

M.P. MOLLER

Pipe Organ No. 5819 Date September 29, 1930
For Convention Hall, Philadelphia, Pennsylvania
Action Electric Console Detached on elevators
Casing No. None Finish Solid Mahogany - Inside; Walnut Exterior
Decorations None Motor 2 - Electric
Width of Key-bed Stop Controls Draw Knobs - Circle Stop Keys
No. Manuals 2 - each Four Wind Pressure See specification
To be completed July 1, 1931 Blower pipe furnished by Moller

S P E C I F I C A T I O N S

GENERAL DETAILS

The Organ Builder will furnish, deliver, hoist and install complete in all details including conduit, blower pipe, wiring, etc., an Organ, as hereinafter specified, with two (2) Consoles and Automatic Player. One (1) Console to be of stop knob concert type, the other console of the unit type, each to have four (4) manuals of the compass C₄ to G₄-61 notes. Pedals, compass C₃ to G-32 Notes.

ACTION

To be electro pneumatic action throughout.

All wiring shall be run in conduit unless otherwise directed, same shall meet the code of the National Board of Fire Underwriters.

Consoles to have manual keyboards inclined and all keyboards hinged for convenient access to contacts. Pedals A.B.O. pattern, corrected scale, CONCAVE AND RADIATING.

Pitch, Philharmonic, 440-A, 523.3-C.

DETAILS OF CONSTRUCTION FRAMING

The framing of the Organ, including both floor frame and building frame, shall be so made to support the pipe chests and reservoirs in a solid and substantial manner, according to detail and drawings to be submitted by this Contractor. Framing shall be of heavy, well seasoned Douglas Fir, free from knots, checks, sap or other imperfections.

WIND DISTRIBUTION

The wind conductors distributing the air from the organ reservoirs in the organ chambers to the various organ chests and actions to be made of wood or metal according to the area desired. All conductors requiring thirty (30) square inch or more sectional area to be made of white pine of oblong or square section, sides to be 13/16" thick to be glued and screwed together, with flanges made of hard wood; and where they are attached to the organ parts,

WIND DISTRIBUTION(Cont'd)

supplied with leather packing backed up with compression felt. All wooden conductors to be supplied with flexible joints. All conductors of thirty (30) square inches or less sectional area to be made of galvanized iron, painted before shipment, of round section, with all seams soldered air tight, fitted with metal collars soldered to the conductors, to be screwed to the parts connected with a leather packing. Wick or glue joints will not be permitted.

The wind supply for all divisions must be entirely adequate so that there will be no fall from desired pressures under any playing conditions. There must be no robbing or dropping in pitch in any voice or division under any playing condition.

WOODWORK

All of the woodwork used in this Organ shall be of the best quality throughout, free from imperfections, knots, checks, or sap. All wood must be thoroughly planed and sanded to a smooth finish, wherever worked, all tool marks must be eradicated. The wind chests shall be made of No. 1 white pine throughout, with the exception of the pitman valve seats which shall be made of poplar and burnished to a smooth seat, and the valve stem guides and wire guides which shall be of hard white maple. The wind reservoirs shall be made of No. 1 white pine. Relays shall be made of No. 1 white pine. Couplers and switch boards shall be made of hard white maple.

All woodwork must be protected by a waterproof covering of an approved shellac coating of three (3) coats applied in a suitable and workmanlike manner. This shall apply to all interior parts as well as exterior parts, and particularly to the interiors of wind chests and reservoirs.

All action parts containing borings shall have the walls of such borings thoroughly saturated by dipping them under hot varnish of pure shellac.

All gluing is to be done with the best grade of hot, animal glue, and the surfaces to be glued are to be heated before gluing. All gluing to be done with the surfaces held together with sufficient compression to drive out all surplus glue and bring the surfaces themselves into contact with each other.

The wind reservoirs or regulators shall be made of the single fold type with the pressure produced with coil or other approved springs and shall operate with a positive valve with means for adjusting the amount of opening in relation to the fall of the reservoir top.

Tremolos to be made adjustable for speed and depth of beat. Tremolos shall be made of No. 1 white pine.

ACTION

The action to be of the Electro-Pneumatic type. It must be reliable in operation, giving instant attack and release, and rapid repetition. All key, relay and stop action contacts shall be of metal of the following analysis: Silver .925%, Copper .075%. This same metal shall be used for both elements of the contact. The motion of the movable element is to be such so that a slight rubbing together of the two elements is effected when they are brought into contact with each other to keep the contact surfaces polished.

ACTION (Cont'd)

All electrical connections throughout the organ in the organ action circuits shall have soldered joints which must be washed off with alcohol after soldering to remove the surplus flux.

The main cables shall be machine made with copper wire tinned, coated with enamel insulation and covered with two (2) layers of cotton insulation. The wires forming any cable to be saturated with paraffin and covered with two (2) layers of paraffined paper, and over this is to be woven a braided covering covered with flameproof paint. All interior wiring shall be made of cables of this same specification except that the wires shall not be enameled. No cables covered with friction tape will be permitted except in the interior wiring of the relay, the interior wiring of the console, or to magnet boxes containing six (6) or less magnets.

The chest action shall be of the type known as individual valve type.

SWELL ACTION

The swell expression shutters of wood shall be 2 1/4" thick made of solid wood formed by gluing together 2" wooden strips so that a lengthwise lamination is effected to prevent warping. Each shutter shall have an individual pneumatic to open it and an individual spring to close it. These pneumatic motors to be mounted on the swell frame and to operate directly on its shutter and on no other shutter. Each set of shutters shall have the proper swell engines for expression control.

CONSOLES

There shall be two (2) consoles provided with the organ. One shall be of the concert type provided with stop knobs and the other of the theatre type. Each console shall have four (4) manuals and pedal; the outside cases shall be of suitable hard wood to match the interior wood work of the auditorium, and the interior woodwork of the consoles to be of mahogany. The wood used for the action boxes and keys to be white pine and switch boards and coupler switches to be of hard maple. The concert console is to control such portions of the organ that are designated in the specifications, and is to have the stop controls made in the form of knobs distributed in two (2) vertical jamps set at an angle of forty-five (45°) degrees to the line of the manual keys located on either side of the manual keys. The faces of these knobs to be of solid ivory and the printing is to be engraved thereon. The couplers to be controlled by solid ivory tablets located in a single row over the top of the fourth manual keys. The manual keyboards are to be preferable inclined and the pedals concave and radiating. A plumb line dropped down from the top of the lowest manual natural key shall intersect the line of the pedal natural keys at a point 9 1/2" from the point of the pedal sharp. The line of the tips of the manual natural keys shall be 2 1/2" apart horizontally and 4" apart vertically.

PIPES

In the construction of the metal pipes the following metals and alloys will be used: Tln, which is understood to be ninety (90%) percent tin and ten (10%) percent lead. Common metal, which is understood to be thirty three

PIPES (Cont'd)

and one-third ($33 \frac{1}{3}\%$) percent tin and sixty-six and two-thirds ($66 \frac{2}{3}\%$) percent lead. Spotted metal, which is understood to be forty-five (45%) percent tin and fifty-five (55%) percent lead. The lead and tin alloys are to be cast metal and the zinc rolled. These metals to be used as designated in the pipe specification. Only the bottom two-thirds ($\frac{2}{3}$) of any reed pipes may be made of zinc. All wedges used to fasten the reed tongue in the block shall be brass. No wood or fibre permitted. In diapason sets zinc may be used for the bodies of only the eight (8) pipes of lowest pitch in 8' pitch set. In strings, zinc may be used for the bodies of only nine (9) pipes of lowest pitch in an 8' pitch set. Slide tuners are to be used for all cylindrical pipes and all conical pipes where the top is smaller in diameter than the bottom of the body. Only white pine and maple may be used in the construction of the wooden pipes for the wooden parts. All wood pipes of 2' pitch or higher shall have maple fronts and backs.

AUTOMATIC PLAYER

An automatic player in a separate cabinet to be located in the stage managers office, to be provided with this organ, and bidders must furnish details of Automatic Player. The player to be operated by hand, recorded music with automatic control of the entire registration of the concert console and individual automatic control of the small shutter mechanism. The player action is to have not less than forty-eight (48) separate changes of registration which can be used individually or in any combination of this number.

Furnish not less than twenty (20) player rolls as selected.

WIND PIPES

The Organ Contractor shall provide the necessary wind pipes from the main blower to the various divisions of the Organ, and from the Console blower to the consoles. He shall also provide a wind pipe from the main organ or blower to the manager's office to supply wind for the player cabinet. These wind pipes to be made of galvanized iron of not less than twenty (20) gauge for pipes of 14" in diameter or over, or not less than twenty-four (24) gauge for pipes less than 14" in diameter. All joints and seams of these pipes are to be soldered airtight; a flexible rubber hose to be provided for each console to allow for the movement of the elevators. These rubber hoses to have spiral steel springs built into them to prevent their being damaged by the movement of these elevators.

DRAWINGS

The Contractor for this work shall furnish detail drawings showing layout, location of conduits, piping, etc. for Architect's approval.

5.

ANALYSIS BY CHAMBERS, PRESSURES, AND TREMOLOGREAT CHAMBER
20" Wind Section - Brass Tremolo

1	32'	Contra Bombarde - unit - Pedal only - all reeds...68	pipes..no Tremolo
2	16'	Trombone..straight - Great - all reeds.....61	pipes..24 off Trem.
3	8'	Tromba..harmonic..straight - Great - 56 reeds.....61	pipes..12 off Trem.
4	4'	Clarion..harmonic..straight - Great...44 reeds.....61	pipes—spotted metal

10" Wind - Foundation Tremolo

5	32'	Double Open Diapason - unit - Pedal only no tremolo.....68	pipes
6	16'	Double Open Diapason - unit - 28 scale 20 zinc - 24 off Tremolo.....85	pipes
7	8'	First Open Diapason - straight - 36 scale heavy 2/9 mouth - 12 off Tremolo.....61	pipes
8	8'	Second Open Diapason - straight - 39 scale 2/9 mouth - 12 off Tremolo.....61	pipes
9	8'	Third Open Diapason - straight - 43 scale 1/5 mouth - slotted 12 off Tremolo.....61	pipes
10	8'	Fourth Open Diapason - straight - 46 scale 1/7 mouth - spot metal.....61	pipes
11	4'	First Octave - straight - 52 scale - 2/9 mouth....61	pipes
12	4'	Second Octave - straight - 56 scale - 1/5 mouth spot metal.....61	pipes
13	2-2/3'	Twelfth.....straight - 65 scale - spot metal..61	pipes
14	2'	Fifteenth.....straight - 69 scale - spot metal..61	pipes
15	1-3/5'	Seventeenth.....straight - 75 scale - spot metal..61	pipes
16	1-1/3'	Nineteenth.....straight - 79 scale - spot metal..61	pipes
17	1-1/7'	Septieme.....straight - 83 scale - spot metal..61	pipes
18	1'	Twenty Second...straight - 85 scale - spot metal..61	pipes
19	V Rks.	Mixture - straight - basis of 49 scale - spot metal.....305	pipes

cc to B (1-24)	15	19	22	26	29
c ¹ to b ¹ (25-36)	8	12	15	19	22
c ² to b ² (37-48)	1	8	12	19	22
c ³ to c ⁴ (49-61) Double	1	8	12	15	

10" Wind - Wood Wind Tremolo

20	8'	Doppel Flöte - unit - large scale - 12 off tremolo.....61	pipes
21	8'	Viola - duplex to Choir - 52 scale - voice smooth.....61	pipes
22	8'	Gemshorn - duplex to Choir - spot metal - 2 notes larger than regular - all tapered.....61	pipes
23	8'	Gemshorn Celeste - duplex to Choir - spot metal regular scale - flat - all tapered.....61	pipes
24	4'	Hohl Flöte - straight - open metal - 58 scale....61	pipes
25		Chimes - Deagan 1 1/2" - with Dampers..A 22 to F 42...21	bells

6.

SWELL CHAMBER

10" Wind - Foundation Tremolo

26	8'	Open Diapason - straight - 40 scale - 2/9 mouth slotted 12 off Tremolo.....	73 pipes
27	8'	Geigen - straight - 47 scale - 1/5 mouth quite stringy.....	73 pipes
28	4'	Octave Geigen - straight - 58 scale - 1/5 mouth.....	73 pipes
29	V Rks.	Diapason Mixture - straight - basis of 46 scale spot metal.....	305 pipes

CC to B (1-22)	24	26	29	33	36
C to B (13-24)	19	22	24	26	29
c ¹ to b ¹ (25-36)	15	17	19	22	26
c ² to b ² (37-48)	12	15	17	19	22
c ³ to c ⁴ (49-61)	8	12	15	17	19

30	IV Rks.	Dolce Cornet - straight - based on 56 scale - spot metal.244 pipes 3-1/5' - 2-2/3' - 2-2/7' - 2' (no break)	
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10" Wind - Wood Wind Tremolo

31	16'	Bourdon - unit - d'Amour treble - 12 off Tremolo.....	101 pipes
32	8'	Clarabella - straight - wood - open bass - large scale - 12 $\frac{1}{2}$ off Tremolo.....	73 pipes
33	8'	Stopped Flute - straight - wood - regular scale.....	73 pipes
34	4'	Flute Harmonique - straight - metal - spot metal.....	73 pipes
35	2'	Flautine - straight - metal - spot metal.....	73 pipes
36	8'	Oboe - straight - open....49 reeds - spotted metal.....	73 pipes

10" Wind - String Tremolo

37	16'	Violone - unit - Pedal only - not on Tremolo - metal 36 scale.....	44 pipes
38	8'	Viola da Gamba - unit - 56 scale - tin.....	85 pipes
39	8'	Gamba Celeste - straight - 56 scale - tin flat.....	73 pipes
40	8'	Salicional - unit - 58 scale - spot.....	73 pipes
41	8'	Vox Celeste - unit - 60 scale - spot - flat.....	73 pipes
42	8'	Viole - straight - 54 scale - 2/9 mouth.....	73 pipes
43	4'	Violina - straight - 70 scale - tin.....	73 pipes

15" Wind - Brass Tremolo

44	8'	Trumpet - unit - harmonic - 12 off Tremolo - 49 reeds...	73 pipes
45	16'	Double Trumpet - straight - 24 off Tremolo - 61 reeds...	73 pipes
46	4'	Clarion - straight - harmonic - 44 reeds - spot metal...	73 pipes

low wind - Vox Tremolo

47	8'	Vox Humana - unit - on separate box - 49 reeds spotted metal.....	73 pipes
48	4'	Celeste - metal bars and resonators - T.C.....	49 bars

CHOIR CHAMBER

10" Wind - Foundation Tremolo

49	8'	Diapason - straight - 44 scale - 2/9 mouth - spot metal...73 pipes
50	4'	Prestant - straight - 60 scale - 2/9 mouth - spot metal...73 pipes
51	4'	Flauto Traverso - straight - wood and metal...73 pipes
52	2-2/3'	Nazard - straight - tapered - 68 scale - 1/5 mouth spot metal...61 pipes
53	2'	Piccolo - straight - tapered - 73 scale - 1/5 mouth spot metal...61 pipes
54	1-3/5'	Tierce - straight - tapered - 77 scale - 2/9 mouth spot metal...61 pipes
55	8'	Tuba Horn - straight...49 reeds...73 pipes

10" Wind - Flood Wind Tremolo

56	32'	Bourdon - unit - Pedal only - large scale, not on Tremolo...68 pipes
57	8'	Melodia - unit - open bass - wood...89 pipes
58	8'	English Horn - unit...49 reeds...73 pipes
59	8'	Clarinet - unit...49 reeds...73 pipes

10" Wind - String Tremolo

60	16'	Contra Viole - unit - 44 scale - metal...97 pipes
61	8'	Viola - duplex to Great - 64 scale...73 pipes
62	8'	Viola Celeste - straight - 64 scale - flat...73 pipes
63	8'	Spitz Floete - duplex to Great - regular scale soft all tapered - flat...73 pipes
64	8'	Spitz Floete Celeste - straight - regular scale soft all tapered - flat...73 pipes
65	4'	Harp - metal bars and resonators - dampers...61 bars

SOLO CHAMBER

20" Wind - Foundation Tremulant

66	16'	Diaphonic Diapason - unit - 20 Diaphones - rest heavy metal languid - 1/5 mouth - 24 off Tremolo...97 pipes
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20" Wind - Tibia Tremulant

67	16'	Tibia Clausa - unit - largest scale - 24 off Tremolo...97 pipes
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20" Wind - String Tremulant

68	8'	Gross Gamba - unit - 54 scale - spot...73 pipes
69	8'	Gross Gamba Celeste - unit - 54 scale - spot...73 pipes

8.

SOLO CHAMBER (Cont'd)
20" Wind - Tuba Tremulant

70	16'	Tuba Profunda - unit - 61 reeds - 24 off tremolo.....	97 pipes
71	4'	Solo Flute - straight - 4 notes larger than regular harmonic - metal.....	73 pipes
72	8'	Tuba Mirabilis - straight - 56 reeds - 12 off Tremolo....	73 pipes
73	8'	Tuba Sonora - straight - 56 reeds - 12 off Tremolo.....	73 pipes
74	8'	French Horn - straight - 49 reeds.....	73 pipes
75	8'	Orchestral Oboe - straight - 49 reeds.....	73 pipes
76	4'	Clarion - straight - 44 reeds - spotted metal.....	73 pipes

20" Wind - Wood Wind Tremulant

77	16'	Bassoon - Oboe Horn - unit - 61 reeds..spotted metal.....	85 pipes
78	8'	Kinura - unit.....	61 reeds.....61 pipes
79	16'	Piano.....	using 85 notes
80	4'	Xylophone.....	49 bars
81	2'	Orchestral Bells - Glockenspiel - repeat and single stroke.....	37 bars
82		Full Set Drums	
		Bass Drum (band)	Cymbal
		Bass Drum (Orchestra)	Tympani
		Chinese Gong	Triangle
		Persian Cymbal	Tom Tom
		Tambourine	Shuffle
		Castanets	Bird
		Snare Drum - tap, Roll and Muffled	
		Chinese Block - Tap and Roll	

T R E M O L O S

NO.	
I	Great Organ - Foundation - 10" Wind - Stops #6-19 inclusive.
II	Great Organ - Wood Wind - 10" Wind - Stops #20-24 inclusive.
III	Swell Organ - Foundation - 10" Wind - Stops #26-30 inclusive.
IV	Swell Organ - Wood Wind - 10" Wind - Stops #31-36 inclusive.
V	Swell Organ - String - 10" Wind - Stops #37-43 inclusive.
VI	Swell Organ - Brass - 15" Wind - Stops #44-46 inclusive.
VII	Swell Organ - Vox Humana - low Wind - Stop #47.
VIII	Choir Organ - Foundation - 10" Wind - Stops #49-55 inclusive.
IX	Choir Organ - Wood Wind - 10" Wind - Stops #56-59 inclusive.
X	Choir Organ - String - 10" Wind - Stops #60-64 inclusive.
XI	Solo Organ - Foundation - 20" Wind - Stop #66.
XII	Solo Organ - Tibia - 20" Wind - Stop #67.
XIII	Solo Organ - String - 20" Wind - Stops #68-69.
XIV	Solo Organ - Tuba - 20" Wind - Stops #70-76 inclusive.
XV	Solo Organ - Wood Wind - 20" Wind - Stops #77-78.
XVI	Great Organ - Brass - 20" Wind - Stops 2-3-4

9.

CONCERT CONSOLE - DRAW KNOBS

(All manual stops, except percussions, drawing as a straight organ)
(Stop Numbers refer to analysis)

GREAT ORGAN

			Notes
1	16'	Double Open Diapason.....From #6.....	61
2	8'	First Open Diapason....." 7.....	61
3	8'	Second Open Diapason....." 8.....	61
4	8'	Third Open Diapason....." 9.....	61
5	8'	Fourth Open Diapason....." 10.....	61
6	8'	Doppel Flute....." 20.....	61
7	8'	Viola....." 21.....	61
8	8'	Gemshorn....." 22.....	61
9	8'	Gemshorn Celeste....." 23.....	61
10	4'	First Octave....." 11.....	61
11	4'	Second Octave....." 12.....	61
12	4'	Hohl Flute....." 24.....	61
13	2-2/3'	Twelfth....." 13.....	61
14	2'	Fifteenth....." 14.....	61
15	1-3/5'	Seventeenth....." 15.....	61
16	1-1/3'	Nineteenth....." 16.....	61
17	1-1/7'	Septieme....." 17.....	61
18	1'	Twenty-second....." 18.....	61
19	V Rks.	Mixture....." 19.....	61
20	16'	Trombone....." 2.....	61
21	8'	Tromba....." 3.....	61
22	4'	Clarion....." 4.....	61
23	8'	Piano....." 79.....	61
24	4'	Piano....." 79.....	61
25	8'	Harp....." 65 and 48.....	49
26	4'	Harp....." 65 and 48.....	61
27	8'	Chimes....." 25.....	21
28		Tremolo (draws #1 and 11)	

SWELL ORGAN

29	16'	Bourdon.....From #31.....	73
30	8'	Open Diapason....." 26.....	73
31	8'	Giegen....." 27.....	73
32	8'	Clarabella....." 32.....	73
33	8'	Viola d'Gamba....." 38.....	73
34	8'	Gamba Celeste....." 39.....	73
35	8'	Viola....." 42.....	73
36	8'	Salicional....." 40.....	73
37	8'	Vox Celeste....." 41.....	73
38	8'	Stopped Flute....." 33.....	73
39	8'	Octave Geigen....." 28.....	73
40	4'	Violina....." 43.....	73
41	4'	Flute Harmonique....." 34.....	73
42	2'	Flautino....." 35.....	73
43	V Rks.	Mixture (Diapason)....." 29.....	61
44	IV "	Dolce Cornet....." 30.....	61
45	16'	Double Trumpet....." 45.....	73

SWELL ORGAN (Cont'd)

Notes

46	8'	Trumpet.....	From #44.....	73
47	8'	Oboe.....	" 36.....	73
48	8'	Vox Humana - draws Tremolo #VIII..	From #47.....	73
49	4'	Clarion.....	From #46.....	73
50	8'	Harp.....T.C.....	" 65 and 48.....	61
51	4'	Celesta.....	" 48.....	61
52		Tremolo (draws #III, IV, V, VI & VII).		

CHOIR ORGAN

53	16'	Contra Viola.....	From #60.....	73
54	8'	Diapason.....	" 49.....	73
55	8'	Viola.....	" 61.....	73
56	8'	Viola Celeste.....	" 62.....	73
57	8'	Melodia.....	" 57.....	73
58	8'	Spitz Flute.....	" 63.....	73
59	8'	Spitz Flute Celeste.....	" 64.....	73
60	4'	Prestant.....	" 50.....	73
61	4'	Flute Traverso.....	" 51.....	73
62	2-2/3'	Nazard.....	" 52.....	61
63	2'	Piccolo.....	" 53.....	61
64	1-3/5'	Tierce.....	" 54.....	61
65	8'	Tuba Horn.....	" 55.....	73
66	8'	English Horn.....	" 58.....	73
67	8'	Clarinet.....	" 59.....	73
68	8'	Piano.....	" 79.....	73
69	8'	Harp.....T.C.....	" 65 and 48.....	61
70	4'	Harp.....	" 65 and 48.....	61
71	4'	Celeste.....	" 48.....	61
72		Tremolo - Draws #VIII, IX & X		

SOLO ORGAN

73	8'	Diaphonic Diapason.....	From #66.....	73
74	8'	Tibia Clausa.....	" 67.....	73
75	8'	Gross Gamba.....	" 68.....	73
76	8'	Gross Gamba Celeste.....	" 69.....	73
77	4'	Solo Flute.....	" 71.....	73
78	16'	Tuba Profunda.....	" 70.....	73
79	16'	Bassoon.....	" 77.....	73
80	8'	Tuba Mirabilis.....	" 72.....	73
81	8'	Tuba Sonora.....	" 73.....	73
82	8'	French Horn.....	" 74.....	73
83	8'	Orchestral Oboe.....	" 75.....	73
84	4'	Clarion.....	" 76.....	73
85	8'	Piano.....	" 79.....	73
86	4'	Piano.....	" 79.....	61
87	8'	Harp.....T.C.....	" 65 and 48.....	61
88	8'	Chimes.....	" 25.....	21
89		Tremolo - Draws #XI, XII, XIII, XIV, & XV		

11.

PEDAL ORGAN

			Notes
90	32'	Double Open Diapason.....	From #5.....32
91	32'	Bourdon.....	" 56.....32
92	16'	Open Diapason.....	" 5.....32
93	16'	Violone.....	" 37.....32
94	16'	Diaphone.....	" 66.....32
95	16'	Second Open Diapason.....	" 6.....32
96	16'	First Bourdon.....	" 56.....32
97	16'	Second Bourdon.....	" 67.....32
98	16'	Viola.....	" 60.....32
99	16'	Cedeckt.....	" 31.....32
100	10-2/3'	Quinte.....	" 5.....32
101	8'	Octave.....	" 5.....32
102	8'	Cello.....	" 37.....32
103	8'	Flute.....	" 56.....32
104	8'	Cedeckt.....	" 31.....32
105	4'	Super Octave.....	" 5.....32
106	4'	Flute.....	" 56.....32
107	32'	Contra Bombarde.....	" 1.....32
108	16'	Bombarde.....	" 1.....32
109	16'	Tuba.....	" 70.....32
110	16'	Bassoon.....	" 77.....32
111	8'	Trumpet.....	" 1.....32
112	4'	Clarion.....	" 1.....32
113	16'	Piano.....	" 79.....32
114	8'	Piano.....	" 79.....32
115	8'	Chimes.....	" 25.....21

COUPLERS

Choir to Pedal 8'	Choir to Great 16'	Swell to Swell 16'
Great to Pedal 8'	Choir to Great 8'	Swell to Swell 8' Off
Swell to Pedal 8'	Choir to Great 4'	Swell to Swell 4'
Solo to Pedal 8'	Swell to Great 16'	Solo to Swell 16'
Swell to Pedal 4'	Swell to Great 8'	Solo to Swell 8'
Solo to Pedal 4'	Swell to Great 4'	Solo to Swell 4'
Choir to Choir 16'	Solo to Great 16'	Solo to Solo 16'
Choir to Choir 8' Off	Solo to Great 8'	Solo to Solo 8' Off
Choir to Choir 4'	Solo to Great 4'	Solo to Solo 4'
Swell to Choir 16'	Great to Great 16'	Great to Solo 8'
Swell to Choir 8'	Great to Great 8'	Swell to Solo 8'
Swell to Choir 4'	Great to Great 4'	
Solo to Choir 8'	Choir to Swell 8'	

ADJUSTABLE COMBINATIONS

Ten toe pistons affecting Pedal Stops.

Ten pistons affecting Great Stops, corresponding: Pedal on 2nd touch

Ten pistons affecting Swell Stops, corresponding: Pedal on 2nd touch

Ten pistons Affecting Choir Stops, corresponding: Pedal on 2nd touch

Ten pistons affecting Solo Stops, corresponding: Pedal on 2nd touch

Ten universal pistons affecting stops and couplers of entire organ.

Four cancel pistons affecting stops and couplers of respective manual groups.

Universal cancel piston

Coupler cancel piston

- 1 Locking slides - any or all expression shades to any expression pedal.
- 2 Sforzando - reversible piston with light indicator
- 3 Mezzo - reversible piston with light indicator
- 4 Great to Pedal Coupler - reversible piston - moving stop control
- 5 Swell to Pedal Coupler - reversible piston - moving stop control
- 6 Choir to Pedal Coupler - reversible piston - moving stop control
- 7 Solo to Pedal Coupler - reversible piston - moving stop control
- 8 Graduated indicators with light for positions of Crescendo and each Expression Pedal numbers 14-18 inc.
- 9 Three spare signal lights
- 10 Voltmeter
- 11 Three blank signal pistons
- 12 Piston cancelling tremolos and expression pedals on unit console
- 13 Electric switch buttons for remote control starter

PEDAL ACCESSORIES

- 14 Balanced Expression Pedal - Great Chamber
- 15 Balanced Expression Pedal - Swell Chamber
- 16 Balanced Expression Pedal - Choir Chamber
- 17 Balanced Expression Pedal - Solo Chamber
- 18 Balanced Crescendo Pedal - not moving stop controls
- 19 Locking Pedal - All Expressions to Solo Chamber Pedal #17
- 20 Sforzando stud - reversible - duplicating #2
- 21 Mezzo stud - reversible - duplicating #3
- 22 Piano Sostenuto Lever
- 23 Piano Soft Lever
- 24 Chimes Dampers stud - reversible - with light indicator
- 25 Chimes Soft Lever
- 26 Harp Dampers Stud - reversible - with light indicator.

Organ bench with adjustable back and height adjustment - finish to match console.

13.

UNIT CONSOLE - CIRCULAR - STOP KEYS
(Stop Numbers refer to analysis)

PEDAL CLAVIER (First Touch)

1	32'	Diaphone.....resultant	From #66 & 67, #5 also	
			playing.....32	Notes
2	16'	Diaphone.....	" 66.....32	"
3	16'	Diapason.....	" 6.....32	"
4	16'	Contra Tibia Clausa.....	" 67.....32	"
5	16'	Bourdon.....	" 31.....32	"
6	16'	Contra Viole.....	" 60.....32	"
7	16'	Tuba.....	" 70.....32	"
8	16'	Bassoon.....	" 77.....32	"
9	8'	Diapason.....	" 66.....32	"
10	8'	Octave.....	" 6.....32	"
11	8'	Tibia Clausa.....	" 67.....32	"
12	8'	Tibia Minor.....	" 31.....32	"
13	8'	Doppel Floete.....	" 20.....32	"
14	8'	Flute.....	" 57.....32	"
15	8'	Cellos III Rks.....	" 38, 68 & 69.....32	"
16	8'	Violin.....	" 60.....32	"
17	8'	Tuba.....	" 70.....32	"
18	8'	Trumpet.....	" 44.....32	"
19	8'	Oboe Horn.....	" 77.....32	"
20	8'	Clarinet.....	" 59.....32	"
21	4'	Flute.....	" 57.....32	"
22	4'	Violins III Rks.....	" 38, 68 & 69.....32	"
23	4'	Cornet.....	" 70.....32	"
24	16'	Piano.....	" 79.....32	"
25	8'	Piano.....	" 79.....32	"
26		Bass Drum (band)		
27		Bass Drum (Orchestra)		
28		Cymbal		
29		Snare Drum (Roll)		

PEDAL - (Second Touch)

30	32'	Diaphone.....resultant	From #66, & 67, #5 also	
			playing.....32	Notes
31	8'	Chimes.....	" #5.....21	"
32		Chinese Gong		
33		Persian Cymbal		
34		Bass Drum (band)		
35		Cymbal		
36		Tympani		

ACCOMPANIMENT MANUAL #1 (Bottom) - (First Touch)

37	16'	Contra Viole.....	From #60.....61	Notes
38	16'	Bourdon.....	" 31.....61	"
39	8'	Diaphonic Diapason.....	" 66.....61	"

40	8'	Horn Diapason.....	From #6.....	61	Notes
41	8'	Tibia Clausa.....	" 67.....	61	"
42	8'	Tibia Minor.....	" 31.....	61	"
43	8'	Open Flute.....	" 57.....	61	"
44	8'	Violoncello.....	" 38.....	61	"
45	8'	Violins - II Rks.....	" 68 & 69.....	61	"
46	8'	Violin.....	" 60.....	61	"
47	8'	Salicional - II Rks.....	" 40 & 41.....	61	"
48	8'	Tuba.....	" 70.....	61	"
49	8'	Trumpet.....	" 44.....	61	"
50	8'	Oboe Horn.....	" 77.....	61	"
51	8'	Clarinet.....	" 59.....	61	"
52	8'	English Horn.....	" 58.....	61	"
53	8'	Vox Humana.....	" 47.....	61	"
54	4'	Octave.....	" 6.....	61	"
55	4'	Tibia Flute.....	" 67.....	61	"
56	4'	Flute d'Amour.....	" 31.....	61	"
57	4'	Forest Flute.....	" 57.....	61	"
58	4'	Octave Viola.....	" 38.....	61	"
59	4'	Violins II Rks.....	" 68 & 69.....	61	"
60	4'	Octave Violin.....	" 60.....	61	"
61	4'	Muted Violins - II Rks.....	" 40 & 41.....	61	"
62	4'	Cornet.....	" 70.....	61	"
63	4'	Octave Oboe.....	" 77.....	61	"
64	4'	Vox Humana.....	" 47.....	61	"
65	2 1/2 2/3'	Nazard.....	" 57.....	61	"
66	2'	Viola Fifteenth.....	" 60.....	61	"
67	2'	Piccolo.....	" 57.....	61	"
68	16'	Piano.....	" 79.....	61	"
69	8'	Piano.....	" 79.....	61	"
70	4'	Piano.....	" 79.....	61	"
71	8'	Harp.....	" 65 & 48(13-61).....	49	"
72	4'	Harp.....	" 65 & 48.....	61	"
73	4'	Xylophone.....	" 80...(13-61).....	49	"
74	4'	Celesta.....	" 48...(1-61).....	61	"
75		Snare Drum (Roll)			
76		Snare Drum (Tap)			
77		Muffled Drum (Roll)			
78		Chinese Block (Roll)			
79		Chinese Block (Tap)			
80		Tom Tom			
81		Castanets			
82		Tambourine			
83		Shuffle			

ACCOMPANIMENT - (Second Touch)

84	8'	Tibia Clausa.....	From #67.....	61	Notes
85	8'	Cellos - III Rks.....	" 38, 68 & 69.....	61	"
86	8'	Tuba.....	" 70.....	61	"
87	8'	Oboe Horn.....	" 77.....	61	"

15.

ACCOMPANIMENT - (Second Touch)...(Cont'd)

88	8'	Clarinet.....	From #59.....	61	Notes
89	4'	Tibia Flute.....	" 67.....	61	"
90	8'	Chimes.....	" 25..(22 to 42)..	21	"
91	2'	Glockenspiel.....	" 81..(13 to 49)..	37	"
92		Snare Drum (Roll)			
93		Chinese Block (Roll)			
94		Triangle			
95		Bird			

ORCHESTRAL MANUAL #11. (First Touch)

96	16'	Diaphonic Diapason.....	From #66.....	61	Notes
97	16'	Contra Tibia Clausa.....	" 67.....	61	"
98	16'	Bourdon.....	" 31.....	61	"
99	16'	Bass Viol....T.C.....	" 38.....	49	"
100	16'	Bass Viol..II Rks...T.C.....	" 68 & 69.....	49	"
101	16'	Contra Viole.....	" 60.....	61	"
102	16'	Tuba.....	" 70.....	61	"
103	16'	Bassoon.....	" 77.....	61	"
104	16'	Bass Clarinet....T.C.....	" 59.....	49	"
105	16'	Vox Humana.....T.C.....	" 47.....	49	"
106	8'	Diaphonic Diapason.....	" 66.....	61	"
107	8'	Horn Diapason.....	" 6.....	61	"
108	8'	Tibia Clausa.....	" 67.....	61	"
109	8'	Doppel Floete.....	" 20.....	61	"
110	8'	Tibia Minor.....	" 31.....	61	"
111	8'	Open Flute.....	" 57.....	61	"
112	8'	Violoncello.....	" 38.....	61	"
113	8'	Violins II Rks.....	" 68 & 69.....	61	"
114	8'	Violin.....	" 60.....	61	"
115	8'	Salicional.....	" 40 & 41.....	61	"
116	8'	Trumpet.....	" 44.....	61	"
117	8'	Tuba.....	" 70.....	61	"
118	8'	Oboe Horn.....	" 77.....	61	"
119	8'	Clarinet.....	" 59.....	61	"
120	8'	English Horn.....	" 58.....	61	"
121	8'	Oboe (syn)..draws 2-2/3' from #31 & 8'	From #38.....	61	"
122	8'	Vox Humana.....	" 47.....	61	"
123	8'	Kinura.....	" 78.....	61	"
124	4'	Octave.....	" 66.....	61	"
125	4'	Tibia Flute.....	" 67.....	61	"
126	4'	Flute d'Amour.....	" 31.....	61	"
127	4'	Forest Flute.....	" 57.....	61	"
128	4'	Octave Viola.....	" 38.....	61	"
129	4'	Violins - II Rks.....	" 68 & 69.....	61	"
130	4'	Octave Violin.....	" 60.....	61	"
131	4'	Muted Violins - II Rks.....	" 40 & 41.....	61	"
132	4'	Cornet.....	" 70.....	61	"
133	4'	Octave Oboe.....	" 77.....	61	"

134	4'	Clarinet.....	From #59.....	61	Notes
135	2-2/3'	Nazard.....	" 31.....	61	"
136	2'	Super Octave.....	" 66.....	61	"
137	2'	Flautino.....	" 31.....	61	"
138	2'	Piccolo.....	" 57.....	61	"
139	2'	Violin Fifteenth.....	" 60.....	61	"
140	1-3/5'	Tierce.....	" 31.....	61	"
141	16'	Piano.....	" 79.....	61	"
142	8'	Piano.....	" 79.....	61	"
143	4'	Piano.....	" 79.....	61	"
144	8'	Harp.....	" 65 & 48(13-61).....	49	"
145	4'	Harp.....	" 65 & 48(1-61).....	61	"
146	4'	Xylophone.....	" 80.(13-61).....	49	"
147	2'	Xylophone.....	" 80..(1-49).....	49	"
148	4'	Celesta.....	" 48.(1-61).....	61	"
149	2'	Glockenspiel.....	" 81.(13-49).....	37	"
150	2'	Orchestral Bells.....	" 81.(13-49).....	37	"
151		Snare Drum Tap			
152	16'	Diaphone.....	" 6.....	61	"
153	16'	Contra Tibia Clausa.....	" 67.....	61	"
154	16'	Double English Horn...T.C.....	" 58.....	49	"
155	16'	Tuba.....	" 70.....	61	"
156	8'	Diaphone.....	" 66.....	61	"
157	8'	Tibia Clausa.....	" 67.....	61	"
158	8'	Trumpet.....	" 44.....	61	"
159	2'	Glockenspiel.....	" 81..(13-49).....	37	"
160	8'	Chimes.....	" 25..(22-42).....	21	"
161		Snare Drum (Roll)			

SOLO MANUAL #III

162	16'	Diaphone.....	From #66.....	61	Notes
163	16'	Contra Tibia Clausa.....	" 67.....	61	"
164	16'	Bourdon.....	" 31.....	61	"
165	16'	Bass Viola III....T.C.....	" 68,69,38.....	49	"
166	16'	Contre Viole.....	" 60.....	61	"
167	16'	Tuba.....	" 70.....	61	"
168	16'	Bassoon.....	" 77.....	61	"
169	16'	Bass Clarinet.....T.C.....	" 59.....	49	"
170	16'	Double English Horn...T.C.....	" 58.....	49	"
171	16'	Vox Humana.....T.C.....	" 47.....	49	"
172	16'	Kinura.....T.C.....	" 78.....	49	"
173	8'	Diaphonic Diapason.....	" 66.....	61	"
174	8'	Tibia Clausa.....	" 67.....	61	"
175	8'	Tibia Minor.....	" 31.....	61	"
176	8'	Open Flute.....	" 57.....	61	"
177	8'	Cellos - III Rks.....	" 38,68,69.....	61	"
178	8'	Violin.....	" 60.....	61	"
179	8'	Salicional.....	" 40 & 41.....	61	"
180	8'	Trumpet.....	" 44.....	61	"

181	8'	Tuba.....	From #70.....	61	Notes
182	8'	Oboe Horn.....	" 77.....	61	"
183	8'	Clarinet.....	" 59.....	61	"
184	8'	English Horn.....	" 58.....	61	"
185	8'	Vox Humana.....	" 47.....	61	"
186	8'	Kinura.....	" 78.....	61	"
187	4'	Octave.....	" 66.....	61	"
188	4'	Tibia Flute.....	" 67.....	61	"
189	4'	Flute d'Amour.....	" 31.....	61	"
190	4'	Forest Flute.....	" 57.....	61	"
191	4'	Violins - III Rks.....	" 38, 68, 69.....	61	"
192	4'	Muted Violins.....	" 40 & 41.....	61	"
193	4'	Octave Violin.....	" 60.....	61	"
194	4'	Cornet.....	" 70.....	61	"
195	4'	Vox Humana.....	" 47.....	61	"
196	2-2/3'	Nazard.....	" 31.....	61	"
197	2'	Tibia Piccolo.....	" 67.....	61	"
198	2'	Piccolo.....	" 57.....	61	"
199	1-3/5'	Tierce.....	" 57.....	61	"
200	4'	Xylophone.....	" 80..(13-61).....	49	"
201	2'	Glockenspiel.....	" 81..(13-49).....	37	"

PERCUSSION MANUAL IV

202	8'	Tibia Clausa.....	From #67.....	61	Notes
203	8'	Trumpet.....	" 44.....	61	"
204	8'	English Horn.....	" 58.....	61	"
205	8'	Vox Humana.....	" 47.....	61	"
206	8'	Kinura.....	" 78.....	61	"
207	4'	Tibia Flute.....	" 67.....	61	"
208	2'	Tibia Piccolo.....	" 67.....	61	"
209	8'	Piano.....	" 79.....	61	"
210	8'	Harp.....	" 65 & 48(13-61).....	49	"
211	4'	Harp.....	" 65 & 48 (1-61).....	61	"
212	4'	Xylophone.....	" 80..(13-61).....	49	"
213	4'	Celeste.....	" 48..(1-61).....	61	"
214	2'	Glockenspiel.....	" 81..(13-49).....	37	"
215	2'	Orchestral Bells.....	" 81..(13-49).....	37	"
216	8'	Gongs.....	" 25..(22-42).....	21	"

COMPLERS

217	Accompaniment to Pedal 8'
218	Orchestral to Pedal 8'
219	Orchestral to Accompaniment 8'
220	Solo to Accompaniment 8' (Second Touch only)
221	Solo to Accompaniment 4' (Second Touch only)
222	Solo to Orchestral 8'
223	Solo to Orchestral 4'

18.

COUPLERS (Cont'd)

- 224 Solo to Orchestral 6-2/5'
- 225 Solo to Orchestral 5-1/3'
- 226 Solo to Orchestral 4-4/7'
- 227 Solo to Orchestral 8' (Second Touch only)
- 228 Percussion to Solo 8'

VIBRATOS

- 229 String - Draws V, X, XIII
- 230 Tibia (Special Slow Regulation) - Draws XII
- 231 Tuba - Draws XIV
- 232 Vox Humana - Draws VII
- 233 Brass - Draws VI
- 234 Wood Wind - Draws II, IV, IX, XV
- 235 Foundation - Draws I, III, VIII, XI

EFFECTS

(By Push Buttons)

- 236 Two Birds
- 237 Two Sleigh Bells, different notes
- 238 Auto Horn
- 239 Fire Gong, stroke
- 240 Telephone Bell
- 241 Steamboat Whistle
- 242 Locomotive Whistle
- 243 Siren
- 244 Factory Gong, reiterating
- 245 Surf
- 246 Door Bell
- 247 Aeroplane

(By Spring Foot Levers)

- 248 Chinese Gong, (Roll, first touch; stroke, second touch)
- 249 Persian Cymbal, (Roll, first touch; stroke, second touch)
- 250 Grand Crash
- 251 Thunder Crash, graduated
- 252 Thunder Soft Roll, graduated

(By Toe Pistons)

- 253 Triangle
- 254 Two Birds (separate chambers)
- 255 Glass Crash

ADJUSTABLE COMBINATIONS

(Adjustable at the bench by the pistons)

- 10 and 0 toe pistons affecting Pedal
- 10 and 0 double touch pistons affecting Accompaniment and Pedal
- 10 and 0 double touch pistons affecting Orchestral and Pedal
- 10 and 0 double touch pistons affecting Solo and Pedal

10 and 0 double touch pistons affecting Percussion and Pedal
 10 Universal pistons affecting entire organ
 Five cancel pistons affecting respective manual groups
 Universal cancel piston affecting entire organ
 Vibrato cancel piston
 Drum piston; military drums and cymbal, manual and pedal, adjustable
 Trap cancel piston.

ACCESSORIES
 (Manual)

- 1 Five locking slides to connect any of all expression to any balanced pedal
- 2 Graduating indicators for position of balanced Pedals
- 3 Sforzando
- 4 Pistons connecting individual manuals to crescendo and Sforzando
- 5 Indicating lights for sforzando and other blind movements
- 6 Piston cancelling tremolos and expressive shoes main console
- 7 Action current indicator - volt meter
- 8 Change title button
- 9 Signal button
- 10 Remote control starter buttons
- 11 Signal light

(Pedal)

- 12 Four balanced expression pedals
- 13 Locking Pedal to connect all expression to master pedals
- 14 Balanced Crescendo Pedal
- 15 Balanced Sforzando Pedal
- 16 Balanced Chimes sustaining Pedal
- 17 Balanced Chimes soft Pedal
- 18 Balanced Piano sustaining Pedal
- 19 Balanced Piano soft Pedal
- 20 Balanced Celesta sustaining Pedal
- 21 Balanced muffled drum Pedal
- 22 Balanced change - title Pedal

Organ bench with adjustable back (adjustable for height)