

C600 Theatre Organ Project Part-5

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Appendix. Stop-Linking Table.

The rank numbering scheme is mine. It does not have any great significance but allows quicker identification of each rank when choosing the stops.

Hauptwerk V2 Tab definitions. Custom for C600 Theatre Organ

All tabs that could drive Hauptwerk Virtual Organ stops, couplers, or controls. (Classic couplers are used). Some unused stops are 'borrowed' for use as MIDI effects pistons.

Hauptwerk must be configured to receive stop messages as note-on/off data on the indicated channel.

Use channels 1-64 to send to appropriate Expander MIDI port.

(in this organ, only 62-64 are used, in Port-D).

Tab# on console (1-192)	MIDI Ch. (1-64) (64= 'D' Ch-16, 63= 'D' Ch-15, 62= 'D' Ch-14)	Console Stop# (Note#: 0-127)	Hauptwerk Division# (0-7). (0=Pd, 1=Ac, 2=A2, 3=Gt, 4=G2, 5=P2, 6=So,) (7 is for Control-only, e.g., Couplers, Trems., Effects)	Console Division Name, Name of Console stop, coupler or control	Rank # (S=Solo, M=Main) (My Numbers)	Name of Hauptwerk division	Hauptwerk Tab # in div.	Pitch & Name
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'D' Channel-16 =64:

Tab-1	64	0	0	Pd	Not Fitted			
Tab-2	64	1	0	Pd	Not Fitted			
Tab-3	64	2	0	Pd	English Post Horn	16'	S01	Pd 03 16' Double English Horn
Tab-4	64	3	0	Pd	Tuba Profunda	16'	M01	Pd 04 16' Ophicleide
Tab-5	64	4	0	Pd	Saxophone	16'	S13	Pd 05 16' Oboe Horn
Tab-6	64	5	0	Pd	Diaphone	16'	M03	Pd 05 16' Diaphone
Tab-7	64	6	0	Pd	Diapason	16'	S03	Pd 06 16' Diaphonic Horn
Tab-8	64	7	0	Pd	Tibia Clausa	16'	M04	Pd 08 16' Tibia Clausa (M)
Tab-9	64	8	0	Pd	Contra Viol	16'	M06/7	Pd 10 16' Bass Strings (2r)
Tab-10	64	9	0	Pd	Bourdon	16'	M11/12	Pd 14 16' Bourdon
Tab-11	64	10	0	Pd	English Post Horn	8'	S01	Pd 15 8' English Post Horn
Tab-12	64	11	0	Pd	Tuba Mirabilis	8'	M01	Pd 17 8' Tuba Horn
Tab-13	64	12	0	Pd	Octave	8'	M03	Pd 18 8' Open Diapason
Tab-14	64	13	0	Pd	Not Fitted			
Tab-15	64	14	0	Pd	Not Fitted			
Tab-16	64	15	0	Pd	Not Fitted			
Tab-17	64	16	0	Pd	Not Fitted			

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Tab-18	64	17	0	Pd Tibia Clausa	8'	M04	Pd	21	8' Tibia Clausa (M)
Tab-19	64	18	0	Pd Cello	8'	M06	Pd	26	8' Gamba (2r)
Tab-20	64	19	0	Pd Flute	8'	M11/12	Pd	30	8' Concert Flute
Tab-21	64	20	0	Pd Flute	4'	M08/09	Pd	28	8' Salicional (2r)
Tab-22	64	21	0	Pd Bass Drum		S01	Pd	33	Bass Drum
Tab-23	64	22	0	Pd Snare Drum		S02	Pd	34	Kettle Drum
Tab-24	64	23	0	Pd Crash Cymbal		S05	Pd	36	Crash Cymbal
Tab-25	64	24	0	Pd Cymbal		S06	Pd	37	Tap Cymbal
Tab-26	64	25	0	Pd Triangle		S14	Pd	38	Triangle
Tab-27	64	26	7	Pd Accomp-to-Pedal	8'				
Tab-28	64	27	7	Pd Great-to-Pedal	8'				
Tab-29	64	28	0	Pd <i>Not Fitted</i>					
Tab-30	64	29	0	Pd <i>Not Fitted</i>					
Tab-31	64	30	7	Pd <i>Not Fitted</i>					
Tab-32	64	31	7	Pd <i>Not Fitted</i>					
Tab-33	64	32	1	Ac English Post Horn	8'	S01	Ac	01	8' English Post Horn
Tab-34	64	33	1	Ac Tuba Mirabilis	8'	M01	Ac	03	8' Tuba Horn
Tab-35	64	34	1	Ac Brass Trumpet	8'	S02	Ac	02	8' Brass Trumpet
Tab-36	64	35	1	Ac Saxophone	8'	S05	Ac	10	8' Saxophone
Tab-37	64	36	1	Ac Diaph. Diapason	8'	M03	Ac	05	8' Open Diapason
Tab-38	64	37	1	Ac Tibia Clausa	8'	M04	Ac	08	8' Tibia Clausa (M)
Tab-39	64	38	1	Ac Clarinet	8'	M05	Ac	09	8' Clarinet
Tab-40	64	39	1	Ac Oboe Horn	8'	S13	Ac	16	8' Oboe Horn
Tab-41	64	40	1	Ac Solo String	8'	S09/10	Ac	11	8' Solo String (2r)
Tab-42	64	41	1	Ac Viol d'Orch	8'	M06/07	Ac	13	8' Viol d'Orch (2r)
Tab-43	64	42	1	Ac Viol Celeste	8'	M08/09	Ac	14	8' Salicional
Tab-44	64	43	1	Ac Flute	8'	M11/12	Ac	18	8' Concert Flute
Tab-45	64	44	1	Ac Vox Humana	8'	M13	Ac	21	8' Vox Humana (M)
Tab-46	64	45	1	Ac Octave	4'	M03	Ac	22	4' Octave
Tab-47	64	46	1	Ac Piccolo	4'	M04	Ac	25	4' Piccolo (Tibia M)
Tab-48	64	47	1	Ac Not Fitted					
Tab-49	64	48	1	Ac Not Fitted					
Tab-50	64	49	1	Ac Octave String	4'	S09/10	Ac	26	4' Octave String (2r)
Tab-51	64	50	1	Ac Viol	4'	M06/07	Ac	28	4' Viol d'Orch (2r)
Tab-52	64	51	1	Ac Viol Celeste	4'	M07/08	Ac	29	4' Salicional
Tab-53	64	52	1	Ac Flute	4'	M11/12	Ac	30	4' Concert Flute
Tab-54	64	53	1	Ac Vox Humana	4'	M13	Ac	34	4' Vox Humana (M)
Tab-55	64	54	1	Ac Twelfth (Tibia)	2 2/3'	M04	Ac	35	2 2/3' Twelfth
Tab-56	64	55	1	Ac Piccolo (Tibia)	2'	M04	Ac	36	2' Piccolo
Tab-57	64	56	1	Ac Piano	8'	SP	Ac	45	8' Piano
Tab-58	64	57	1	Ac Harp	8'	M01	Ac	47	8' Harp
Tab-59	64	58	1	Ac Snare Drum		S02	Ac	37	Snare Drum
Tab-60	64	59	1	Ac Tambourine		S10	Ac	39	Tambourine
Tab-61	64	60	1	Ac Castanets		S11	Ac	40	Castanets
Tab-62	64	61	1	Ac Chinese Block		S12	Ac	41	Wood Block
Tab-63	64	62	7	Ac Accomp-to-Accomp	4'				
Tab-64	64	63	7	Ac Solo-to-Accomp	8'				

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Tab-65	64	64	2	A2 Post Horn	8'	S01	A2	51	8' English Post Horn
Tab-66	64	65	2	A2 Tuba	8'	M01	A2	53	8' Tuba Horn
Tab-67	64	66	2	A2 Trumpet	8'	S02	A2	52	8' Brass Trumpet
Tab-68	64	67	2	A2 Glockenspiel	8'	S01	A2	64	Glockenspiel Oct
Tab-69	64	68	2	A2 Chimes	8'	S03	A2	65	Chimes
Tab-70	64	69	7	A2 Solo-to-Accomp 2T	8'		A2	68	8' Solo-to-Accomp
Tab-71	64	70	2	A2 <i>Not Fitted</i>					
Tab-72	64	71	2	A2 <i>Not Fitted</i>					
Tab-73	64	72	3	Gt English Post Horn	16'	S01	Gt	01	16' English Post Horn
Tab-74	64	73	3	Gt Tuba Profunda	16'	M01	Gt	03	16' Tuba Horn
Tab-75	64	74	3	Gt Saxophone	16'	S05	Gt	10	16' Saxophone (tc)
Tab-76	64	75	3	Gt Diaphone	16'	S03	Gt	05	16' Open Diapason
Tab-77	64	76	3	Gt Tibia Clausa	16'	M04	Gt	08	16' Tibia Clausa (M)
Tab-78	64	77	3	Gt Clarinet	16'	M05	Gt	09	16' Clarinet
Tab-79	64	78	3	Gt Contra Viol	16'	M06/07	Gt	15	16' Viol d'Orch
Tab-80	64	79	3	Gt Contra Celeste	16'	M08/09	Gt	16	16' Salicional (2r)
Tab-81	64	80	3	Gt Bourdon	16'	M11/12	Gt	20	16' Concert Flute
Tab-82	64	81	3	Gt English Post Horn	8'	S01	Gt	24	8' English Post Horn
Tab-83	64	82	3	Gt Tuba Mirabilis	8'	M01	Gt	26	8' Tuba Horn
Tab-84	64	83	3	Gt Brass Trumpet	8'	S02	Gt	25	8' Brass Trumpet
Tab-85	64	84	3	Gt Diaph. Diapason	8'	S03	Gt	28	8' Open Diapason
Tab-86	64	85	3	Gt Tibia Clausa	8'	M04	Gt	31	8' Tibia Clausa
Tab-87	64	86	3	Gt Clarinet	8'	M05	Gt	32	8' Clarinet
Tab-88	64	87	3	Gt Orch. Oboe	8'	S06	Gt	34	8' Orchestral Oboe
Tab-89	64	88	3	Gt Oboe horn	8'	S11	Gt	42	8' Oboe Horn
Tab-90	64	89	3	Gt French Horn	8'	M10	Gt	41	8' French Horn
Tab-91	64	90	3	Gt Kinura	8'	S08	Gt	36	8' Kinura
Tab-92	64	91	3	Gt Saxophone	8'	S05	Gt	33	8' Saxophone
Tab-93	64	92	3	Gt Solo String	8'	S09/10	Gt	37	8' Solo String (2r)
Tab-94	64	93	3	Gt Viol d'Orch	8'	M06/07	Gt	39	8' Viol d'Orch (2r)
Tab-95	64	94	3	Gt Viol Celeste	8'	M08/09	Gt	40	8' Salicional
Tab-96	64	95	3	Gt Flute	8'	M11/12	Gt	44	8' Concert Flute
Tab-97	64	96	7	Gt Not Fitted					PFX3
Tab-98	64	97	7	Gt Not Fitted					PFX4
Tab-99	64	98	3	Gt Vox Humana	8'	M13	Gt	47	8' Vox Humana (M)
Tab-100	64	99	3	Gt Fifth (Tibia)	5 1/3'	M04	Gt	49	5 1/3' Fifth (Tibia M)
Tab-101	64,100		3	Gt Clarion	4'	S02	Gt	51	4' Octave Horn
Tab-102	64,101		3	Gt Piccolo	4'	M04	Gt	53	4' Piccolo (Tibia M)
Tab-103	64,102		3	Gt Octave	4'	M03	Gt	50	4' Octave
Tab-104	64,103		3	Gt Octave String	4'	S09/10	Gt	54	4' Solo String (2r)
Tab-105	64,104		3	Gt Viol	4'	M06/07	Gt	56	4' Viol d'Orch (2r)
Tab-106	64,105		3	Gt Viol Celeste	4'	M08/09	Gt	57	4' Salicional (2r)
Tab-107	64,106		3	Gt Flute	4'	M11/12	Gt	58	4' Concert Flute
Tab-108	64,107		3	Gt Tenth (Tibia)	3 1/5'	M04	Gt	64	3 1/5' Tenth (Tibia M)
Tab-109	64,108		3	Gt Twelfth (Tibia)	2 2/3'	M04	Gt	66	2 2/3' Twelfth (Tibia M)
Tab-110	64,109		3	Gt Piccolo (Tibia)	2'	M04	Gt	72	2' Piccolo

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Tab-111	64,110	3	Gt Fifteenth	2'	M03	Gt	69	2' Fifteenth (Min Str)
Tab-112	64,111	3	Gt Tierce (Tibia)	1 3/5'	M04	Gt	76	1 3/5' Tierce (Tibia M)
Tab-113	64,112	3	Gt Fife (Tibia)	1'	M04	Gt	77	1' Fife
Tab-114	64,113	3	Gt Piano	8'	SP	Gt	79	8' Piano
Tab-115	64,114	3	Gt Chimes	8'	M01	Gt	87	8' Chimes
Tab-116	64,115	3	Gt Harp	8'	S03	Gt	82	8' Harp
Tab-117	64,116	3	Gt Xylophone	8'	S02	Gt	86	8' Xylophone
Tab-118	64,117	3	Gt Glockenspiel	8'	S01	Gt	84	8' Glockenspiel
Tab-119	64,118	7	Gt Great-to-Great	16'				
Tab-120	64,119	7	Gt Unison Off	8'				
Tab-121	64,120	7	Gt Great-to-Great	4'				
Tab-122	64,121	3	<i>Gt Not Fitted</i>					
Tab-123	64,122	3	<i>Gt Not Fitted</i>					
Tab-124	64,123	3	<i>Gt Not Fitted</i>					
Tab-125	64,124	4	G2 Post Horn	16'	S01	G2	88	16' English Post Horn
Tab-126	64,125	4	G2 Post Horn	8'	S01	G2	91	8' English Post Horn
Tab-127	64,126	4	G2 Tuba	8'	S9-12, M6-9	G2	93	8' String Ensemble (8r)
Tab-128	64,127	4	G2 Trumpet	8'	S02	G2	92	8' Brass Trumpet

'D' Channel-15 =63:

Tab-129	63	0	4	G2 Glockenspiel	8'	S9-12, M6-9	G2	90	16' String Ensemble (8r)
Tab-130	63	1	7	G2 Solo-to-Great 2T	8'		G2	95	8' Solo-to-Great 2T
Tab-131	63	2	4	<i>G2 Not Fitted</i>					
Tab-132	63	3	7	<i>P2 Future</i>					
Tab-133	63	4	7	<i>P2 Future</i>	E05	AFX1			Cymbal Crash
Tab-134	63	5	7	<i>P2 Future</i>	E04	AFX2			Cymbal Roll
Tab-135	63	6	7	<i>P2 Future</i>		AFX3			
Tab-136	63	7	7	<i>P2 Future</i>		AFX4			
Tab-137	63	8	6	So English Post Horn	16'	S01	So	01	16' English Post Horn
Tab-138	63	9	6	So Tuba Profunda	16'	M01	So	03	16' Tuba Horn
Tab-139	63	10	6	So Diaphone	16'	S03	So	05	16' Open Diapason
Tab-140	63	11	6	So Tibia Clausa	16'	S04	So	07	16' Tibia Clausa (S)
Tab-141	63	12	6	So Contra Viol	16'	S09	So	09	16' Major Strings (4r)
Tab-142	63	13	6	So English Post Horn	8'	S01	So	14	8' English Post Horn
Tab-143	63	14	6	So Tuba Mirabilis	8'	M01	So	16	8' Tuba Horn
Tab-144	63	15	6	So Brass Trumpet	8'	S02	So	15	8' Brass Trumpet
Tab-145	63	16	6	So Diaph. Diapason	8'	S03	So	18	8' Open Diapason
Tab-146	63	17	6	So Tibia Clausa	8'	S04	So	20	8' Tibia Clausa (S)
Tab-147	63	18	6	So Clarinet	8'	M05	So	22	8' Clarinet
Tab-148	63	19	6	So Orch. Oboe	8'	S06	So	24	8' Orchestral Oboe
Tab-149	63	20	6	So French Horn	8'	M10	So	29	8' French Horn
Tab-150	63	21	6	So Kinura	8'	S08	So	26	8' Kinura
Tab-151	63	22	6	So Saxophone	8'	S05	So	23	8' Saxophone
Tab-152	63	23	6	So Mussette	8'	S11	So	25	8' Krumet
Tab-153	63	24	6	So String	8'	S09	So	27	8' Major Strings (4r)

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Effects Pistons:

'D' Channel-14 =62:

Tab-337	62	80	7	Ac-1	Left Cheek	S05	Cymbal Crash
Tab-338	62	81	7	Ac-2	Left Cheek	S04	Cymbal Roll
Tab-339	62	82	7	Ac-3	Right Cheek	---	
Tab-340	62	83	7	Ac-4	Right Cheek	---	
Tab-341	62	84	7	Pd-1	Toe Stud	---	
Tab-342	62	85	7	Pd-2	Toe Stud	---	
Tab-343	62	86	7	Pd-3	Toe Stud	---	
Tab-344	62	87	7	Pd-4	Toe Stud	---	
Tab-345	62	88	7	Gt-1	Left Cheek	S12	Wood Block
Tab-346	62	89	7	Gt-2	Left Cheek	S14	Triangle
Tab-347	62	90	7	Gt-3	Right Cheek	---	
Tab-348	62	91	7	Gt-4	Right Cheek	---	
Tab-349	62	92	7	So-1	Left Cheek	S16	Gong
Tab-350	62	93	7	So-2	Left Cheek	S15	Bell Tree
Tab-351	62	94	7	So-3	Right Cheek	---	
Tab-352	62	95	7	So-4	Right Cheek	---	

Abbreviations:

Pd=Pedal, Ac=Accompaniment, A2=Accompaniment Second Touch, Gt=Great, G2=Great Second Touch, P2=Pedal Second Touch, So=Solo.

E = Effects, M = Main, S = Solo, SP = Solo Percussion

PFX=Pedal Effects pistons (toe studs), AFX=Accompaniment Effects pistons (key cheeks), GFX= Great Effects pistons, SFX=Solo Effects pistons.

Note that some of the stop tab numbers are 'borrowed' for use as effects pistons. These are sent as Division-7 for controls.

There are 15 tremulant tabs on the 3-31 organ. They are assigned to the pipe ranks as follows:

Main I:	Concert Flute, Flute Celeste, Quintadena, Dulciana & Unda Maris (Cel.)
Main II:	French Horn, Open Diapason, Oboe Horn
Main Strings:	Salicional & Voix Celeste, Viol d'Orchestre & Viol Celeste
Clarinet:	Clarinet
Solo I:	Horn Diapason, Harmonic Flute
Solo II:	Orchestral Oboe, Krumet, Kinura
Solo Strings:	Solo String & Celeste, Gamba & Celeste
Tibia (S):	Tibia Clausa (S)
Tibia (M):	Tibia Clausa (M)
Voxes/Sax:	Vox Humana (S), Vox Humana (M), Saxophone
Tuba:	Tuba Horn
Trumpet (Brass):	Trumpet (Brass)
Trumpet (Style D):	Trumpet (Style D)
English Post Horn:	English Post Horn
Vibraphone:	Chrysoglott

C600 Organ Problems with the 3-31 Wurlitzer

After having got the console to work like a real organ, the Hauptwerk program was explored more fully. The following problems were noted:

1. Hauptwerk still takes a lo-o-o-o-n-n-g... time to load up (at least two minutes), for the initial configuration but is faster for simple changes.
2. Very tedious to set up from scratch. There are many things that need to be configured.
3. For good results, there need to be at least six audio channels, but the setting-up procedure for these is not obvious. Six is probably more than adequate for a home installation with limited space.
4. There is no separate output for low frequencies but it is possible to mix all outputs into another output channel to feed a sub-woofer. Most good sub-woofers have controls that will allow the higher frequencies to be cut off and frequencies around the cut-off point to be adjusted in phase for optimum results. You can separate out the bottom end of particular keyboards but this is not quite what is wanted as many ranks will go down that far and may be on other keyboards too.
5. Nor is there any simple means of making a reverberation mix. The mixed feed for the sub-woofer could be used but the reverberation unit audio would have to be mixed in with at least two of the amplifier channels.
6. A better audio unit might be found with two lots of mixing for the sub-woofer and reverberation.
7. Limiting the linking of any console tab to only a single Hauptwerk tab means that the console has to match the virtual organ tab for tab. Who is simply going to build a replica when many different organs are available? This is avoided somewhat by having a bigger Hauptwerk organ specification than the one for the console so that you can pick and choose stops. There may not be an exact match but it will be near enough.
8. It is possible to use this virtual organ without having a monitor screen. That means that some way has to be found to power the computer on and off without using its power button or the mouse. However, you can define a MIDI push-button to load an organ or whatever you want.
9. The long delay at power up while the organ is loaded into RAM has an on-screen indication that something is happening but this period is excessive when you are wondering if it has worked or not without the monitor. However, you can define indicators that Hauptwerk will send out as MIDI signals to operate suitable hardware to drive lamps. Operating without a monitor is only feasible once the system has been completely set up as one is essential when configuring the organ.
10. Using the console Crescendo shoe sometimes causes the Hauptwerk system to lock up with hung notes. Why this should be so when the use of a general piston also changes a lot of stops at once but does not lock the system is not yet known but is being investigated. For the time being, the Hauptwerk Crescendo shoe is available.
11. There seems to be a problem with Hauptwerk coming up in 'Emergency Mode' if you do not wait thirty seconds before activating the program after the computer has got going. This prevents the system from being turned on automatically at power-up. You would have to press the 'On' button on the computer anyway. However, if it does go wrong, the program forgets that it might have been set to load the default organ. You can, of course, put the system into 'Sleep' mode to avoid this.

12. The audio system sometimes comes up at a very loud volume, particularly on the MIDI sounds. This would seem to be a software problem to do with the Presonus box. The audio amplifiers currently have a high-gain filter board so this would be better as a normal-gain version allowing the Hauptwerk overall volume to be increased and the Presonus levels to be less liable to excessive output. The sub-woofer is run from the signals before the Presonus sets their levels so its volume is unaffected by the inadvertent volume increase. Incidentally, the MIDI inputs to the Presonus, cause a loud hum if the MIDI source cable is unplugged in this high-gain condition.
13. For some reason, the audio system sometimes forgets how to provide the MIDI effects at power-up. One way to make it work is to open the Presonus Mixer application, click on the screen and then shut it down again, when all is well.
14. There is a problem with the audio levels on one channel lacking bass. It seems to be that way from the Presonus unit. This affects every sixth note since each channel handles two notes, i.e., C# and G are bad. These are from audio output-2 and each output seems to share the same keys in mono audio. This is being investigated. It may just be that the front panel gain control was mis-adjusted but is more likely to be a defective speaker (the ones in use were rescued from an organ that had been struck by lightning and written off by insurers!).
15. So far there are no console controls for Celestes Off and similar control functions. These would have to be added.
16. The 3-31 Pedal department does not have a 4' Flute. An 8' String was substituted as this has a high 4' content (Tab #21).

This project is a work in progress so these problems may gradually be eliminated.

Some of these problems have been addressed in version 3.01 of Hauptwerk, e.g., you can now use multiple MIDI pistons to trigger a single Hauptwerk piston.

Making Hauptwerk configure more easily and quickly is a major priority for future releases of Hauptwerk. However, they suggest that at present you do *not* upgrade to Mac OS X Leopard due to a bug concerning Firewire audio interfaces. This will no doubt soon be fixed but meanwhile, stay with OS X Tiger.

A future version of Hauptwerk will include built-in reverberation effects.

If you would like to know more about this project, contact Classic Organ Works at 905-475-1275 or 1-888-812-9717 and ask for me. Alternatively, and preferably, e-mail me at AWC@organworks.com or organawc@sympatico.ca