# JOHN LEDWON'S THEATRE ORGAN #4

## THE BEGINNING

When I donated my 4/52 hybrid Wurlitzer in 2007 to the Nethercutt collection I was completely convinced that I was finished with providing a home for a theatre organ...having made a home for a pipe organ since I was about 14 (when my parents purchased a theatre organ for me) was a significant factor...enough is enough. However, long associations are hard to break...especially one that was rewarding, fun and challenging all at the same time. So, in 2010 when I purchased a home in Henderson (situated on ½ acre and no super close neighbors) I once again decided that I was willing to share my humble residence with another Wurlitzer theatre organ.

## LOCATING AN ORGAN

At first I was looking for a totally original 2/8 or slightly larger Wurlitzer but couldn't find anything to my liking. With the help of Ken Kukuk and Scott Smith we located a 3/8 Wurlitzer church instrument in a 100 year old farm house north of Detroit, Michigan. It came with a somewhat checkered past... opus 1379 was sent on June 30, 1926 to the First Christian Church in Lakewood, Florida. The church had must have had financial issues as the organ was repossessed and returned to the factory where it was resold and shipped to the Calvary Undenominational Church in Grand Rapids Michigan on February 17, 1929. The organ evidently went through a complete restoration at the factory with new chests and support lumber as the instrument when I bought it had black cap magnets and stenciled identification on the support lumber...practices not associated with a 1926 instrument. I sold off the original 3 manual paneled walnut console and replaced it with a three manual French Style walnut console from the Jacksonville, Florida School of the Blind. The original specification on both 3/8 organs was Concert Flute 16'-2', Salicional 16'-2', Diaphonic Diapason 16'-4', Viol Celeste 4', Aeoline 8'-4', Clarinet 8', Tuba Horn 8' and Tibia Clausa 8'-4'.

## DESTRUCTION/CONSTRUCTION

My home is situated in a preservation area of Henderson, a southern suburb of the Las Vegas area. No sites under ½ acre and no street lights or sidewalks...except my property which is located on a round-a-bout and has street lights and sidewalks. But that was fine as the house is fairly well isolated from other homes in the area. In the addition built for the organ I only had 9 ½' of headroom because of an existing second floor so it was decided to drop the chamber floor 4 feet below the great room floor level. That all had to be hand dug. After much thought about ambient temperatures here in the Las Vegas valley it was decided to use a closed air system for the organ. The blower was located in the house under the great room floor right at the swell shade wall. For this we dug down an additional 2 ½ feet to make a concrete blower vault. At the same time I decided that we could put some of the regulators in the same area so we dug further and created a regulator alcove, also under the great room floor.

Chamber area excavation

Depressed area is blower vault

Chuting the concrete directly into the house

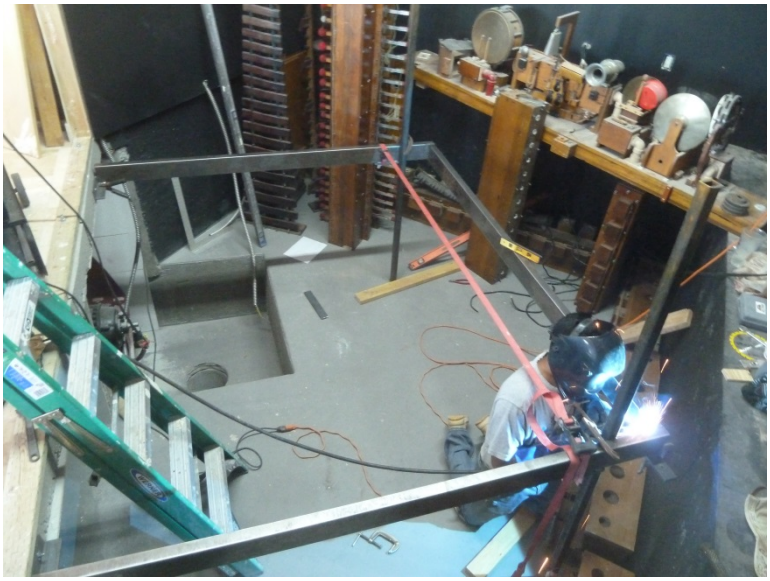
Walls and blower/regulator vaults ready for final concrete pour

Dark tan colored concrete is the new floor over the blower and regulator vault

View from back of chamber showing blower and regulator vaults. Great room in background

## THE INSTALLATION

When the concrete work was completed the chamber walls were erected. Once that was completed the steel framework for the main chests was welded into position.



Welding steel framework

The blower and its system of baffles and acoustic material to cut intake noise.

After the blower was installed in its depressed area I had the feeling that it might live there forever...or until the house is torn down. The blower is mounted on 6" wheels which are bolted to the wooden blower base through GMC motor mounts. This way the blower can be rolled out from its vault for maintenance. This maintenance was tested early last year when the blower suddenly quit. I thought the problem was the old cotton covered motor winding burning through due to the VFD output but the problem turned out to be an undersized VFD (I was using a 5 Hp VFD on a 5 Hp motor with a single phase input. I upgraded to a 10 Hp VFD). Since the motor was out I had it rewound with VFD friendly wire, re-machined the bearing mounts and replaced the bearings. In the picture you can see the baffles in the maintenance area to isolate the blower intake noise and the idea has been very successful in that you hear no intake noise coming from the intake port.

The first organ component to be installed (and first to be removed) was the wood bar harp. I purchased all the percussions from my Agoura organ when it was parted out. The Wurlitzer harp was one that had an unusual tertiary action with outside pneumatics. The harp was removed before the organ was completed due to space considerations and the fact that you needed access to both side of the harp for maintenance.

First in: Harp and 16' Bourdon

Originally the 16' Tuba and Diaphone were to go on the lower floor but there wasn't enough height for the 16' Bourdons on the concrete ledge so they were reversed. Chamber walls were painted black for LED lighting purposes.

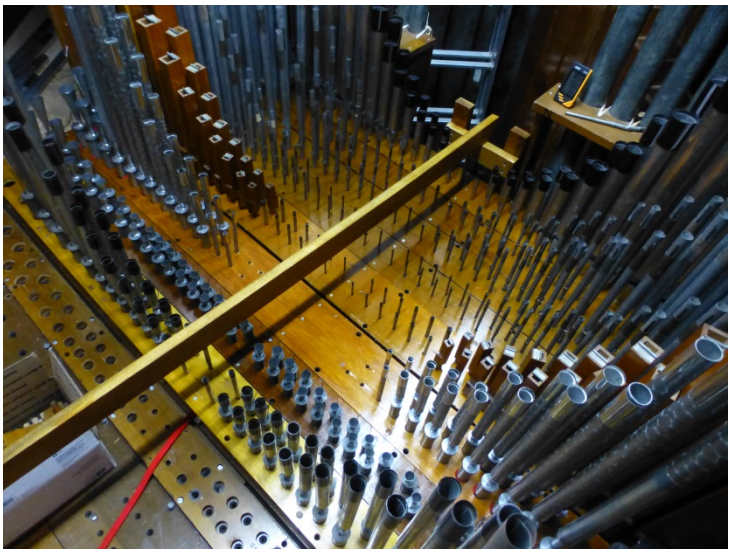
From left: 16' Bourdon, 16' Diaphone, 16' Tuba and 16' string. Chrysoglott hangs from ceiling

8' Tibia added with Glock and Xylophone hung from ceiling

Eight ranks of chest in place

Twelve ranks of manual chests

View through Plexiglas swell shades with removable walkboard in place



Eight ranks installed...walkboard removed

Three of the regulators are in the regulator alcove that is under the great room floor

Other side of lower area note strip LED lighting and 7" thick blower vault doors

Second regulator area with blower VFD, LED lighting power supply, 4 trem dump valves

## CONSOLE ALCOVE AND PLATFORM

When the house was remodeled I was left with a land locked former entrance area that I puzzled over what to do with it until I had a revelation that I might be able to enlarge the area slightly and put the console in it. The remodel became extensive when the width had to be increased while still supporting the top of the stairway and landing above. New beams had to be placed to take the load so that reduced the head room for the console...further exacerbated by the arched ceiling...but in the end all went well. So well in fact that a friend designed a steel platform that is only 2 ½" high that allows the console to come forward about 4 feet so that the organist can listen "in" the great room rather than "in" the alcove. That platform is controlled by the house automation system powered by a small three phase gear motor controlled by a VFD for soft starting and stopping.

Console platform steel frame

Flooring on steel frame. This picture shows the arched alcove ceiling

Detail of gear rack drive which also acts as support wheels for back of platform

# THE CONSOLE

The original console was a three manual single stop rail walnut paneled console. Nice looking and in excellent condition. While in Portland picking up a rank of pipes I saw a beautiful French style single stoprail console, also in walnut and decided that I had to have it. It had had an encounter with water and evidently the water won. Ken Crome restored the entire bottom portion due to water damage. The keyboards, pedal board and bench from the original console were in far better condition than what came with the French console so I substituted those from the other console. The console stop action was originally going to be pneumatic but after releathering all the pneumatics and getting new stopkeys for the pneumatic system I changed my mind and went all electric...a move I, in some respect, regret but adjusting the pneumatic system was more trouble than I expected and I was limited in my specification by the location of the pneumatics so it was scrapped. The console was delivered to Boise where a friend refinished it prior to making the journey to Henderson. Once here I quickly determined to go with Syndyne SAMs so the stoprail was sent to Ken Crome to make the new one to accommodate the SAMs. The new stop keys were sent back to Arndt Organ Supply to be cut and drilled to fit the SAMS. An interesting side note...the music rack. It has been on three of the four consoles I have owned...it seems I usually buy a console sans music rack so this one has been on my Balaban 3 manual console (now in the Phoenix Orpheum), the large 4 manual Agoura console and now on this console...all three are/were French style consoles.

Installing SAMs. Stop keys were "glued" to SAMS with burnt shellac

SAMs installed

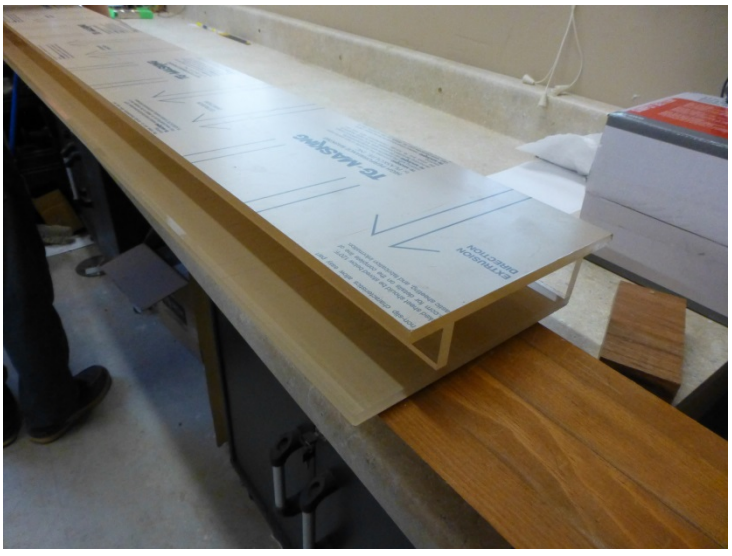
Finished console...platform in parked position

Console in play position

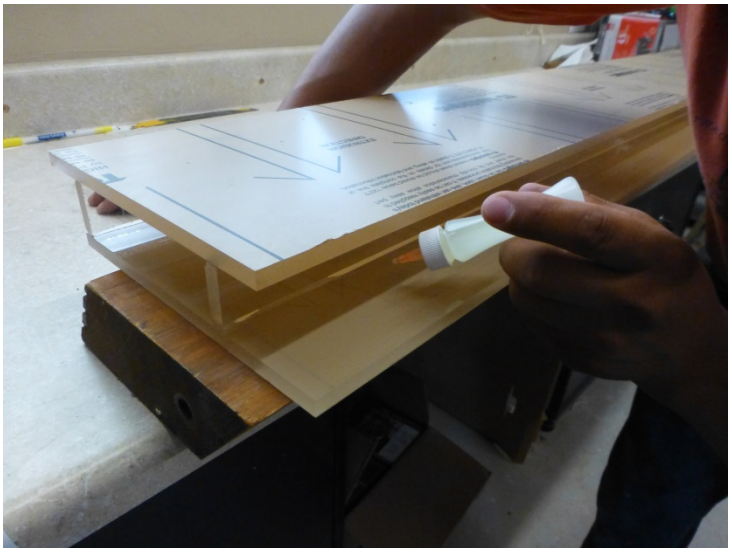
Console and chamber in background

## SWELL SHADES

Never having been a real traditionalist in organ installation, I must admit I did a number of things that are probably not considered "kosher" in the installation. Plexiglas swell shades, steel support members throughout the organ, blower location, dump valves instead of trems to name a few. Plexiglas swell shades were decided upon to give guests the opportunity to see the actual workings of the instrument. They were made on site from 3/8 inch Plexiglas and with a large double overlap area to give very good dynamic control ...a definite issue on the Agoura instrument.



Plexiglas swell shade construction



Appling glue...darker area (at glue application point) indicates good saturation of glue

I had originally planned for ten ranks (the original 8 plus a Vox Humana and a Krumet) but I located a Brass Trumpet and a Kinura so the three rank chest I bought for the additions was no longer adequate...I needed an additional chest for the Vox Humana. Upon review of the maintenance requirements for the wood bar harp and the quality of the Haupwerk software I decided to remove the harp and put two additional ranks in the space it occupied. Phil Maloof had an extra 5 rank chest left from the pizza installation here in Las Vegas so I purchased it...cut off a single rank reed chest for the vox and 2 ranks for the flute/string celeste addition. This brought the organ up to 14 ranks and what I consider a reasonably good compromise for a residence organ. I love a Post Horn but I can't see a need for one on a 14 rank residence organ so I had the Brass Trumpet regulated bright and it does a wonderful job for brassy riffs and accents while still available as a solo stop. All in all I am quite pleased with the solo and ensemble sound. The organ plays into a reasonably large area so the sound mixes quite well. One additional rank is planned and that is complete and total overkill...a brass trumpet en chamade. It will be installed this fall.

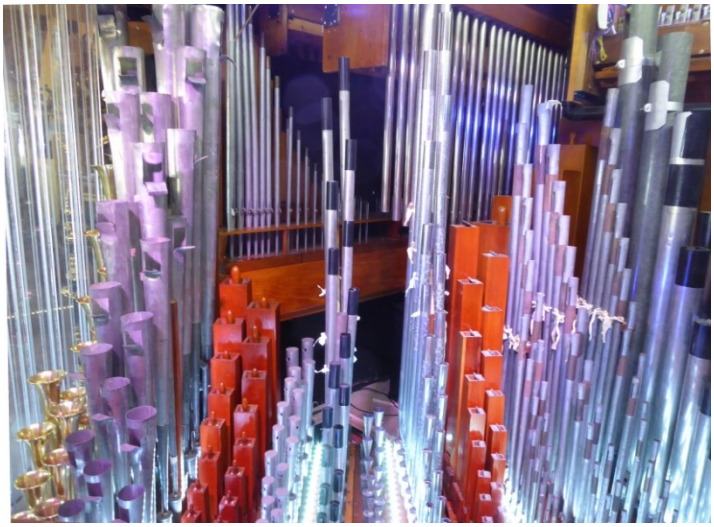
## CONTROL SYSTEM

In my Agoura Instrument I had a large Trousdale control system but today that system is no longer supported so I researched several organ relay systems and determined that the Uniflex system best met my requirements. It has proven to be a good decision as technical advice is readily available. My primary source of assistance has been Mike Bryant, the Theatre Organ journal editor. Mike has spent countless hours first doing the definition file and then helping me out innumerable times when I screwed something up so badly that I couldn't extricate myself from the mess. Dick Wilcox, the designer of the system has also been extremely helpful.

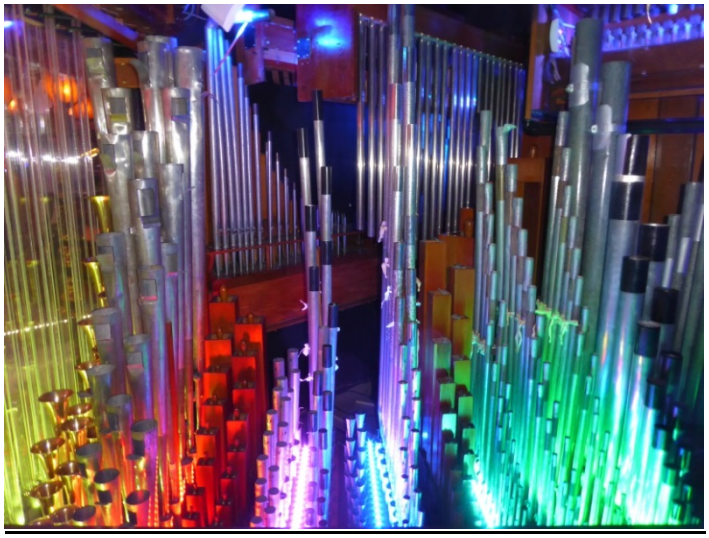

Chamber Uniflex control system

## LED LIGHTING

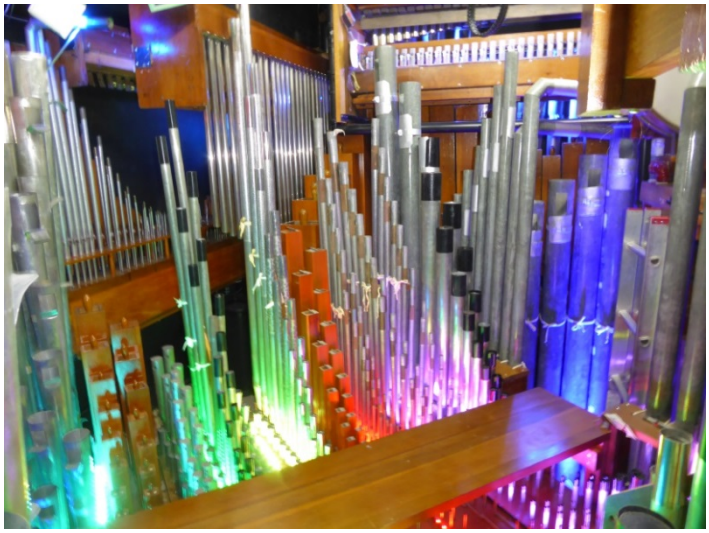
Due to many years spent in both educational and commercial theatre I have developed a passion for innovative lighting design. The entire house is designed for dramatic lighting which is controlled by an automation system running DMX control signals for all the lighting fixtures. LEDS have come into practical availability and price so the house and organ are lit by RBG LED lighting. Many of these systems are now equivalent or actually cheaper the incandescent lighting...and far more economical to operate to say nothing of versatility and long life. Due to low cost and long life, several portions of the house, including the organ chamber and console are lit with LEDs during the daytime hours Here are some effects that LED technology make possible



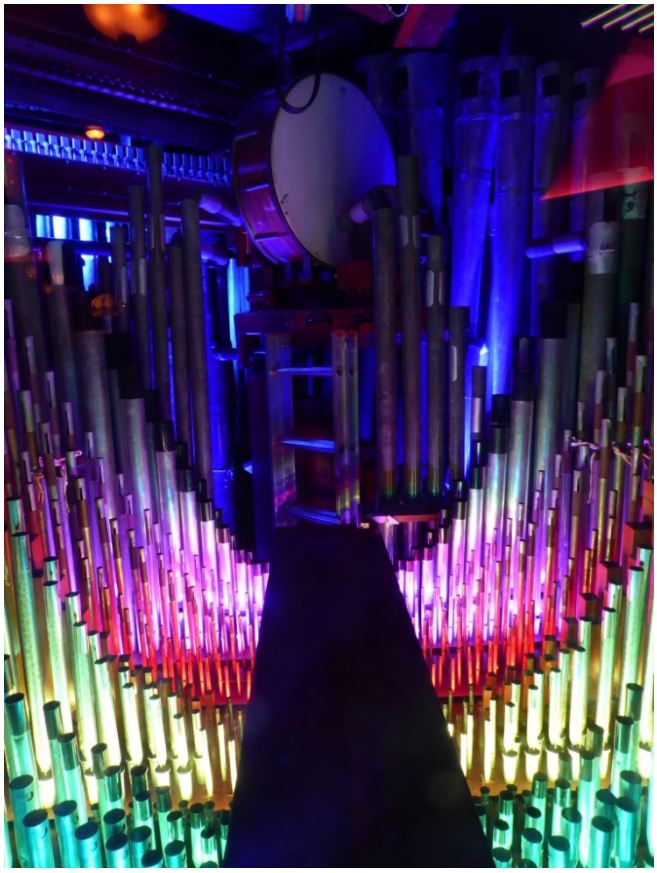
Here is the chamber with the lighting in basic white



Same shot in RBG...a moving pattern that moves from front to back



Similar view but with fill flash for more detail



Blue being used to give depth to rear portions to the chamber

Various console coloring:  green

Various console coloring: orange

More dramatic blues and magenta

# THE GREAT ROOM

The organ speaks into the great room...a multilevel area with ceiling height from 9' 8" to 18'. The floor is travertine marble but there are Oriental rugs on portions of the floor. Acoustically the room is quite dry. A Roland RSS-303A Ambiance system is being installed with a Mackie 4 channel mixer and Crown PZM microphones to give some ambiance to the area. Lighting in the great room is a combination of LED and incandescent.

The great room

The lower level chamber sitting area

Leaded glass "windows" in upper background open pneumatically. They hide the Hammond RT-3's Leslie 122R speakers

View from stairway.

Ranks on the organ are all Wurlitzer with the exception of the Krumet which is from Trivo. All the original 8 ranks from the church installation have been retained. From front of chamber to back: Brass trumpet, Harmonic Tuba, Tibia Clausa, Vox Humana, Clarinet, Kinura, Krumet, Concert Flute, Viol Celeste, Aeoline Celeste, Salicional, Open Diapason. Side area: Aeoline and Flute Celeste. There are 4 16' extensions, 16' Bourdon, 16' String, 16' Diaphone and 16" Ophicleide. The Steinway grand piano is controllable from the organ by MIDI through a Live Performance player system designed by Wayne Stahnke. Percussions include 37 note glockenspiel, 37 note xylophone, 25 note chimes, 49 note chrysoglott, 25 note sleigh bells, 25 note saucer bells and a 33 note Deagan Unifon.

The organ has been playing now for about 6 months but it is only the past 2 months that it has started to come together as an ensemble instrument. Still a lot of work to go, Ken Kukuk has been coming over from Los Angeles to work on regulation and now that most other problems are solved we can spend more time on actually working on pipework rather than being sidetracked for some strange oddities...like the 16 foot string chest doing multiple ciphering...finally traced down to not enough air in the long primary box due to inadequate passages for air to flow through. There were only two

½" openings and that is how it came from the Wurlitzer factory…adding 4 more passages stopped the problem immediately. Also a big thank you to Mike Bryant for his trips to Sin City to help in getting the beast's Uniflex system under control. Thanks also to Todd, Wes, Scott and certainly Rolando…a person who has worked for me almost constantly for the past 3 years. He had never seen a pipe organ before we started working on this one and now he is quite qualified to work on the mechanical portion of the organ.

# STOPLIST

**PEDAL**

32' Tibia Clausa (MIDI)
16' Ophicliede
16' Diaphone
16' Contra Viol
8' Tuba Horn
8' Trumpet
8' Diapason
8' Tibia Clausa
8' Clarinet
8' String
8' Concert Flute
4' Octave
4' Flute
8' Pedal Octave
8' Great to Pedal

**ACCOMPANIMENT**

8' Tuba Horn
8' Trumpet
8' Diapason
8' Tibia Clausa
8' Clarinet
8' String Celeste
8' Concert Flute
8' Vox Humana
8' Aeoline w/celeste
4' Piccolo (Tibia)
4' String Celeste
4' Flute
4' Vox Humana
4' Aeoline w/celeste
2 2/3' Twelfth
2' Piccolo

**GREAT**

16' Tuba Profunda
16' Tibia Clausa (TC)
16' Trumpet (TC)
16' Diaphone
16' Krumet (TC)
16' Clarinet (TC)
16' String Celeste
16' Vox Humana (TC)
8' Tuba Horn
8' Trumpet
8' Diapason
8' Tibia Clausa
8' Krumet
8' Clarinet
8' Kinura
8' String Celeste
8' Concert Flute
8' Vox Humana
5 1/3' Fifth (Tibia)
4' Piccolo (Tibia)
4' String Celeste
4' Vox Humana
4' Flute
3 1/3' Tibia
2 2/3' Twelfth (Tibia)
2' Piccolo (Tibia)
2' Fifteenth
2' Piccolo
1 3/5' Tierce (Tibia)
1' Fife

**SOLO**

16' Tuba Profunda
16' Tibia Clausa (TC)
16' Krumet (TC)
8' Trumpet
8' Tuba Horn
8' Diapason
8' Tibia Clausa
8' Krumet
8' Clarinet
8' Kinura
8' String Celeste
8' Vox Humana
5 1/3' Fifth (Tibia)
4' Piccolo (Tibia)
2 2/3' Twelfth (Tibia)
2' Piccolo (Tibia)
8' Imperial Trumpet

**BACK RAIL STOPS UPPER**

**GENERALS**

Glock Reit
Xylo Reit
Harp Reit

**GREAT**

Glockenspiel
Xylophone
Harp
Chrysoglott
16' Piano
8' Piano
4' Piano

**SOLO**

Glockenspiel
Xylophone
Saucer Bells
Sleigh Bells
Harp
Chrysoglott
8' Piano
4' Piano
Chimes

**TREMULANTS**

Main
Tuba/Trumpet
Tibia
Orch. Reeds
Vox Humana

**BACK RAIL STOPS LOWER**

**PEDAL**

Bass Drum
Tympani (MIDI)
Roll Cymbal
Tap Cymbal
16’ Piano
8’ Tibia Pizz

**ACCOMP**

Snare Drum
Tom Tom
Wood Block
Tambourine
Castanets
Sand Block
Harp
Chrysoglott
8’ Piano
8’ Tuba Horn
8’ Trumpet

**SOLO**

16’ Solo
Solo Unison Off
5 1/3’ Solo
4’ Solo
3/13’ Solo
2 2/3’ Solo
1 3/5’ Solo

**SWING OUT TRAY LEFT**

24 effects buttons

**SWING OUT TRAY RIGHT**

Uniflex controls

**PISTONS**

Pedal 6 toe pistons
Accomp 10 Divisional
10 Great Divisional
10 Solo Divisional
23 Generals

**SWELL PEDALS**

Piano expression
Chamber Expression
Crescendo

**ACCOMP 2nd TOUCH**

8’ Tuba Horn
8’ Trumpet
8’ Diapason
8’ Tibia Clausa
8’ Clarinet
4’ Piccolo
Glockenspiel
Harp
Chimes
8’ Piano
Triangle
Great to Accomp
Solo to Accomp

**GREAT 2nd TOUCH**

16’ Tuba Profunda
16’’ Trumpet (TC)

**MIDI**

2 Key Slip buttons per manual

2 Key slip buttons for pedal

**KEY SLIP BUTTONS (Great)**

Flute Celeste Off

String Celeste Off

**KEY CHEEK BUTTONS**

**Sostanuto (Great)**

**Transpose (Accomp)**

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