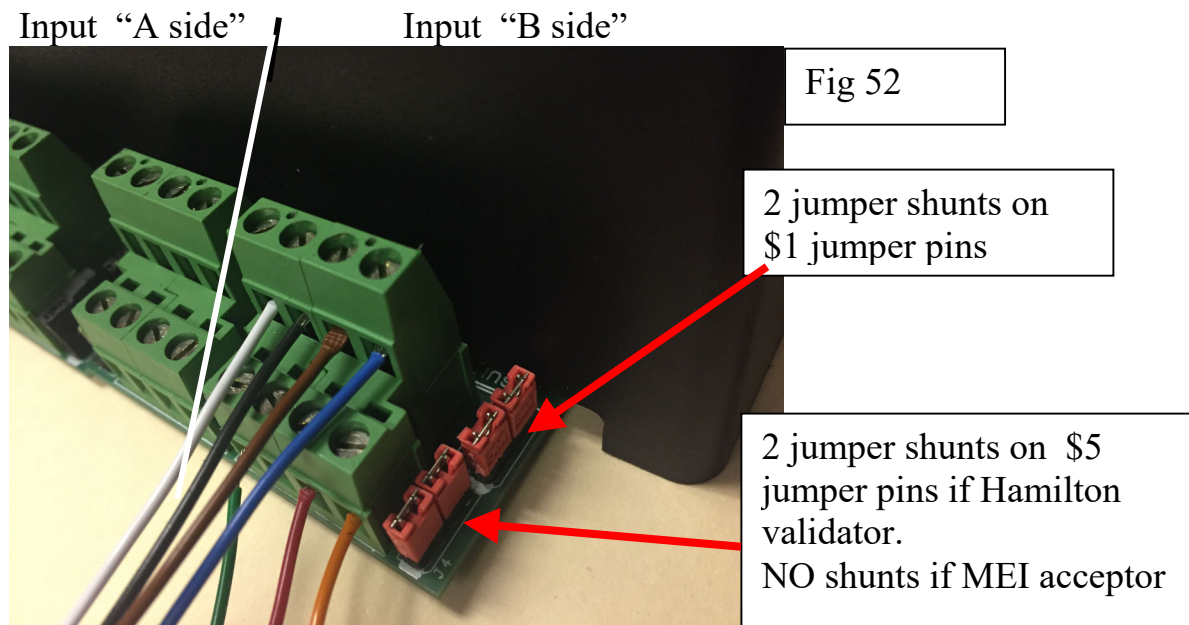
Here's where you will be making wiring connection to the CHANGERVVIEW unit.

Determine the path you will use to route CHANGERVVIEW cable to the CHANGERVVIEW unit, and anchor it in place. Determine where to cut your cable based on which connection

board you are going to use. I suggest you give yourself about an extra foot of cable (cheap insurance). Strip back the cable outer covering about 3" for these connections. Strip the insulation on each wire about 3/16". Based on the wire colors suggested earlier, here are your connections:

<u>CHANGERVUE cable</u>	<u>CHANGERVUE pulse input board</u>	<u>circuit</u>
Green	vend comm.	Vend comm
Red	\$1 vend	\$1 vend
Orange	\$5 vend	\$5 vend
White	power -	power -
Black	power +	power +
Brown	out -	out -
Blue	out +	out +

If you have a Hamilton validator, both the \$1 and \$5 jumper pins for this connection assembly will require 2 shunts each (4 total). See Fig 52. If you are using an MEI (or other vending validator); then you should use 2 shunts on the \$1 jumper pins, and NO shunts at the \$5 jumper pins.



If this is a “double machine”, repeat for second unit. When you are done making change machine connections, power changer(s) back on and go to page 22 (Configuring Change Machines) to continue.

Type 2 pulse remote unit-

The connection points into the Hamilton harnesses are the same as for the type 1 hardware.

<u>Hamilton validator wire</u>	<u>remote pulse unit wires</u>	<u>usage</u>
Black #8	Black	power +
White #9	White	power -
Brown #10	Green	vend comm
W/Blue #5	Red	\$1 vend
W/Brown #4	Orange	\$5 vend

OUT harness connections-

Black	Blue	out +
Purple	Brown	out -

2 shunts at each set of jumper pins on remote unit- see fig. 29 .

Isolate and tape-off unused wires.

Arrange and secure the new connection snug to the original harness using wire ties or tape. After you've made the required connections; close the harness cover as best you can, and secure your connections with tape or wire-ties so everything "stays under control".

Using the supplied Velcro, anchor the remote pulse unit out of the way in the cabinet. The following connections will have to be made from the remote pulse unit output screw terminals to the pulse input connection at the main CHANGerview unit using a multi-conductor cable. At the remote unit, connect separate wires to terminals #1, 2, 3, 4, and 5. Tuck the harnesses back into the machine and route the CHANGerview cable out of the machine cabinet through the opening you chose, or created, earlier. Route and secure the new harness heading toward the CHANGerview unit in a neat manner.

Connections at CHANGerview-

Route this cable out of the changer cabinet through the hole chosen, or created, earlier. Connect the wires you are using at 'side A' or 'side B' of the pulse input board at the CHANGerview unit. Connect each wire to the same terminal number used at the remote unit. (i.e.- #1-to-#1, #2 -to-#2, etc). See fig. 26.

If this is a "double" changer; repeat for second half. After all connections are made, return power to changer(s).

When finished with change machine connections; go to "configuring change machines" on page 22.

ROWE Change Machines

Connections for traditional ROWE BC series-

Unplug power to the machine. This section will cover the "pulse type" connections for the original Rowe BC series machines with a BA35, or BA50 bill transport. The Rowe factory MEI conversion is also the same, as is the Capital Vending MEI conversion kit. The "Genesis for Rowe" conversion kit is different and is covered later. All of your new connections will be at the power supply, at connectors J2 and J3, see fig 53. The connection points are the same for either type 1 pulse hardware, or type 2 remote unit.

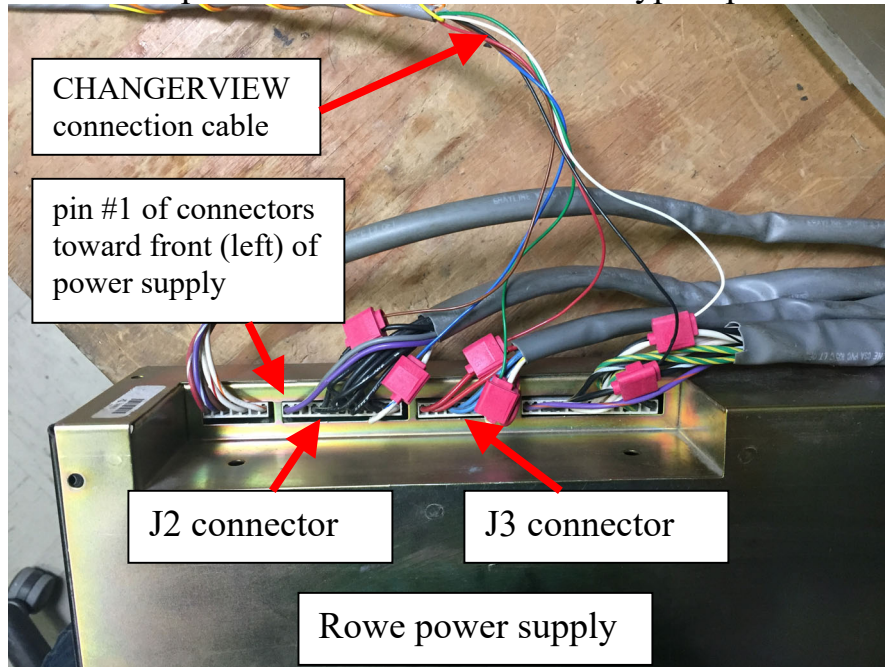


Fig 53

You will want to strip back the covering on the CHANGERVVIEW cable about 6-8" for room to work. You will want to cut back the outer coverings on the Rowe J2 and J3 harnesses about 3-4" for working room.

Using the supplied tap-on connectors described on pages 26-27; make the following new connections:

Type 1 pulse hardware-

<u>Rowe power supply harness</u>	<u>CHANGERVVIEW cable</u>	<u>usage</u>
J2-13	White/Blue	Blue
J2-5	Black	Brown
J3-1	Red	Red
J3-8	White/Yellow	Green
J3-10	Red/Yellow	Black
J2 -6	Black	White
		out +
		out -
		\$1 vend
		vend comm
		power +
		power -

After finishing these new connections; route the CHANGERVVIEW cable in an out of the way fashion, and out of the machine cabinet through the opening you chose, or created, earlier. Route the new CHANGERVVIEW cable towards the CHANGERVVIEW unit, and secure neatly to the wall along the way.

Connections at CHANGERVUE pulse input type 1 board- CHANGERVUE cable

Blue	out +
Brown	out -
Red	\$1 vend
Green	vend comm
Black	power +
White	power -

<u>circuit</u>
out +
out -
\$1 vend
vend comm
power +
power -

1 shunt at center of \$1 jumper pins

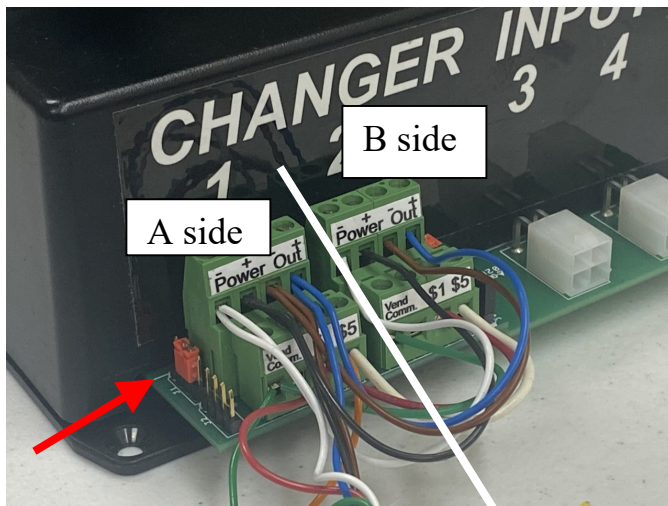


Fig 54

Connections shown on an "A side" of pulse input board. Note single shunt at center of \$1 vend jumper pins.

When you are done making change machine connections, power changer(s) back on and go to page 22 (Configuring Change Machines) to continue. If this is a double machine, repeat connections for second side.

Type 2 pulse remote unit-

Rowe power supply harness

J2-13	White/Blue
J2-5	Black
J3-1	Red
J3-8	White/Yellow
J3-10	Red/Yellow
J2 -6	Black

remote unit wires

Blue
Brown
Red
Green
Black
White

<u>usage</u>
out +
out -
\$1 vend
vend comm
power +
power -

1 shunt at center of each set of jumper pins (fig. 28) on remote unit.

Tape off and isolate unused wires.

Using the supplied Velcro, anchor the remote pulse unit out of the way in the cabinet. The following connections will have to be made from the remote pulse unit output screw terminals to the pulse input connection at the main CHANGERVUE unit using a multi-conductor cable. At the remote unit, connect separate wires to terminals #1, 2, 3, and 5. Tuck the harnesses back into the machine and route the CHANGERVUE cable

out of the machine cabinet through the opening you chose, or created, earlier. Route and secure the new harness heading toward the CHANGERVEW unit in a neat manner.

Connections at CHANGERVEW-

Route this cable out of the changer cabinet through the hole chosen, or created, earlier. Connect the wires you are using at ‘side A’ or ‘side B’ of the pulse input board at the CHANGERVEW unit. Connect each wire to the same terminal number used at the remote unit. (i.e.- #1-to-#1, #2 –to-#2, etc). See fig. 26.

If this is a “double” changer; repeat for second half. After all connections are made, return power to changer(s).

When finished with change machine connections; go to “configuring change machines” on page 22.

Suncoast Changer Service
2195 S Combee Rd, Lakeland, FL 33801
email: billchangers@msn.com
863-669-9699

Connections for Rowe Century machines- pulse type connections

2 of your new connections will be into the bill acceptor harness, 2 will be down near the mechanical counter at harness connection P4, and 2 will be in the out light harness. Unplug power to the machine. Unplug the bill acceptor harness from the main Rowe CCC. Choose a location along the harness, about 6-8" away from the CCC, where your new connections will be out of the way when the machine is closed-up and back in service. Carefully cut open the outer cover of the harness at this point to expose the wires inside you will need to connect to. See below.

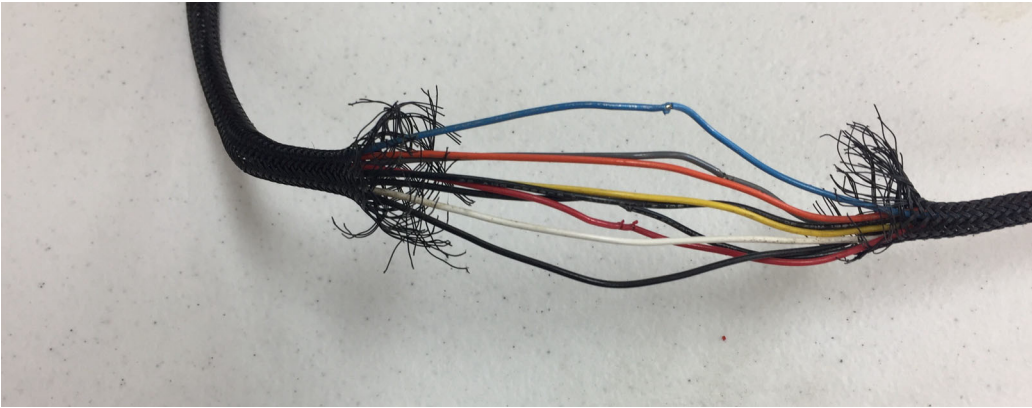
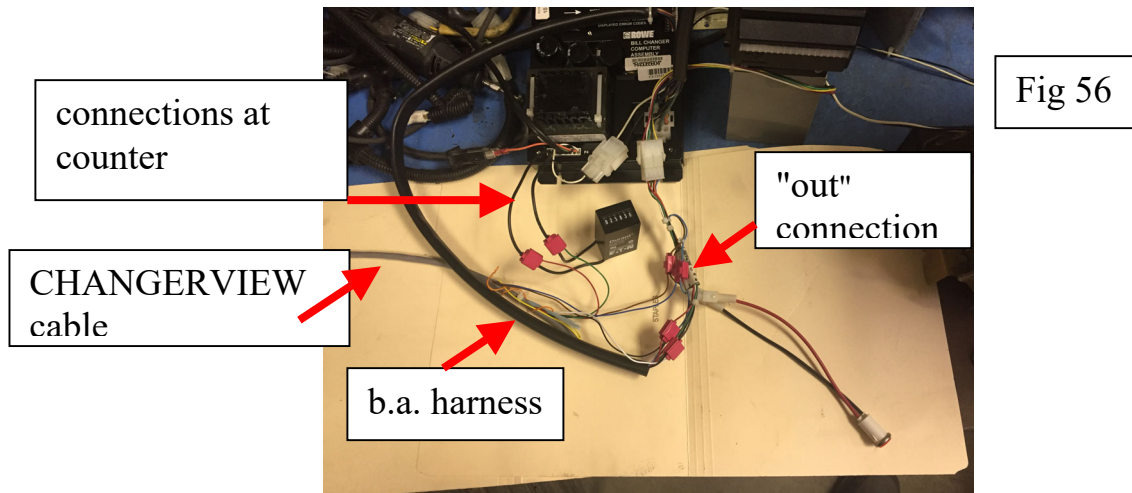


Fig 55

You will be connecting the new CHANGERVUE cable to these existing harness wires using the supplied tap-on connectors (see page 23). You should strip back the CHANGERVUE cable covering about 8-10" to make the new connections to the machine. The connection points are the same for both type 1, and type 2 hardware. Connections to the Century machine-

Type 1 pulse hardware-

<u>acceptor harness</u>	<u>CHANGERVUE cable</u>	<u>usage</u>
Black (either)	White	power -
Red	Black	power +
<u>out harness</u>		
Blue	Blue	out +
Brown	Brown	out -
<u>counter</u>		
P4 connector- far left, Black	Red	\$1 vend
P4 conn.- 2nd left, Black	Green	vend comm

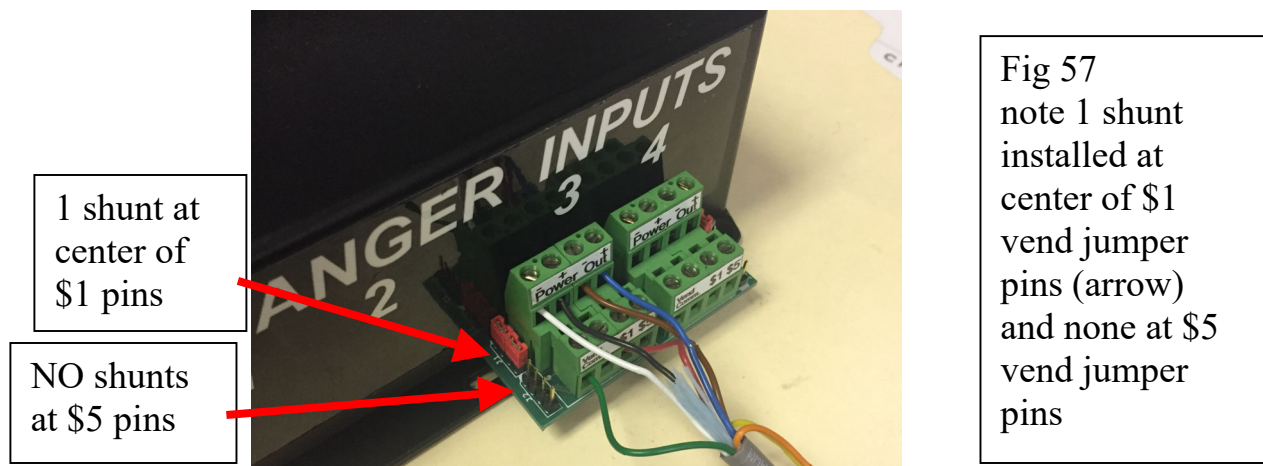


Secure and clean-up your connections, and then reassemble machine and route STATUSVIEW cable out of the cabinet through opening you have chosen, or created, earlier. Route and neatly secure the CHANGERVUE cable back to the main CHANGERVUE unit. I suggest you try to leave at least an extra foot of cable in the line.

Connections at CHANGERVUE pulse input board-

<u>CHANGERVUE cable</u>	<u>CHANGERVUE input bd.</u>	<u>circuit</u>
White	power -	power -
Black	power +	power +
Green	vend comm.	Vend comm
Red	\$1 vend	\$1 vend
Blue	out +	out +
Brown	out -	out -

1 shunt at center of \$1 jumper pins



When you are done making change machine connections, power changer(s) back on and go to page 22 (Configuring Change Machines) to continue.

Type 2 pulse hardware-

<u>acceptor harness</u>	<u>remote pulse unit wires</u>	<u>usage</u>
Black (either)	White	power -
Red	Black	power +
<u>out harness</u>		
Blue	Blue	out +
Brown	Brown	out -
<u>counter</u>		
P4 connector- far left, Black	Red	\$1 vend
P4 conn.- 2nd left, Black	Green	vend comm
2 shunts on each set of jumper pins (fig 29).		
Isolate and tape off unused wires.		

Using the supplied Velcro, anchor the remote pulse unit out of the way in the cabinet. The following connections will have to be made from the remote pulse unit output screw terminals to the pulse input type 2 connection at the main CHANGERVEW unit using a multi-conductor cable. At the remote unit, connect separate wires to terminals #1, 2, 3, and 5. Tuck the harnesses back into the machine and route the CHANGERVEW cable out of the machine cabinet through the opening you chose, or created, earlier. Route and secure the new harness heading toward the CHANGERVEW unit in a neat manner.

Connections at CHANGERVEW-

Route this cable out of the changer cabinet through the hole chosen, or created, earlier. Connect the wires you are using at ‘side A’ or ‘side B’ of the pulse input board at the CHANGERVEW unit. Connect each wire to the same terminal number used at the remote unit. (i.e.- #1-to-#1, #2 –to-#2, etc). See fig. 26. If this is a “double” changer; repeat for second half. After all connections are made, return power to changer(s).

When finished with change machine connections; go to “configuring change machines” on page 22.

Rowe / Triad bill breaker machines-

We can not monitor these machines.

Rowe / Triad model 400 change machine-

This is an MDB style machine. It’s installation will be similar to a Standard MC series machine. See page 35.

American Change Machines

"Red number" logic board (pulse-type)-

Unplug power to machine. All of your new connections will be into the bill acceptor harness and "out light" harness. On the CHANGERVUE cable, strip-back about 6-8" of outer covering to expose the wires inside. Splice into the machine harnesses about 8" from the ends that plug onto the main logic board. This should put the new connections against the wall, out of the way when machine in service. Unplug the machine harnesses from the main logic board to make it easier to make connections, and re-install when you're done. See fig 58 + 59 below. These connection points are the same for either type 1, or type 2 hardware.

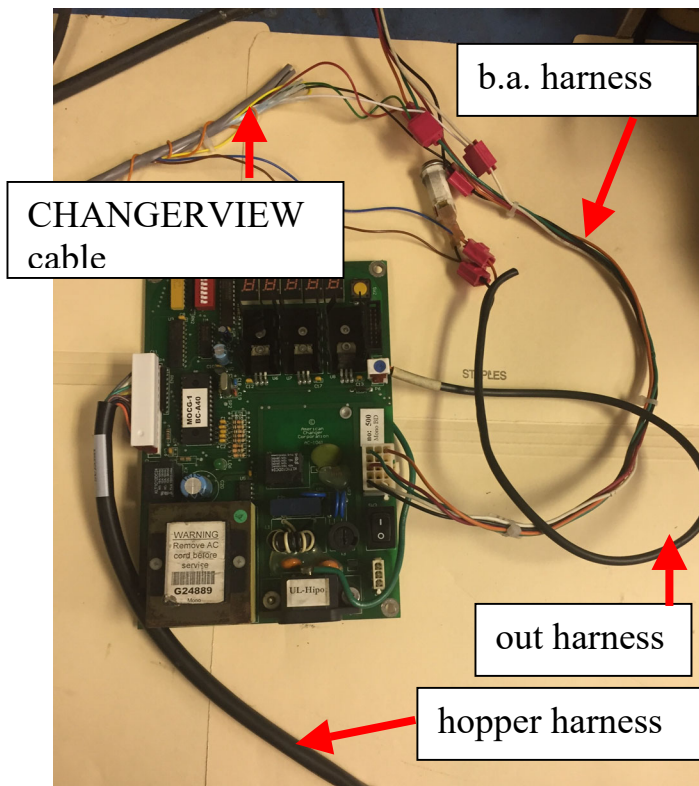


Fig 58

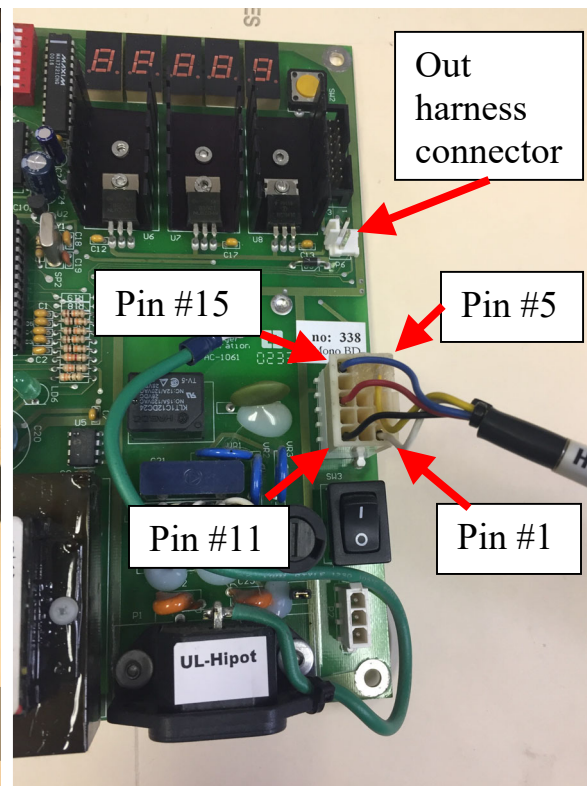


Fig 59

Type 1 pulse hardware- harness connections in machine-

b.a. harness

#5 yellow
#15 Blue
#1 white
#11 black

out harness

Orange
Brown

CHANGERVUE cable

Red
Green
White
Black

usage

\$1 vend
vend comm
power -
power +

out +
out -

It is the wire positions in the connectors that are important. If colors aren't as listed above, go with position numbers.

Clean-up and secure connections. If this is a "double machine", repeat for second half. Route the new CHANGERVUE cable out of the machine through the opening chosen, or created, earlier. Route and secure new cable toward main CHANGERVUE unit. I suggest keeping about 1 extra foot of cable in the line. Next you will make connections to one of your CHANGERVUE pulse type 1 input boards. See fig 60.

<u>CHANGERVUE cable</u>	<u>pulse input type 1 bd.</u>	<u>circuit</u>
Green	vend comm.	Vend comm
Red	\$1 vend	\$1 vend
White	power -	power -
Black	power +	power +
Blue	out +	out +
Brown	out -	out -
2 shunts at \$1 jumper pins		

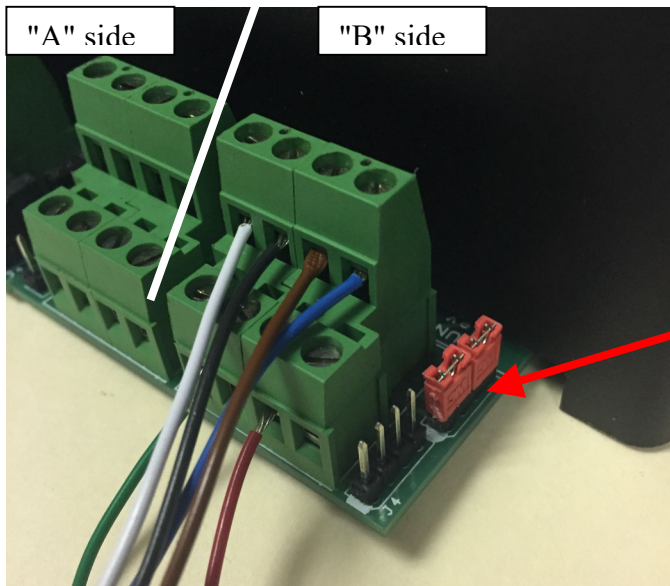


Fig 60

Here's the connection on a "B side" of the pulse input board. Note the 2 shunts on the \$1 vend jumpers; nothing at \$5 jumpers.

If this is a "double machine", repeat connections for second half. When you are done making change machine connections, power changer(s) back on and go to page 22 (Configuring Change Machines) to continue.

Type 2 pulse remote unit-
harness connections in machine-

<u>b.a. harness</u>	<u>remote pulse unit wires</u>	<u>usage</u>
#5 yellow	Red	\$1 vend
#15 Blue	Green	vend comm
#1 white	White	power -
#11 black	Black	power +
<u>out harness</u>		
Orange	Blue	out +
Brown	Brown	out -
2 shunts on each set of jumper pins on remote unit (fig 29). Isolate and tape-off unused wires.		

Using the supplied Velcro, anchor the remote pulse unit out of the way in the cabinet. The following connections will have to be made from the remote pulse unit output screw terminals to the pulse input connection at the main CHANGERVEW unit using a multi-conductor cable. At the remote unit, connect separate wires to terminals #1, 2, 3, and 5. Tuck the harnesses back into the machine and route the CHANGERVEW cable out of the machine cabinet through the opening you chose, or created, earlier. Route and secure the new harness heading toward the CHANGERVEW unit in a neat manner.

Connections at CHANGERVEW-

Connect the wires you are using at ‘side A’ or ‘side B’ of the pulse input board at the CHANGERVEW unit. Connect each wire to the same terminal number used at the remote unit. (i.e.- #1-to-#1, #2 –to-#2, etc). See fig. 26.
If this is a “double” changer; repeat for second half. After all connections are made, return power to changer(s).

When finished with change machine connections; go to “configuring change machines” on page 22.

ACC early mechanical counter logic boards and AC500 (pulse type)-

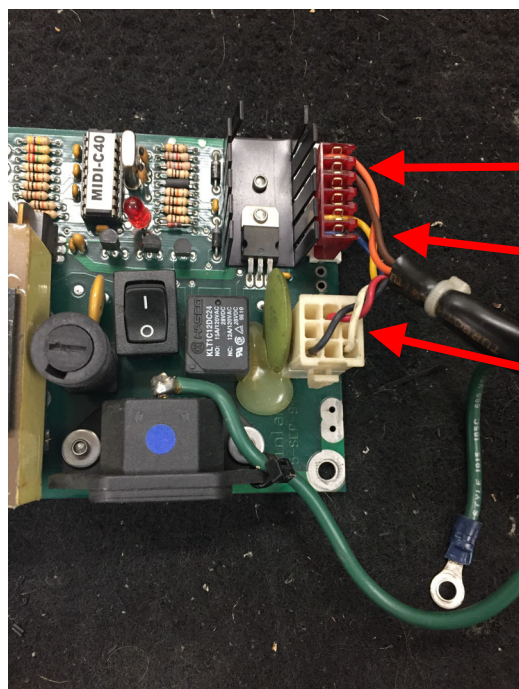


Fig 61

2 wires for "OUT" connection

2 wires for "VEND" connections

2 wires for "power" connections

Fig 61 is of an AC500)) control board. The early mechanical logic boards use the same wiring connections (Fig 62).

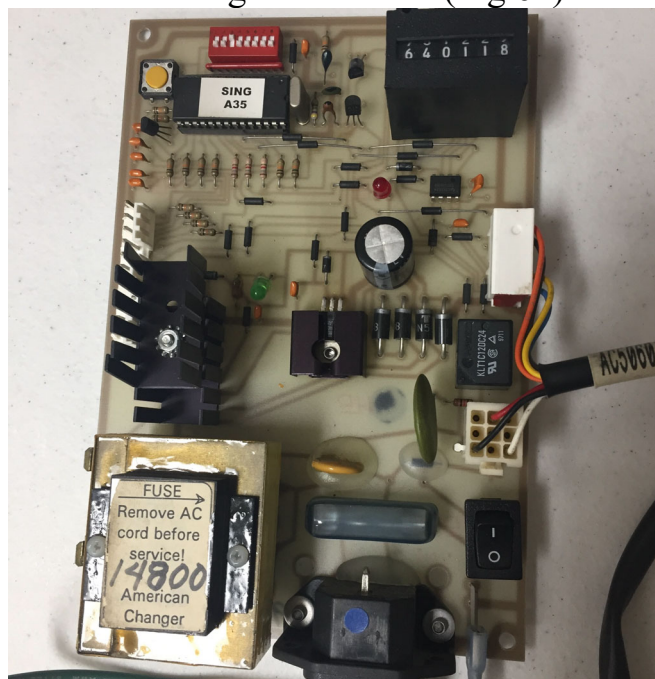


Fig 62

Early mechanical counter
American logic bd.

Strip back the outer covering of the machine harness near the logic board about 5". Use the supplied tap-on connectors discussed earlier, in the GENERAL section, pages 23-24, to connect the supplied CHANGERVERVIEW pulse cable (or your equal). It may be easiest to remove the machine harness from the logic board to make your new connections. The connection points are the same for both type 1, and type 2 hardware:
Type 1 pulse hardware connections:

<u>American straight conn</u>	<u>CHANGERVIE cable</u>	<u>usage</u>
Orange	Blue	out +
Brown	Brown	out -
Yellow	Red	\$1 vend
Blue	Green	vend comm
<u>American 9-pin conn</u>		
White	Black	power +
Black	White	power -

After your finished making the above machine connections; re-install harness to logic board. After you've made the required connections; close the harness cover as best you can, and secure your connections with tape or wire-ties so everything "stays under control". After tucking the new harnessing out of the way; route the CHANGERVIE cable out of the machine through the hole you chose / created earlier.

CONNECTIONS at the CHANGERVIE INPUTS-

Here's where you will be making wiring connection to the CHANGERVIE unit. Determine the path you will use to route CHANGERVIE cable to the CHANGERVIE unit, and anchor it in place. Determine where to cut your cable based on which connection board you are going to use. I suggest you give yourself about an extra foot of cable (cheap insurance). Strip back the outer cable covering about 3-4" for these connections. Strip the insulation on each wire about 3/16". Based on the wire colors suggested earlier, here are your connections: (see Fig 63 below)

<u>STATUSVIEW cable</u>	<u>CHANGERVIE pulse input board</u>	<u>circuit</u>
Green	vend comm.	Vend comm
Red	\$1 vend	\$1 vend
White	power -	power -
Black	power +	power +
Brown	out -	out -
Blue	out +	out +

2 jumper shunts on the \$1 jumpers

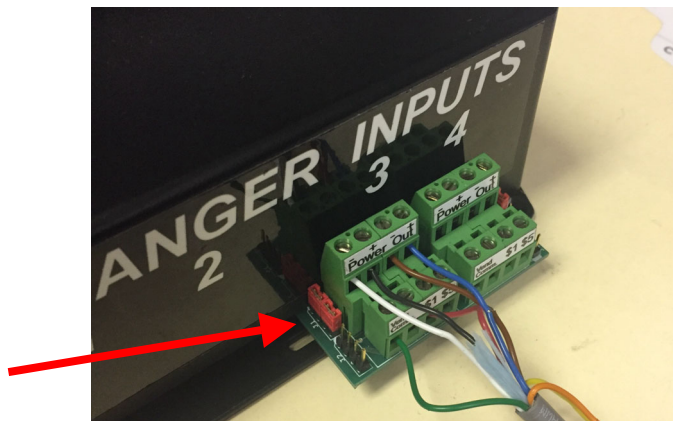


Fig 63
Connections for early American machines. Note 2 jumper shunts at \$1 jumpers

Type 2 remote pulse unit connections:

<u>American straight conn</u>	<u>remote pulse unit wires</u>	<u>usage</u>
Orange	Blue	out +
Brown	Brown	out -
Yellow	Red	\$1 vend
Blue	Green	vend comm
<u>American 9-pin conn</u>		
White	Black	power +
Black	White	power -

2 shunts on each set of jumper pins on remote unit (fig 29). Isolate and tape-off unused wires.

Using the supplied Velcro, anchor the remote pulse unit out of the way in the cabinet. The following connections will have to be made from the remote pulse unit output screw terminals to the pulse input connection at the main CHANGERVEW unit using a multi-conductor cable. At the remote unit, connect separate wires to terminals #1, 2, 3, and 5. Tuck the harnesses back into the machine and route the CHANGERVEW cable out of the machine cabinet through the opening you chose, or created, earlier. Route and secure the new harness heading toward the CHANGERVEW unit in a neat manner.

Connections at CHANGERVEW-

Connect the wires you are using at ‘side A’ or ‘side B’ of the pulse input board at the CHANGERVEW unit. Connect each wire to the same terminal number used at the remote unit. (i.e.- #1-to-#1, #2 -to-#2, etc). See fig. 26.

If this is a “double” changer; repeat for second half. After all connections are made, return power to changer(s).

When finished with change machine connections; go to “configuring change machines” on page 22.

ACC newer UNI- board logic boards (green LCD display), MDB type -

These logic boards have green LCD display screens, and use 24v bill acceptors. There have been numerous versions of these circuit boards, but the connections will all be the same. Unplug power to the machine.

Type 1 MDB harness-

Locate the white 6-pin MDB connector in the existing machine harness between the logic board and the bill acceptor. Some machines may not have this connector. Open this connection and insert the new CHANGERVEW MDB harness into the wiring. See Fig 20-23 (page 26) earlier. Route the CHANGERVEW harness out of the machine cabinet through the opening you choose, or created, earlier. Route new harness toward the CHANGERVEW control unit, and secure it safely along the way. You may need extra

4ft harness extensions to reach CHANGERVUE. Connect to the CHANGERVUE unit at an MDB input board, Fig 64. If the changer is a “double”, repeat for second half. When you are done making change machine connections, power changer(s) back on and go to page 22 (Configuring Change Machines) to continue.

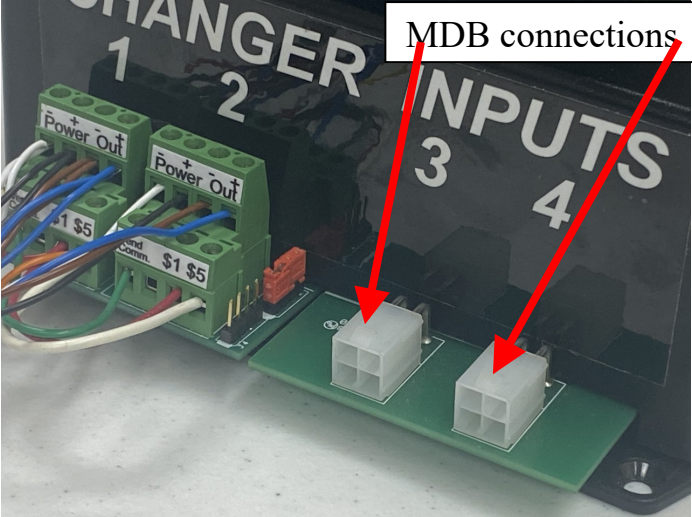


Fig 64

Type 2 MDB hardware-

In this case; you will have to “splice into” the harness, similar to the “pulse-type” connections. See figures 13-16. First remove power from the machine.

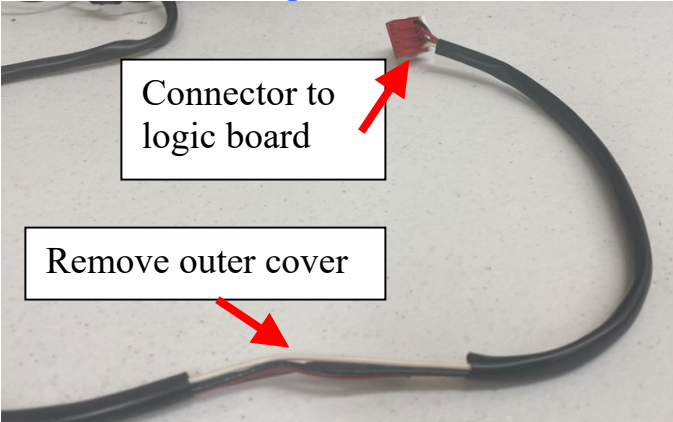


Fig 65- shows an example of a bill acceptor harness WITHOUT the normal MDB connection. You will have to remove 3-4” of the harness outer cover, about 8” from the logic board end.

The connections you will make into the American harness are as follows: See figs. 31-33 as guide.

<u>Machine bill acceptor harness</u>	<u>CHANGERVUE terminal connection</u>	<u>usage</u>
Orange	#1	ground
Violet	#2	TX
White/Yellow	#3	RX

Connections at CHANGERVUE-

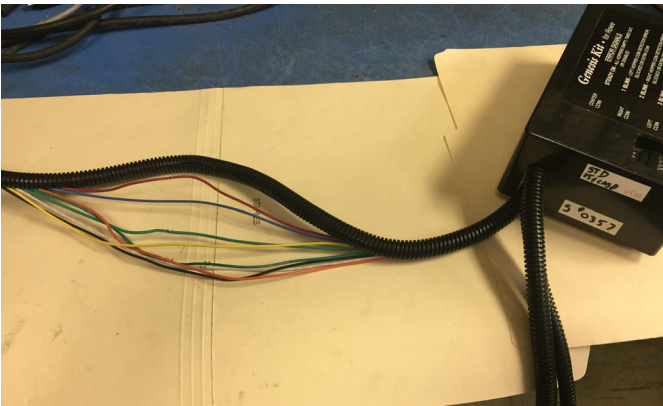
Route this cable out of the changer cabinet through the hole chosen, or created, earlier. Route cable back to the CHANGERVUE main unit and connect the wires you are using at ‘side A’ or ‘side B’ of the MDB input board at the CHANGERVUE unit, See fig. 25.

If this is a “double” changer, repeat for second half. After all connections are made, return power to changer(s).

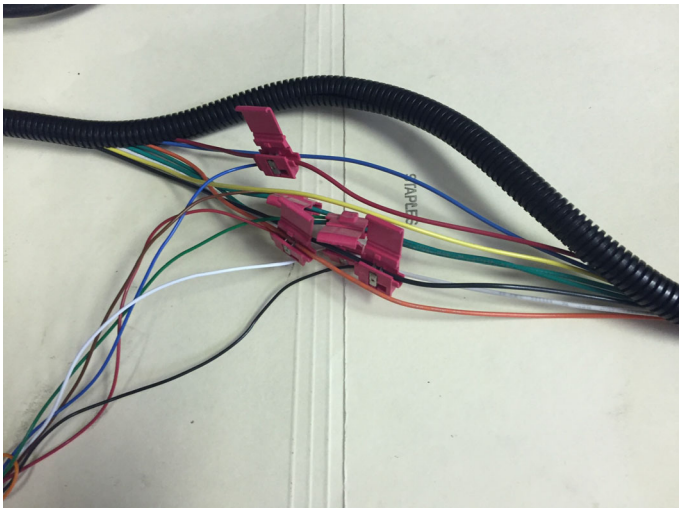
When finished with change machine connections; go to “configuring change machines” on page 22.

GENESIS kits for Rowe, or Standard

Remove power from machine. All of your new wiring connections will be at the harness which leads out from the main control box to the bill acceptor. Choose a convenient location on the harness about 6 – 8” from the control box and open up the outer coving of the harness to access the wires inside (Fig 66). You should use the provided CHANGERVUE cable and tap-on connector supplied, and described earlier on page 26, figures 13-16.



harness location- Fig 66



complete connections- Fig 67

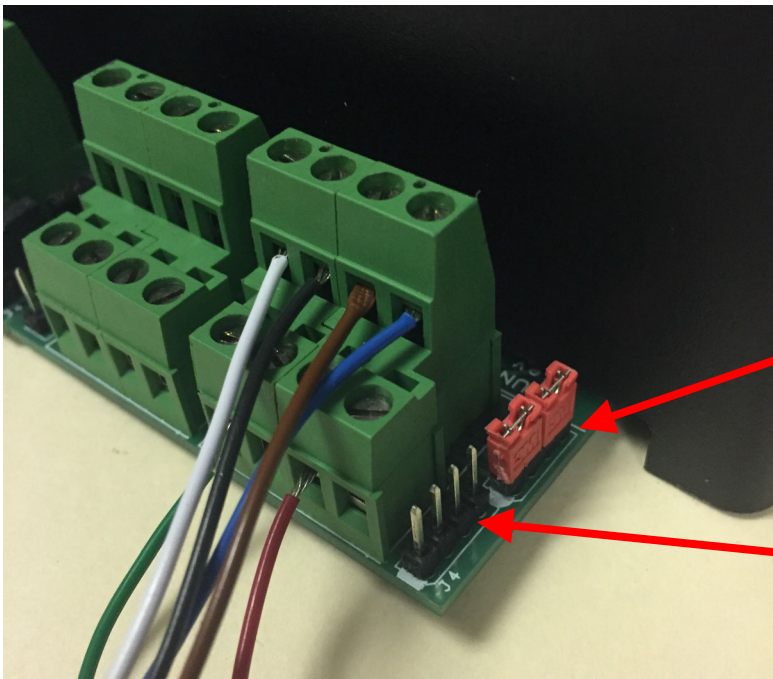
Type 1 pulse hardware-
GENESIS harness

CHANGERVUE cable

usage

Black	Black	power +
White	White	power -
Orange	Red	\$1 vend
Green (either)	Green	vend comm
Green (either)	Brown	out -
Red	Blue	out +

Close-up and secure the new connections as best as you can. Route the CHANGERVUE cable out of the machine cabinet through the opening you have chosen, or created, earlier. Route and secure the CHANGERVUE cable to the CHANGERVUE unit connector and make the following connections to an available block on a “pulse input Type 1 board”. See Fig 68 below.



2 jumper shunts installed at \$1 jumper pins,

NO shunts at \$5 jumper pins

Fig 68

When you are done making change machine connections, power changer(s) back on and go to page 22 (Configuring Change Machines) to continue.

Type 2 remote pulse unit- GENESIS harness

remote pulse unit wires

usage

Black	Black	power +
White	White	power -
Orange	Red	\$1 vend
Green (either)	Green	vend comm
Green (either)	Brown	out -
Red	Blue	out +

2 shunts at each of the jumper pin sets- see fig 29. Close-up and secure the new connections as best as you can.

Using the supplied Velcro, anchor the remote pulse unit out of the way in the cabinet. The following connections will have to be made from the remote pulse unit output screw terminals to the pulse input connection at the main CHANGERVUE unit using a multi-conductor cable. At the remote unit, connect separate wires to terminals #1, 2, 3, and 5. Tuck the harnesses back into the machine and route the CHANGERVUE cable out of the machine cabinet through the opening you chose, or created, earlier. Route and secure the new harness heading toward the CHANGERVUE unit in a neat manner.

Connections at CHANGERVUE-

Route this cable out of the changer cabinet through the hole chosen, or created, earlier. Connect the wires you are using at 'side A' or 'side B' of the pulse input type 2 board at the CHANGERVUE unit. Connect each wire to the same terminal number used at the remote unit. (i.e.- #1-to-#1, #2 -to-#2, etc). See fig. 26.

If this is a “double” changer; repeat for second half. After all connections are made, return power to changer(s).

When finished with change machine connections; go to “configuring change machines” on page 22.

GENESIS 3 conversion kit for American-

These hookups are the same as for American Changer, “Red” board machines.

Setting up Generic Output Circuits

It is purely optional as to whether you use this feature, or not. CHANGERVUE has 2 relay output circuits which you can use to control just about any simple device on site. See left side of Fig 69. The relays each have a normal open, and a normal closed contacts. The action of each of these relays can be controlled at the CHANGERVUE "SYSTEM STATUS" page, either in-person or remotely via your VNC communication ability. The relays can be manually turned ON, manually turned OFF, or PULSED ON for pre-determined time periods. The relays do not supply any voltage for an external wiring circuit. They are used to switch ON /OFF your external circuit(s). The capacity of the relay contacts is safely 5 amps at 250 volts or less. The design of your use, and wiring for these circuits is totally up to you. A word of caution: Whatever you do here will be available to whoever has access to the CHANGERVUE display screen, or access via the VNC remote communication network. The only configuration setup for these circuits is to enter a name of your choice for each used circuit. Leave name box blank for unused circuits.

For each output circuit you setup; its status will be displayed as either "relay ON" or "relay OFF". The operating screen will have four buttons for controlling each output being used: manual ON, manual OFF, and pulse relay ON for 70ms (short pulse), and pulse relay ON for 1-1/2 second (long pulse).

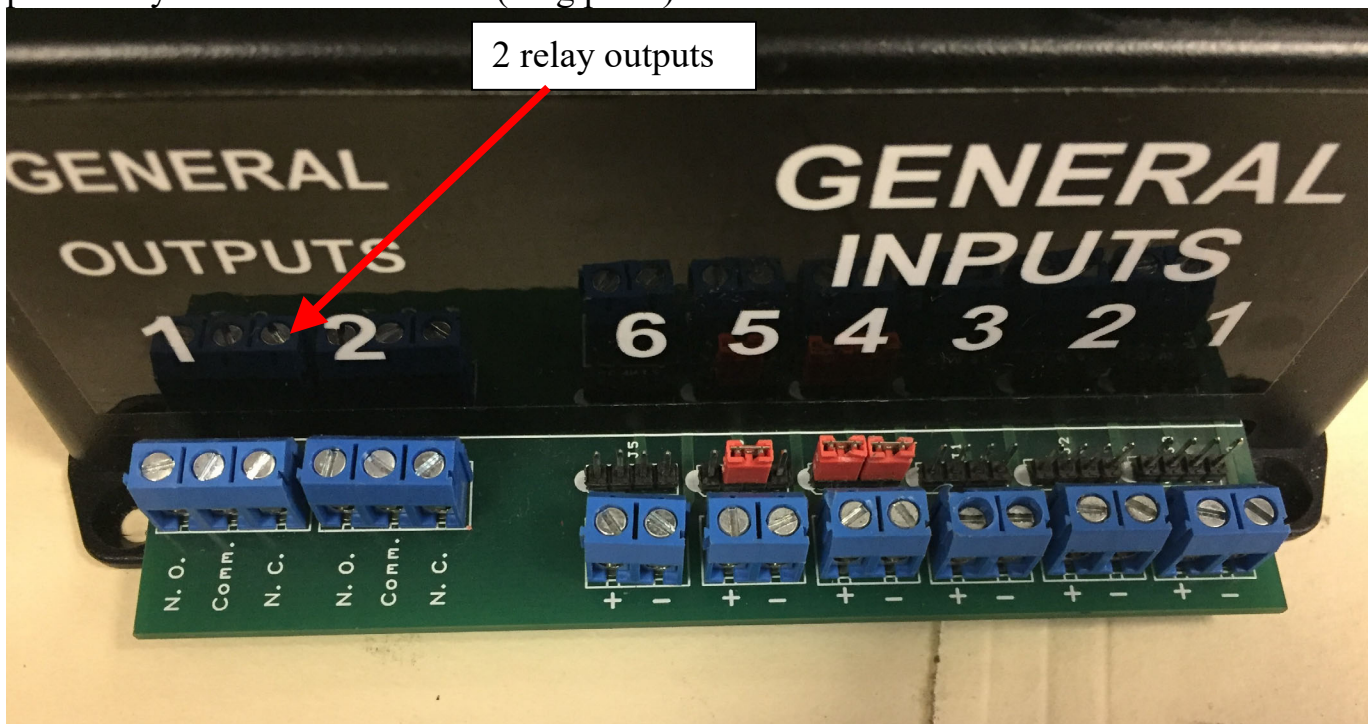


Fig 69

Setting up Generic Input Circuits

CHANGERVUE has 6 generic input circuits available for your imagination. The usage of these circuits is set up with a set of jumper connections for each circuit (later). Each circuit can be used: 1) to monitor an existing voltage of an external circuit, 110volts or less, AC or DC, OR 2) to generate a small 5vdc voltage out to an external circuit containing a switching item; such as a door switch or thermo-disc. A simple example would be a door monitoring circuit. If you used a typical magnetic door switch set mounted to a doorframe, you could monitor if / when that door is opened or closed, and could be emailed about its status. This would be an example of CHANGERVUE supplying a small voltage out to an external switching device and watching the ON/OFF or OPEN/CLOSED action of the circuit. An interesting example of monitoring an external voltage would be to monitor the power at a building outlet near the CHANGERVUE unit. ASSUMING THE CHANGERVUE UNIT AND INTERNET MODEM AND ROUTER ARE ALL ON A UPS BATTERY-BACKUP POWER SUPPLY, you could create an email alert when the power at the monitored outlet goes off. Of course, the internet would have to still be working also.

If you are going to use these features; you need to give your own name to each circuit and also choose from a drop-down list of pre-defined circuit-type uses from below for each. Both of these entries are made on the CONFIGURATION page in the “other inputs” section. Leave entries blank for unused circuits.

Input Circuit types:

1) Switched circuit- normally closed is good (Volts good)

If an external switch device is normally in the “closed position”, then the circuit status is good. If the switch goes “open”, the circuit status will become “alert condition” and an email message will be sent.

2) Switched circuit- normally open is good (NO Volts good)

If an external switch device is normally in the “open position”, then the circuit status is good. If the switch goes “closed”, the circuit status will become “alert condition” and an email message will be sent. This is the exact opposite of #1 above.

3) Door opening alarm

This is a special case of #1 above. This “door circuit” is intended to be a closed-circuit when door is closed. It requires a set of door contacts that are closed when the door is closed. When a “door circuit” goes open (door opened), a timer is started in CHANGERVUE. If someone presses the proper button on CHANGERVUE (PB4 on circuit board) within 15 seconds of door opening; they are assumed to be authorized, and the possible alert is cancelled. This would be similar to the keypad of your building security system. If the CHANGERVUE pushbutton #4 IS NOT pressed in a timely manner; than this is considered an un-authorized entry and an email alert will be sent out. It is the door opening action that triggers the timer, so even if door is quickly closed- the system is already in action. Two jumper shunts on jumper pins typically required for this circuit.

When a door circuit is chosen as a general input; a special control button labeled “reset alert” shows up on its line on the display screen. Pressing this button will return the indicated status of the door circuit to "door closed", if the door is really closed. This is a totally different activity from using pushbutton 4 on the circuit board to cancel a possible alert situation by an authorized person.

4) Counting circuit

When used in this mode, CHANGERVEW can count the number of times a circuit goes from OFF to ON. Count can be reset at touch screen or via remote VNC. There is no alarm associated with this counting situation. “the count” occurs when your external circuit closes, or when voltage is applied to the CHANGERVEW connections. Counting can be done in increments of 1, or 0.25 . When this type of circuit is chosen; a "reset count" button will show on the status viewing screen.

The current status of each of these circuits will be shown on the operating page.

Making input connections: see Fig 70

If your external circuit has its own voltage source and we are simply monitoring it; then you will use 1 jumper shunt at the center 2 pins of the 4-pin jumper header for the input circuit in question (inputs 1-3 below). If CHANGERVEW is supplying a small 5VDC for the external circuit; then you will install 2 jumper shunts on the 4-pin jumper header for the input in question (inputs 4-6 below). Each input circuit has its own 2-screw terminal connection. If you are using a DC circuit; the left screw-terminal shall be “+ voltage” and the right screw-terminal terminal shall be “- voltage”.

After you have made your circuit connections; go to CHANGERVEW and configure each circuit and test that it behaves as you expect.

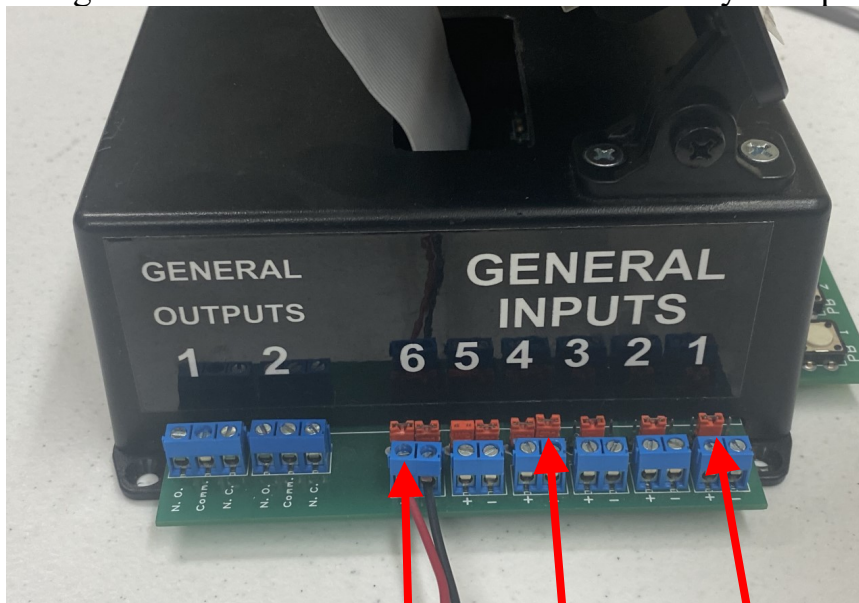


Fig 70

1 set of 4 jumper pins for each general input circuit

APPENDIX A: RealVNC

Setting up a “VNC team” involves: creating an account, adding CHANGERVEW units as sending units (servers), and adding remote “viewing” units to your ‘team’. You will be charged for sending (or server) units.

Setting up a “VNC account”-

Go to Realvnc.com and set up a “professional” account. This account is currently about \$3.39 /month/device (as of 3/21). Setting up the VNC account will require an active email account address and a password that you create for your “team”. The password for this account should not be your email access password. Alternatively, you may want to create a new email account to be used solely for the CHANGERVEW / VNC monitoring. Each time you set up a new device on your ‘VNC team’, VNC will be sending confirmation emails to the account administrator at this address, which needs to be replied to, to allow the new device into you ‘team’.

On the RealVNC.com homepage, select 'products' from the top menu bar- Fig 71.

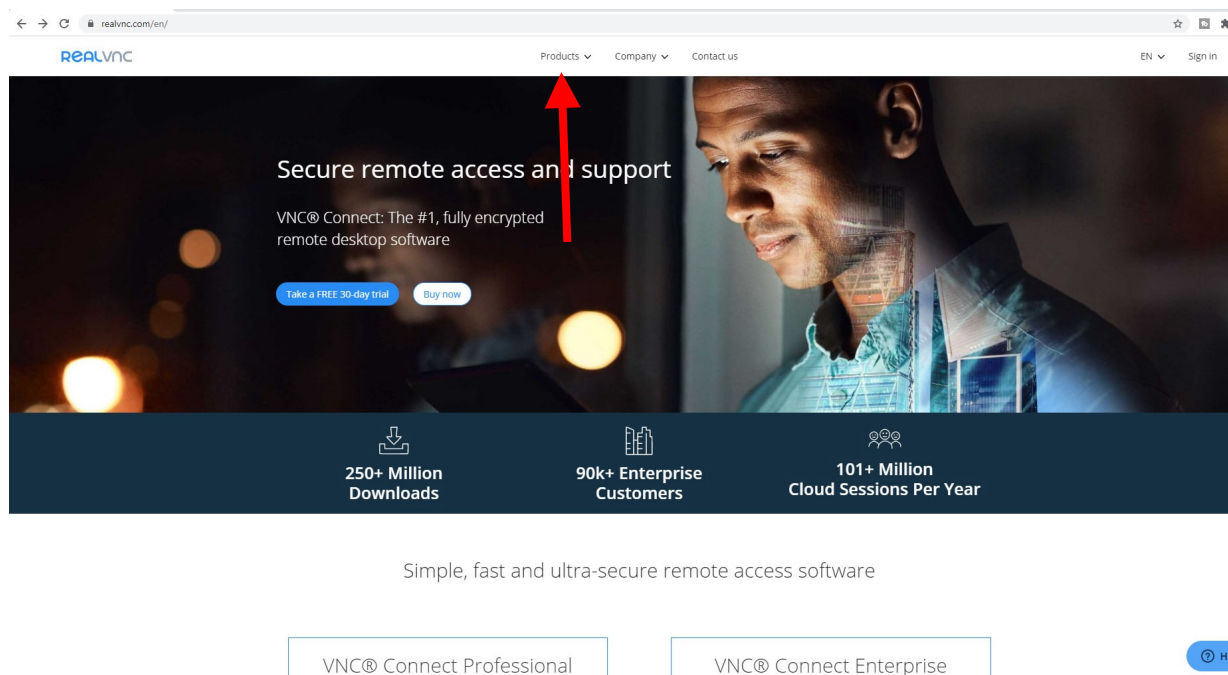


Fig 71
VNC
homepage

Near the bottom of the next page- (Fig 72) shows how to setup your free trial for a professional account. Select it to set up your 'team'. Follow the on-screen directions. Add this sign-in information to your worksheet (page 13, section 3).

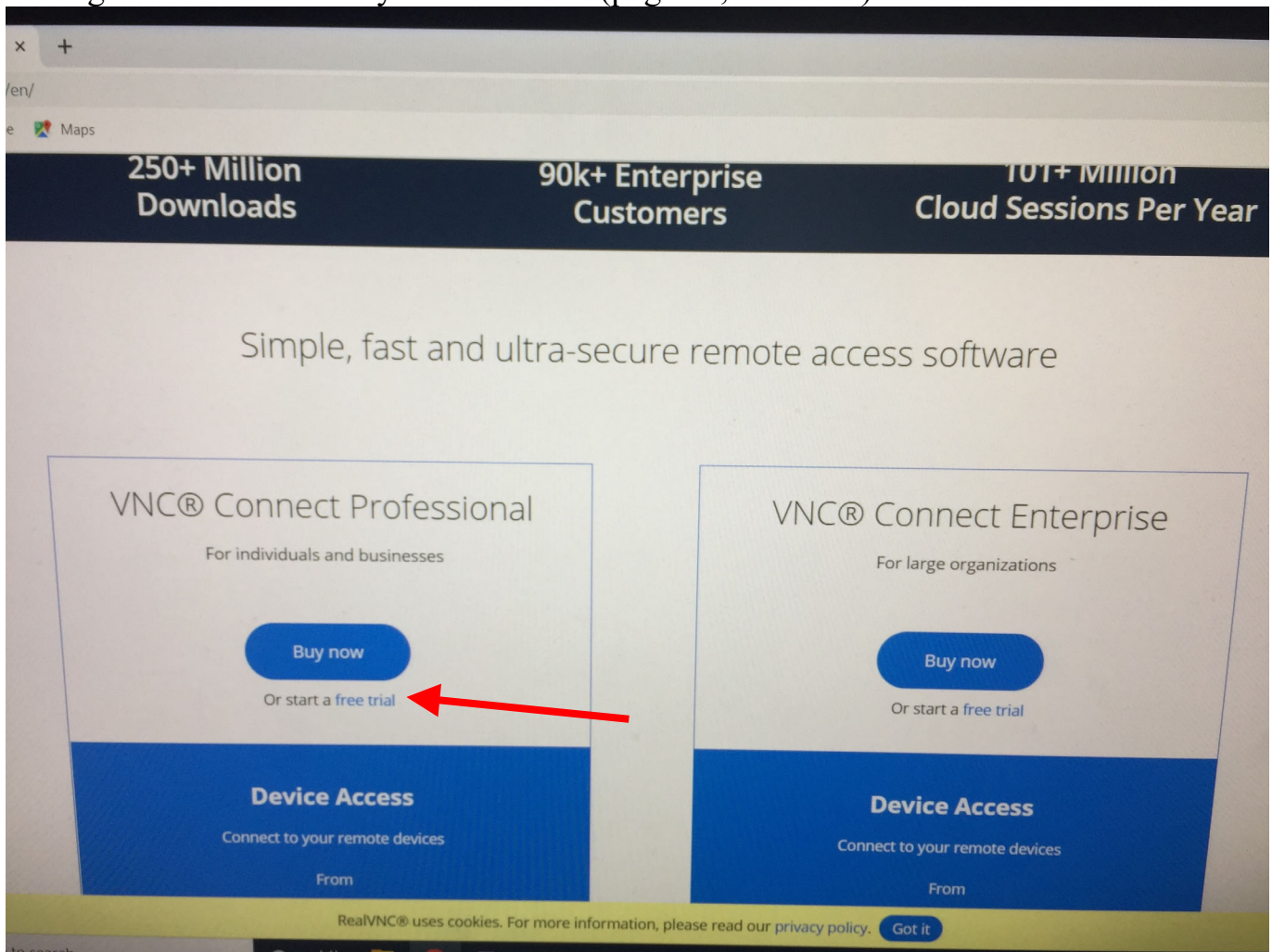


Fig 72

Next, you will add remote “viewing” devices to your account, “team”. When adding remote devices, you will go to this VNC page with each device you want to add, and download VNC Viewer software into it. Near the top of the same page you signed-up from (fig 72); you should select VNC Connect, fig 73.

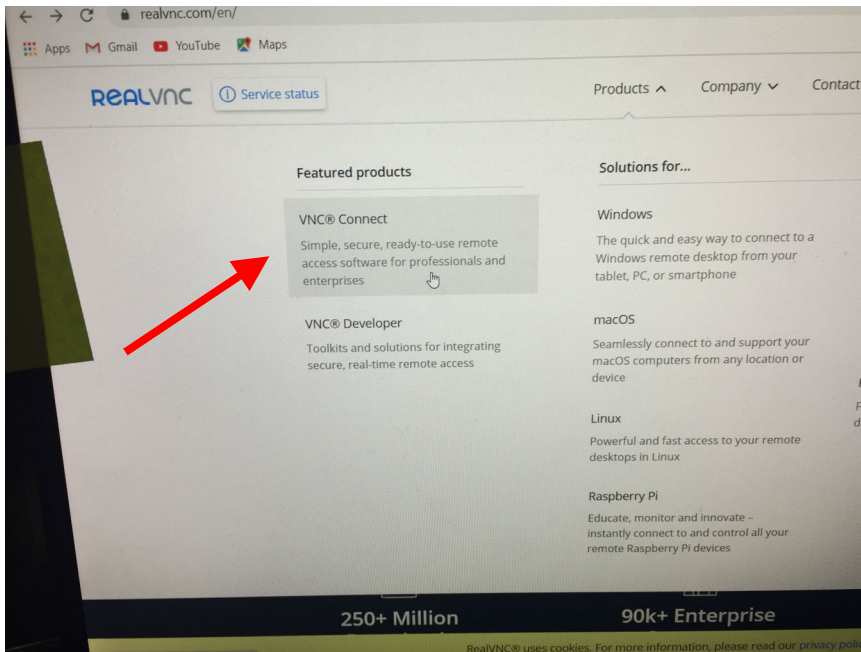


Fig 73

Fig 74- select “downloads”, and then “VNC Viewer” to download the software for your remote devices. Follow screen directions.

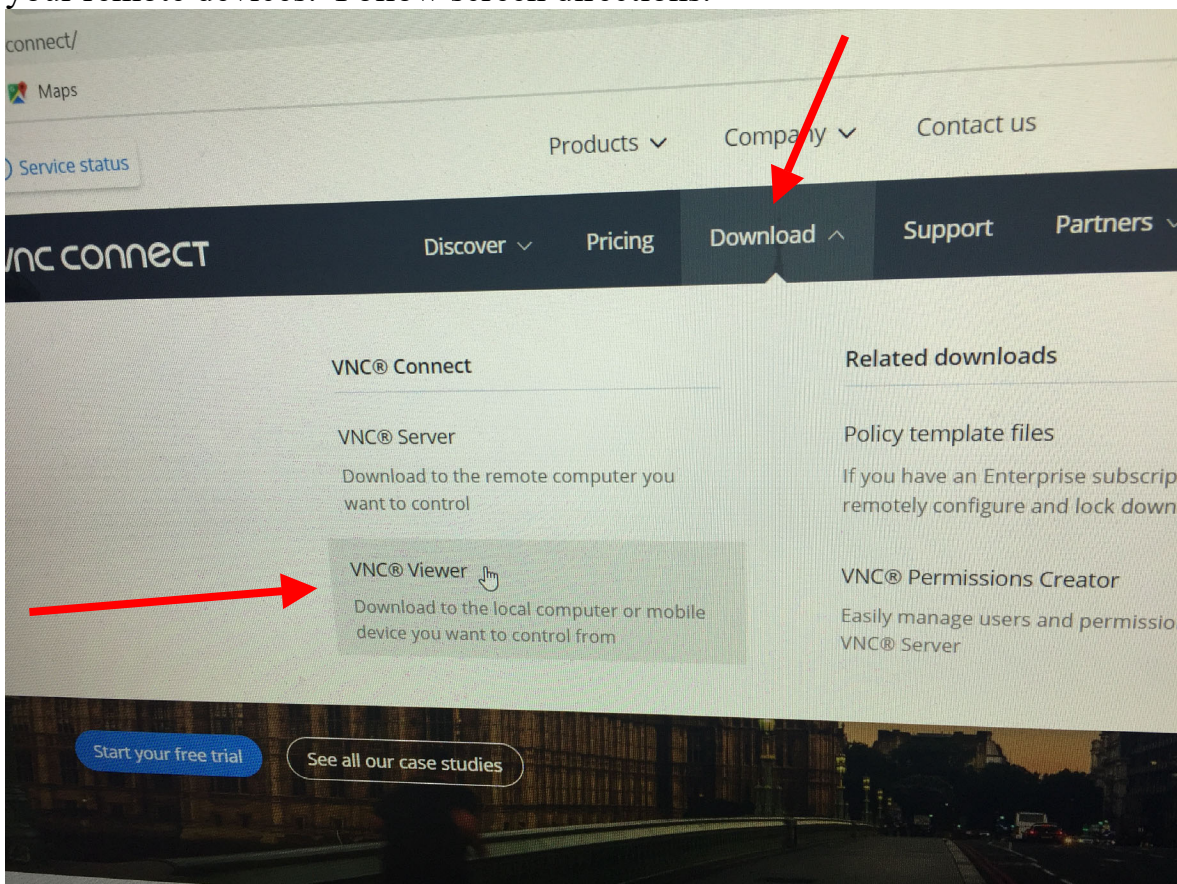


Fig 74

Adding remote ‘viewers’ to VNC account- From the “download VNC viewer” (Fig 74 above) download the appropriate software onto each device you plan to ‘view’ from (iphone, pc, mac, etc). After you’ve added the VNC software to your device; you have to add this device as a user, or “team member” to the account. Log in to your RealVNC

account created above at RealVNC.com. The manager of the account will receive and email to confirm allowing this new device entering the “team”. At this point there are no units to be monitored (servers); but we have gotten some administration out of the way.

Removing devices from VNC account- Go to realVNC.com and log into your account. A list of all of the computer devices on the “team” can be seen, and they can be removed here.

Adding sending (server) units- We will do this later during the physical installations of the CHANGERVEIW units.

Using on a smartphone-

Use single finger to scroll screen left-right.

Use two fingers to scroll screen up-down.

Use finger to move cursur to item you want to use, then tap item.

Here are the RealVNC instructions-

How do I use VNC Viewer for Android and iOS?

[Follow](#)



[Jack RealVNC](#)

October 22, 2018 10:02

Using the app toolbar



If you cannot see the toolbar, try the following (not all actions work on every device):

- Swiping down from the top
- Swiping down with three fingers
- Shaking the device

You can use the Pin toolbar button to lock the toolbar in place.

Using touch gestures to control the remote desktop **Mouse interaction mode (Android and iOS)**

Your finger moves the mouse cursor rather than clicking where you touch, as you might expect with a touchscreen. This gives you precise control of a high-resolution computer desktop.

Gesture	Action	Explanation
---------	--------	-------------



Zoom

Pinch two fingers together to zoom out, or apart to zoom in.



Mouse move

Place one finger on the screen and drag to position the mouse cursor (offset from under your finger so you can always see it).



Left click

Tap with one finger to click the left mouse button at the point the mouse cursor is positioned (not your finger).



Double left click

Tap twice with one finger to click the left mouse button at the point the mouse cursor is positioned (not your finger).



Right click

Tap with two fingers to click the right mouse button at the point the mouse cursor is positioned (not your finger).



Middle click

Tap with three fingers to click the middle mouse button at the point the mouse cursor is positioned (not your finger).



Scroll

Place two fingers on the screen and drag slowly up or down to scroll the current application.



Drag-and-drop or select text

Tap twice, hold the second tap, and drag to move a desktop object (such as a dialog box or icon), or select a specific body of text.

Touch panel interaction mode (iOS only)

Your finger interacts with the remote screen exactly where you tap.

Gesture

Action

Explanation



Zoom

Pinch two fingers together to zoom out, or apart to zoom in.



Left click

Tap with one finger to click the left mouse button at that point.



Double left click

Tap twice with one finger to click the left mouse button twice at that point.



Long press

Tap once and hold to long press for the required duration.



Drag-and-drop or select text

Tap, hold and drag to move a desktop object (such as a dialog box or icon), or select a body of text.



Pan

Place two fingers on the screen and drag to pan.

Was this article helpful?

Higher account Security-

VNC offers higher levels of security for your account. Here is where you can find the setup directions- <http://help.realvnc.com/hc/en-us/articles/360003110878#enabling-2-step-authentication-0-0> . This is a system by which every time you try to login to your account; a message will go to your smart phone which must be responded to.

APPENDIX B: Emailing

Here are some common settings for your “sending email host”. If your email service is not on this list, or it doesn't work; look in your email account settings after logging into it, or contact your service provider. This is a published list from the internet. We have not confirmed most of these settings.

<u>“Sending email address”</u>	<u>“sending email host”</u>
@1and1.com	smtp.1and1.com
@airmail.net	mail.airmail.net
@aol.com	smtp.aol.com
@att.net	outbound.att.net
@bluewin.ch	smtpauths.bluewin.ch
@btconnect.com	mail.btconnect.com
@Comcast.net	smtp.Comcast.net
@earthlink.net	smtpquth.earthlink.net
@fastmail.fm	mail.messagingengine.com
@gmail.com	smtp.gmail.com
@gmxdn.net	mail.gmx.net
@godaddy.com	smtpout.secureserver.net
@hotpop.com	mail.hotpop.com
@icloud.com	smtp.mail.me.com
@libero.it	mail.libero.it
@lycos.com	smtp.lycos.com
@mail.com	smtp.mail.com
@msn.com	smtp.office365.com
@o2.com	smtp.o2.com
@tin.it	mail.tin.it
@tiscali.co.uk	smtp.tiscali.co.uk
@verizon.net	outgoing.verizon.net
@virgin.net	smtp.virgin.net
@wanadoo.fr	smtp.wanadoo.fr
@yahoo.com	smtp.mail.yahoo.com

Setting up an email account for use with Changerview-

In general, you should log into your email account and look for certain settings. ENABLE “pop” and “IMAP”; usually found under a “forwarding” section. Also look for some setting that will allow 'less secure' devices to connect.

Specifically for an “gmail” account- Log into your account and find the settings menu- usually in the upper, right corner of page. Under the “forwarding” category- enable “POP” and “IMAP”. Under the “security” category on the right side of the page; near the bottom

of the new page- allow "less secure apps" to access account. This should head-off most issues later.

If the above details are not dealt with; you (as the owner of the account) may get some sort of security email indicating the some device (CHANGERVEW) just tries to sign-in to the account and was denied access.

APPENDIX C: ADVANCED FEATURES

NO DISPLAY SCREEN-

You can operate the CHANGERVUE system with the display screen blank if the unit is mounted where you don't want "prying eyes" to see what's going on. In this case, you can still:

- monitor and control remotely through VNC

- receive email alerts

- Pushbutton 1 (PB1) can generate a STATUS email report on demand

- Pushbutton 3 (PB3) can generate an AUDIT email report on demand

- Pushbutton 4 (PB4) can cancel door alert(s)

To use this 'dark screen' feature, setup CHANGERVUE as normal with display working. Once everything is configured as you want; remove power to CHANGERVUE.

To turn off the display; there should be no power connection at "B". Power needs to be at "A" for computer to work. "C" is where the incoming power cable connects to system. See Fig 75. If you are planning to run with the display off, remove the "Y" connection cable between "A, B, C". Install the power cable that was originally at "C" directly into the connector at position "A". Store the "Y" harness in a safe storage place. DO NOT LOSE.

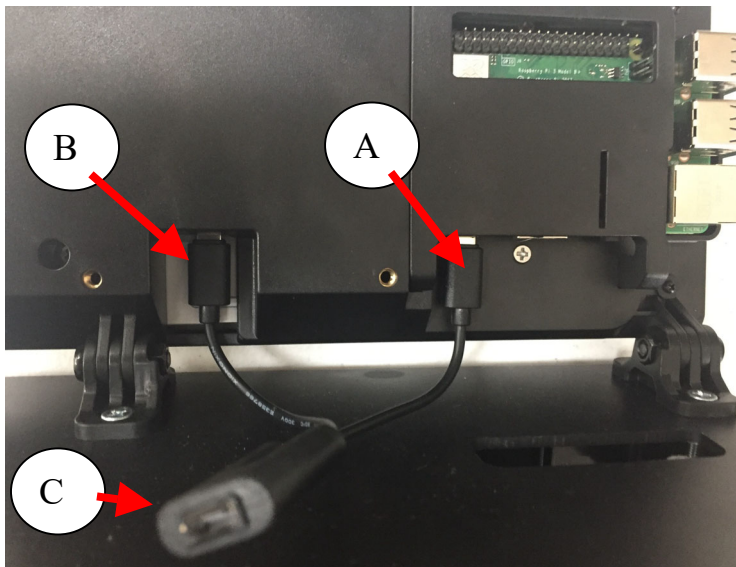


Fig 75- Backside of display case Showing power connections.

If you need to remove the ribbon cables from the back of unit; be sure to re-install properly on both rows of pins.

Once you have finished the wiring change, power up CHANGERVUE unit. It will take about 15 seconds to boot up (same as before) and the display will be blank (dark). Operation will be normal when viewed remotely through your VNC connection.

If you want to show display again, reverse the above procedure. Make sure the power is off when you do this.

MONITORING INDIVIDUAL HOPPERS-

It is possible to monitor the payout from some individual coin hoppers, if needed, for some machines. The monitoring will be done through the CHANGERVUE general inputs. As such, you can count in units of 1, or quarters (\$0.25). These counts WILL NOT trigger any alerts for "low coins", like the change machine inputs do. You will have to manually monitor these count levels yourself.

If you are looking for exact usage of hopper coins- this is the best way to do it.

Standard-

EC series and EC+ series-

If you need to monitor the coin output for an individual hopper in an EC, or EC+ machine; you will have to splice into the hopper harness near the main controller. Use the tap-on connectors discussed on pages 26-27, or something similar and attach enough wire to reach your CHANGERVUE unit's General Inputs area.

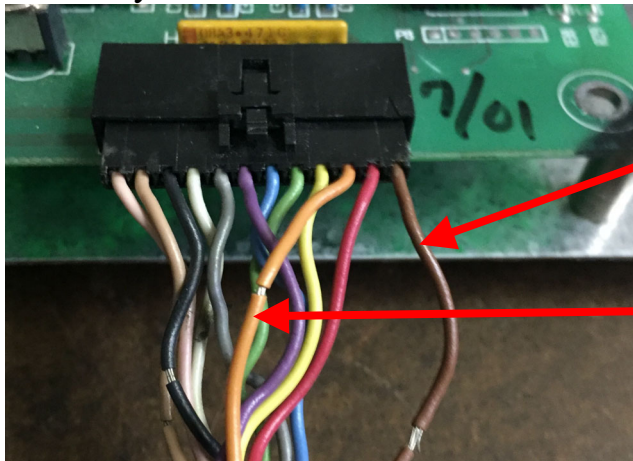


Fig 76- hopper harness of
STD EC, EC+.

#1 wire- brown

#3 wire- orange

EC(+) hopper harness

#1 brown

#3 orange

CHANGERVUE Input connections

input "+" terminal

input "-" terminal

Use 2 jumper shunts on input pins.

If the changer is turned OFF / ON, or hopper harness is disconnected; 'false counts' will be created.

Name the Input you have just connected to, and set the "input type" to "counter x 0.25" (assuming 25c in hopper). The result will be the value of coins coming out of this hopper.

MC series-

If no coin counter connected to hopper board-

Use our optional “standard MC hopper coin harness” to connect to each hopper circuit board you wish to monitor. See fig. 78 or 80. The connection at the CHANGERVUE general input is shown in Fig 81.

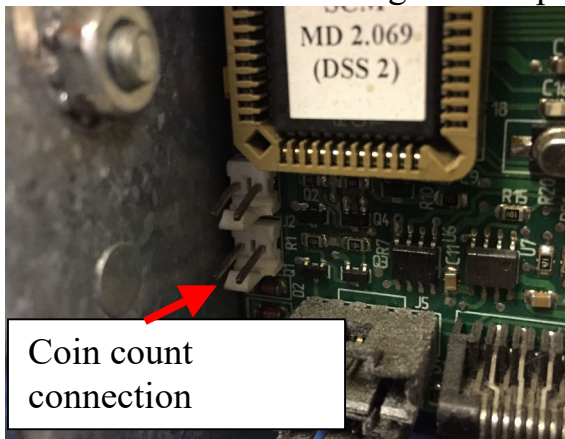


Fig 77- older style MC hopper bd.

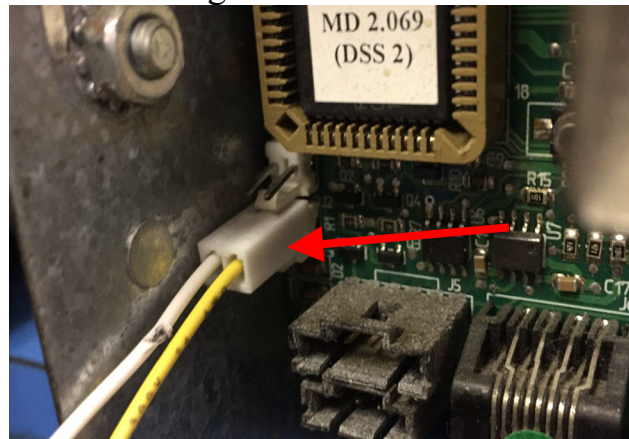


Fig 78- older style MC bd. With counting harness installed

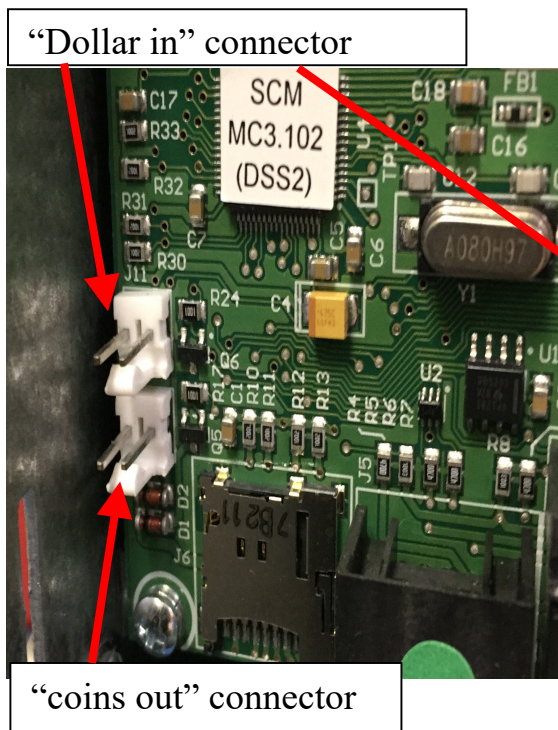


Fig 79- newer MC hopper bd

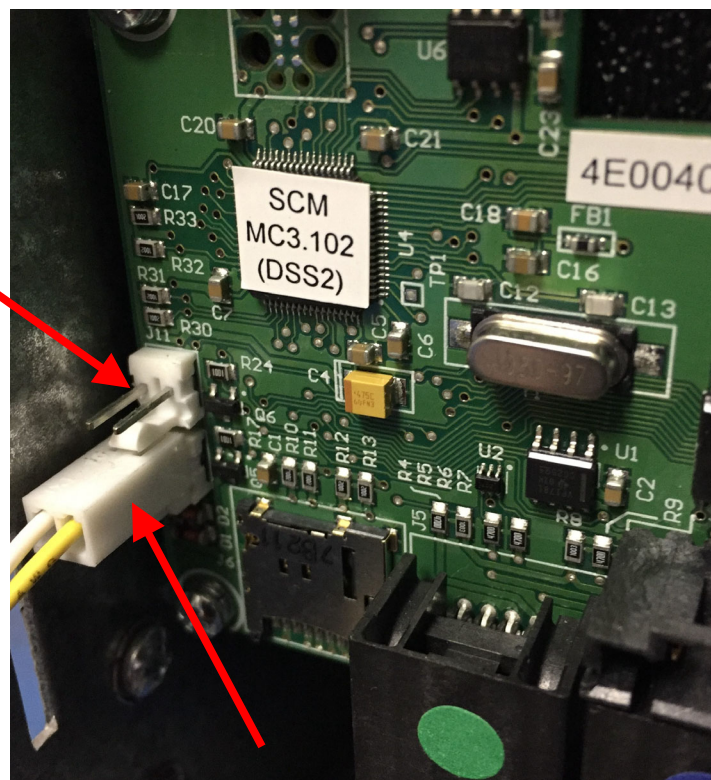


Fig 80- newer style, harness for “coins out”.

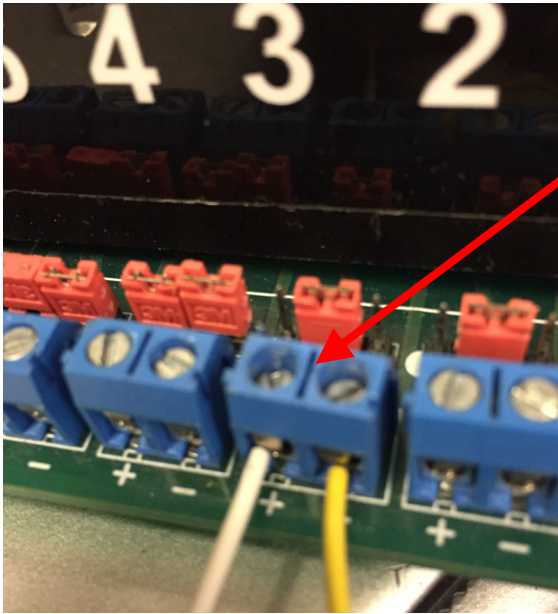


Fig 81
connections at CHANGERVUE:
harness white to "+" terminal
harness yellow to "-" terminal
1 jumper shunt at center of jumper
pins

If coin counter is connected to hopper board-

Counter harness

Left wire

Right wire

CHANGERVUE input terminals

input terminal +

input terminal -

1 jumper at center of 4-pins

Name the Input you have just connected to, and set the "input type" to "counter x 0.25" (assuming 25c in hopper). The result will be the value of coins coming out of this hopper.

SC series-

Monitoring individual hoppers not recommended.

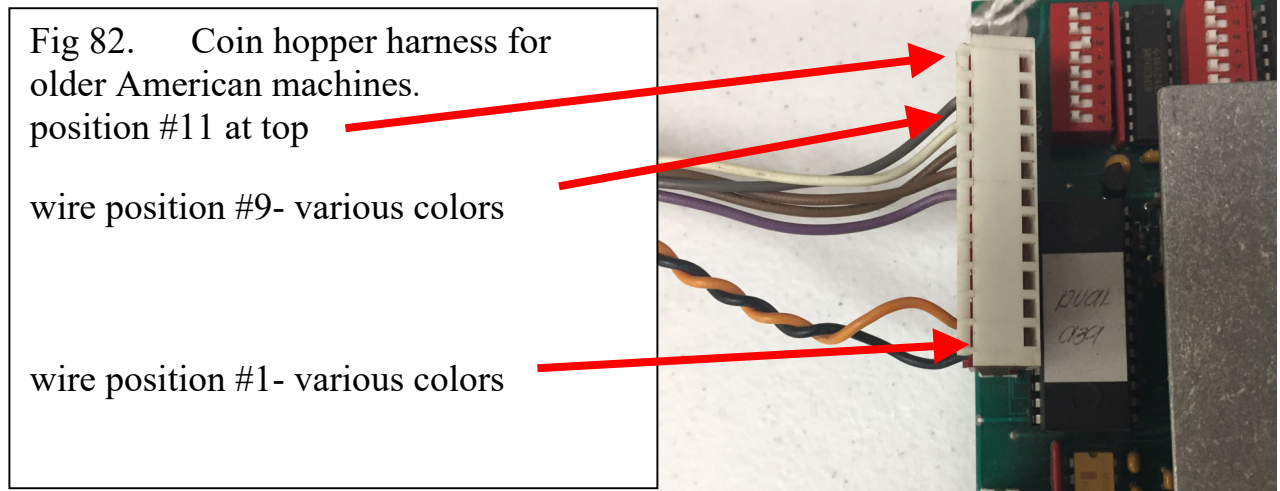
Hamilton changers-

No monitoring of individual coin hoppers.

AMERICAN CHANGER-

Older "RED number" boards, or Genesis 3 boards-

You will connect to the hopper harness near the logic control board. See Fig 77.



Connect into this hopper harness using to tap-on connections described earlier on pages 26-27. You will need 2 wires long enough to connect back to the General Inputs of the CHANGERVUE control box. Connections as follows:

hopper harness

wire #1

wire #9

CHANGERVUE General Input

input "+" terminal

input "-" terminal

use 2 jumper shunts at input

Name the Input you have just connected to, and set the "input type" to "counter x 0.25" (assuming 25c in hopper). The result will be the value of coins coming out of this hopper.

American Universal bd. (green display screen)-

Can not monitor individual hopper payouts.

The SPECIAL CASE of monitoring a Standard MC machine as “pulse-type”

USING PULSE INPUT BD-

If you don't have an MDB input connection available on the CHANGERVUE unit, a secondary method exists to monitor a STD MC as pulse-type. You will need 4 new connection wires running from the change machine to the CHANGERVUE unit input connections.

Tap into the 2 wires of the out light harness using the tap-on connectors discussed on page 24. These will connect back to the CHANGERVUE pulse input connections at “out -“ and “out +”. Machine Red -> CHANGERVUE "out +", machine Black -> CHANGERVUE “out -"

You will connect to the “bills in” connector pins on the hopper control bd, see fig 79,80. You must connect to the “Primary hopper”. If there is a counter harness install here already- splice into the counter wires, and connect back to CHANGERVUE. IF there is no counter installed, use the optional counting harness for Standard MC machines to connect here and back to the CHANGERVUE input you have chosen. The white wire of the harness should connect to the “\$1 vend” screw terminal, and the yellow wire should connect to the “vend comm.” Terminal.

MC connections

Out light Red
Out light Black
Counter left
Counter right

CHANGERVUE PULSE INPUT BD

out +
out -
\$1 vend
vend comm.

If you spliced onto a counter for the 'bills in', install 1 jumper shunt at the center of the \$1 jumper pins. If you wired straight to the 'bills in' connector with our Standard MC harness; install 2 jumper shunts at the \$1 jumper pins on the input board. Two additional wires need to be added at the terminal connect block, see fig 83

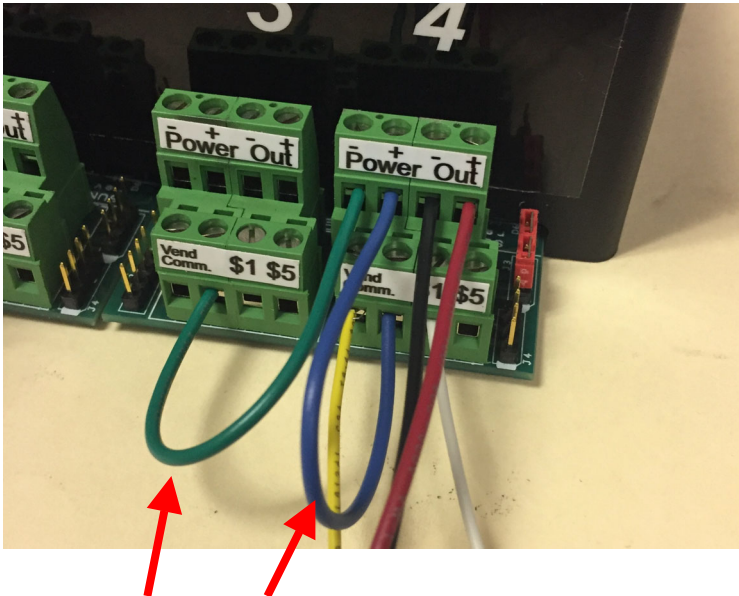


Fig 83

Two extra jumper wires need to be added for this special case. In this photo, they are the Green and Blue wires.

Automatic Carwash Controllers-

The only real use here might be to monitor the “out of order” status of the carwash controller, if you don’t already. The biggest problem here is going to be getting 2 wires from inside the controller cabinet back to the CHANGERVUE unit location.

The c.w. controller should have either an out of order light, or some set of contacts to use as an OUT signal. Connect whatever signal source you have via 2 wires to a CHANGERVUE general input. If the c.w. controller is supplying voltage; you will use 1 jumper shunt at the center of the inputs 4 jumper pins. If the c.w. controller is using a contact set for a signal, you will be using 2 jumper shunts at the inputs jumper pins.

Self-Serve Carwash bays

Here again, your biggest problem is going to be getting 2 wires out of each bay vault and back to the CHANGERVUE unit. The typical method of hooking up this connection would be to connect to the two wires (vend, and common), which go between the bay timer and the bill acceptor (or coin acceptor). Connect these wires to the CHANGERVUE input you have chosen. Observe polarity of the connections. The bay timer common -> Changervue input “-“, and bay vend signal (normally +volts) -> Changervue “+”. Our testing was done with a Para Plate timer and Slugbuster acceptor and SecureCoin acceptor.

In our testing, the Slugbuster required 2 jumper shunts at the input jumpers, and the SecureCoin required 1 jumper shunt. You will have to experiment for your situation.

The connections should be the same with a bill acceptor. Making connections “live” and turning equipment OFF/ON may cause occasional false counts. Be sure to label the input you are using, and set the ‘input type’ to either “counter x 1” or “counter x 0.25”; whichever is appropriate.

APPENDIX D: Refunds

It is possible in many cases to use CHANGERVUE to give customer refunds through the change machines. THIS IS NOT A FRIVOLUS MATTER, AND SHOULD NOT BE TAKEN LIGHTLY. IF you use these connections; you are giving up full control of the money locked in the changer to anyone having access to the STATUSVIEW unit, either in-person, or remotely.

IF YOU ARE USING “PULSE TYPE 2” AND MAKING REFUNDS- NOTE THIS: THE TWO WIRES FOR THE REFUND OPERATION NEED TO BE ABOUT 3’ LONGER THAN THE REST OF THE CONNECTING WIRE; SO CUT YOUR CONNECTION CABLE LENGTH AT THE LONGER LENGTH. AT THE CHANGERVUE END- MOST WIRES WILL END AT THE PULSE INPUT CONNECTION BOARD; BUT THE TWO FOR REFUNDS WILL EXTEND AROUND THE UNIT TO THE OUTPUT RELAY CONNECTION TERMINALS. AT THE CHAGE MACHINE END; THE TWO REFUND WIRES WILL EXTEND PAST THE REMOTE PULSE UNIT OUTPUT, AND CONNECT INTO THE MACHINE WIRING (OR INPUT TERMINAL SCREWS OF THE “REMOTE UNIT INPUTS”) AS SPECIFIED BELOW.

THE WIRE CONNECTION FOR REFUNDS ARE THE SAME AS SPECIFIED BELOW, WITH THIS LENGTH ALLOWANCE. WHERE BELOW CONNECTION ARE TO "PULSE INPUT BOARD"- THEY WILL NOW BE AT "INPUT SIDE OF REMOTE PULSE UNIT".

Change Machine connections- "pulse type 1" hardware

Hamilton changers-

You will need enough wire to connect from the General relay outputs to the pulse input board where your Hamilton currently connects to CHANGERVUE. Use the "n.o." and "comm" terminals of one of the general relay outputs on CHANGERVUE. Connect these with wire to the pulse input bd. where your Hamilton changer is already connected to.

relay output connection

"comm" terminal

"n.o." terminal

pulse input board

"vend comm" terminal

" \$1 vend" terminal

On the CHANGERVUE Configuration page; name the output you have just created. Pressing the “short pulse” button of the output relay gives \$1 refund at machine. This refund WILL show up in the machine audits as “money in”. The number of REFUNDS can not be kept separately from total dollar counts.

American red number logic bd.-
Genesis 3 controller for American-
Genesis kits for Rowe or Standard-

These all are similar to Hamilton above.

American later Universal board (green display screen)- see your American documentation

For maneuvering the program and buttons. This setup procedure requires machine programming and is a bit strange! Your unit has an MDB bill acceptor plugged into a 4-wire connection on the right side of the control board.

Program for pulse-type bill acceptor-

Hardware / valid / pulse / 1 / enable Hi

Then, program for an MDB acceptor-

Hardware / valid / MDB / 1

Then power off unit, and turn back on.

Install our optional "ACC refund harness" at position J11 on circuit board.

See Fig 84 below.

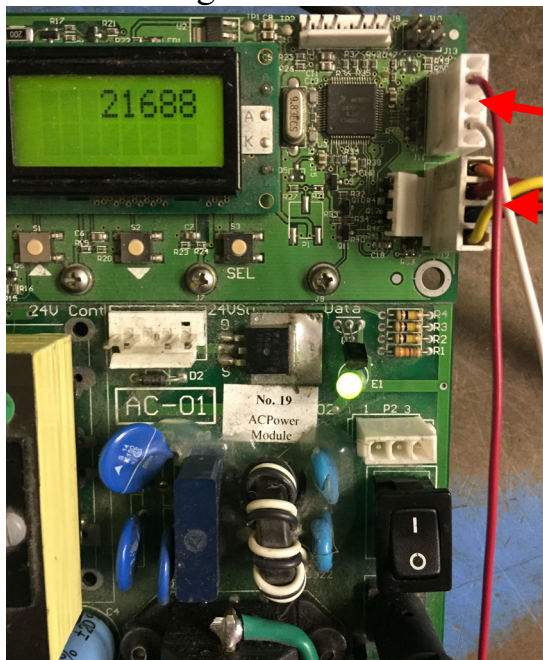


Fig 84

New refund connection at J11

Existing MDB bill acceptor connection.

You will need enough wire to connect back to the CHANGERVUE unit.

refund harness

red wire

white wire

CHANGERVUE Relay Output

"n.o." terminal

"comm" terminal

On the CHANGERVUE Configuration page; name the output you have just created. Use the "short pulse" button on the CHANGERVUE screen to give a \$1 refund. This refund will not show up in the CHANGERVUE bill counts, nor the American screen count.

If you see fit to keep track of the number of refunds given; you will have to jumper with new wires from relay output used above, to a general input. See Fig 85 below.

relay connection

"n.o." terminal

"comm" terminal

Input connection

input "-" terminal

input "+" terminal

2 jumper shunts at jumper pins

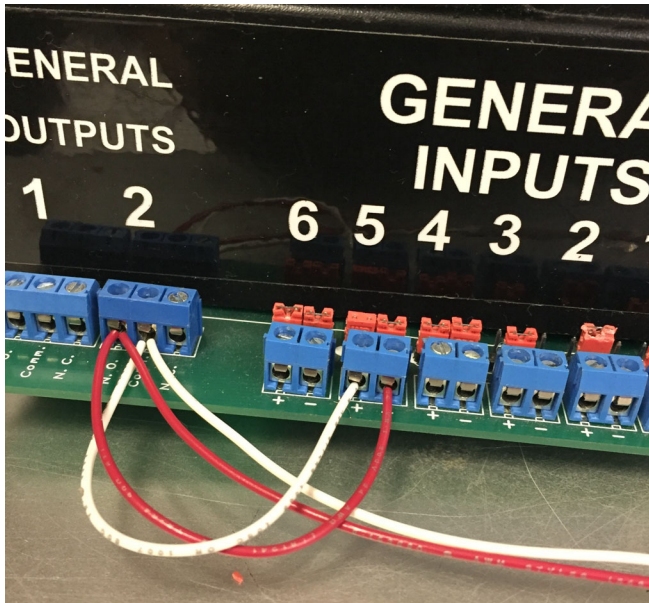


Fig 85

Name the input you just created on the Configuration page, and configure the input you just created as "counter x \$1". This input will now be counting the number of \$1 refunds are given out.

Rowe BC series: 100, 200, 1200, 1400, 3500-

Use the "n.o." and "comm"

terminals of one of the general relay outputs on CHANGERVUE and make the following connections to the Rowe machine harness at the power supply:

If the lowest Rowe payout is \$1; use the center bucket test vend (\$1).

Connect the CHANGERVUE relay outputs to Rowe connector J1-#2 (V/W), and J2- #8 (black).

If the lowest Rowe payout is < \$1, use the left bucket (\$1). Connect the CHANGERVUE relay outputs to Rowe connector J1- #1 (R/W), and J2- #8 (black).

These connections are for a \$1 refund when the output relay is activated by the "short pulse" button. These refunds WILL NOT show up in the CHANGERVUE audit counts.

Standard 500E/600-

Use the "n.o." and "comm" connections of the relay output on CHANGERVUE. Order our optional "coin input connector" for the Standard machine. Plug our optional connector into the 10 pin connection on the side of the acceptor, near the front. Use the ORANGE and YELLOW wires for \$1 refund, or ORANGE and RED wires for 25c refund. Use control "short pulse" button to issue refund. These refunds WILL SHOW UP in audit counts. See Fig 86 below.

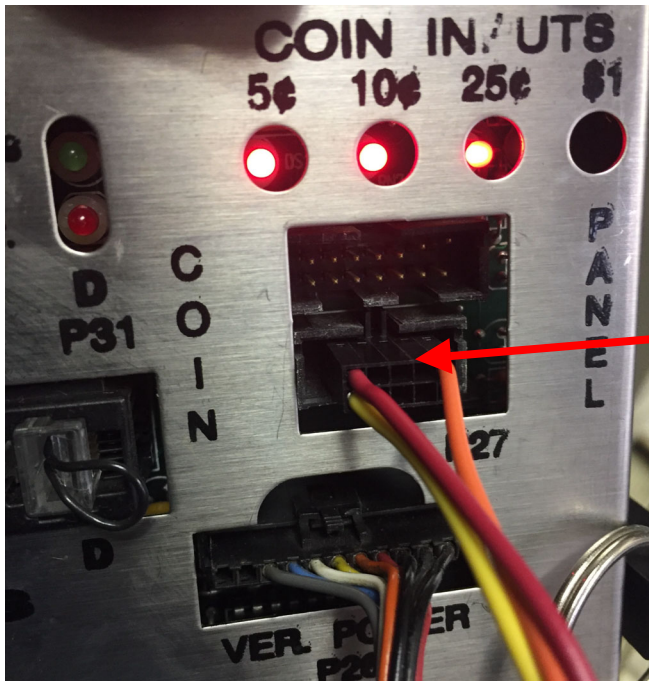
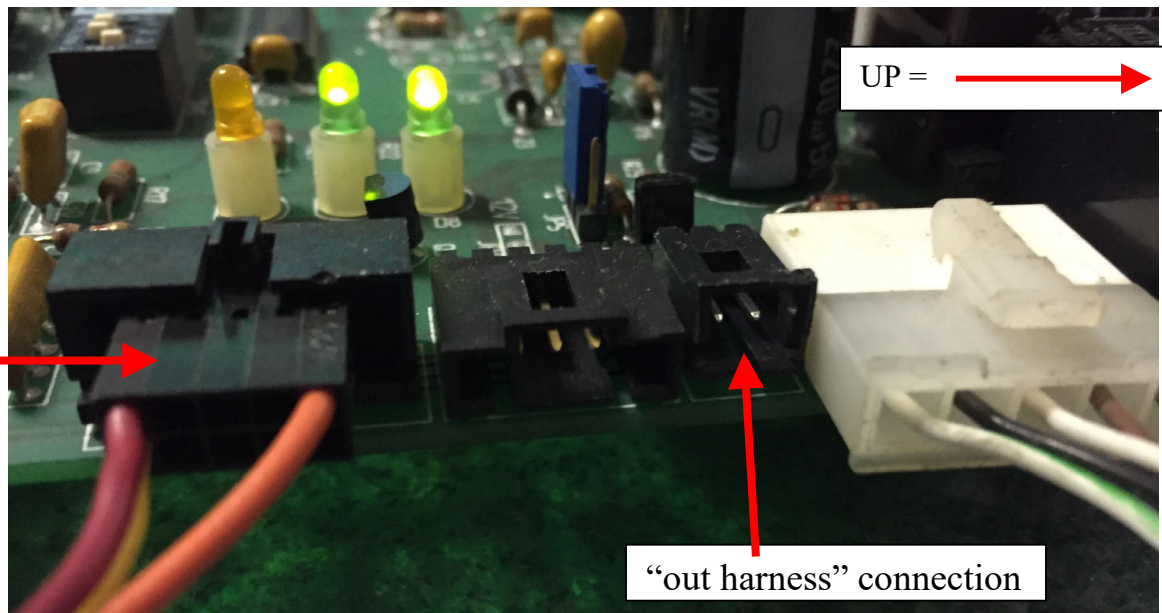


Fig 86
Coin refund harness
installed.

Standard EC / EC+ series-

Similar to 600 above; except point of connection to EC controller is on right side of controller below "out" harness connection point. These refunds do not show up in the CHANGERVEIW counts. See Fig 87 below.

Fig 87 -
Connector
harness for
refunds.
(controller
shown
with cover
off).



"out harness" connection

Standard MC series- no refunds

NO REFUNDS-

Rowe Century series

Appendix E- MDB reference

The typical MDB communication setup includes 5 wires: 2 for power and 3 for communication. With CHANGERVEW we are interested in the 3 communication wires. The industry-standard MDB connector is shown below in fig. 88.

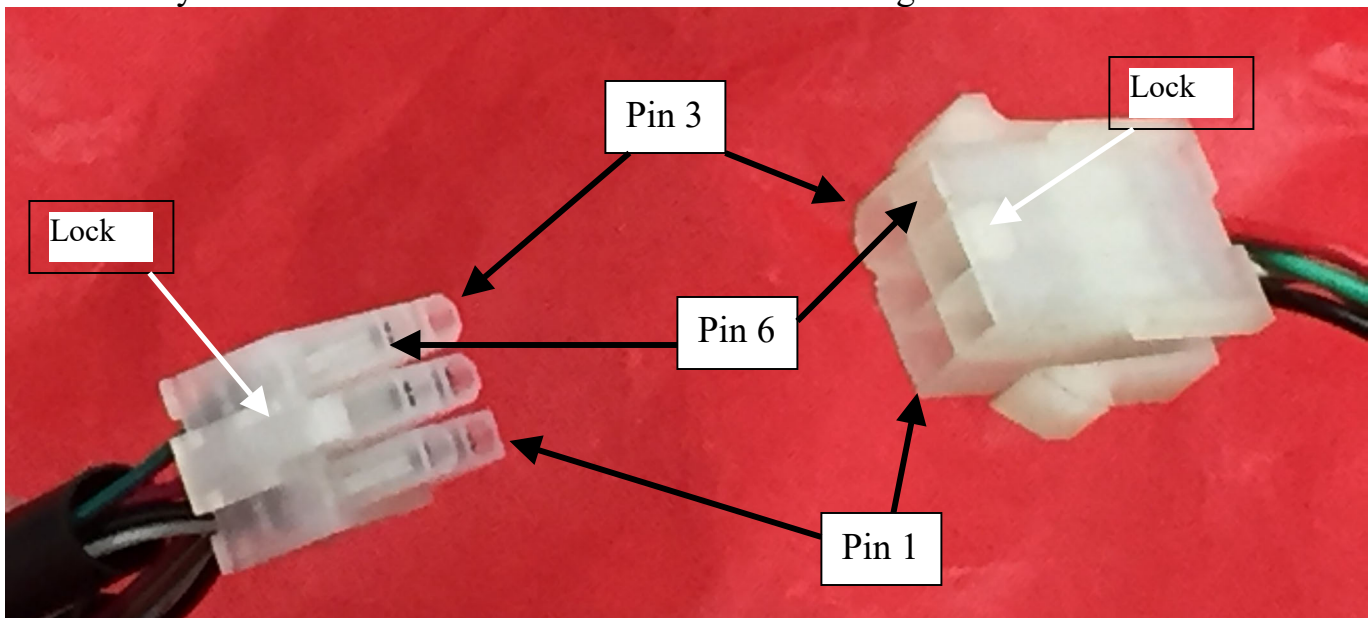


Fig 88

Pins 1 and 2 should be power. Pin 3 should be empty.

Pin 4 = master RX

Pin 5 = master TX

Pin 6 = communication ground

goes to CHANGERVEW screw-terminal #1

goes to CHANGERVEW screw-terminal #2

goes to CHANGERVEW screw-terminal #3

Some American Changer machines have MDB harnesses WITHOUT these standard connections. Fig. 89 shows an American Changer logic board and the MDB bill acceptor connection point.

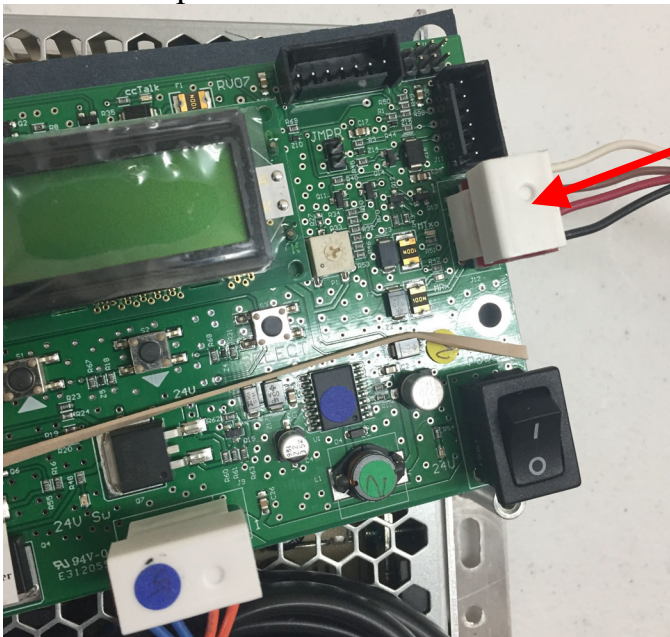


Fig 89

Connection for MDB bill acceptor.
(four pin connector)

Top wire = power

2nd down = communication ground

3rd down = master TX

bottom wire = master RX

If you are connecting to this harness;
reference wire positions- NOT
COLORS.