

## LESLIE CABLE COLORS and PIN CONNECTIONS

**SIX-PIN SYSTEMS** - Don Leslie adopted Hammond's six-pin tone cabinet wiring in 1940 because it was easier to connect 30A Leslie Speakers to early Hammond organs. As additional Leslie models were developed for other organs, notably Wurlitzer and Conn, six-pin plugs and sockets were retained. Six conductor cables are interchangeable but the three 6-pin Leslie types are **not!** Input connections and channeling differ - using an incorrect Leslie type is hazardous plus the speaker will not function properly.

PIN	COLOR	HAMMOND (6H)	WURLITZER/UNIVERSAL (6W)	CONN/TWO-CHANNEL (6C)
1	Black	Input (Balanced)	Signal Ground	Signal Ground
2	Yellow	Signal/DC Ground	Motor Relay Coil	Motor Relay Coil
3	Gray	AC Power In	AC Power In	AC Power In
4	Blue	AC Power In	AC Power In	AC Power In/ Relay Coil
5	Brown	B+ (Approx. 300 VDC)	Motor Relay Coil	Channel Two Input (Unbalanced)
6	Red	Input (Balanced)	Signal Input (Unbalanced)	Channel One Input (Unbalanced)

**HAMMOND (6H)** - Includes Models: 30A, 30C, 31A, 31H, 21H, 22H, 22R, 122, 122R, 122V, 122RV, 142, 142A, 222, 222RV, 242, 122A-T and current 122A. (Early "30" series models below serial number 5200 have no provision to isolate DC control voltages and can not be used with 6H-type hookups unless their power amps are upgraded to later specs.)

**WURLITZER/UNIVERSAL (6W)** - Includes Models: 31W (except very early version), 44W, 46W, 25, 45, 47, 47R, 110, 112, 114, 116, 120, 120C, 125, 225, 145, 145A, 147, 147V, 147RV, 245, 247, 247RV, and current 147A. (Spinnet-type Leslies without power amps have their speaker(s) connected directly to pins 1 and 6.)

**CONN/TWO-CHANNEL (6C)** - Includes Models: 50C, 55C, 51C, 51, 251, and 351 (no current model). Model 55C has no tremolo relay and pin 2 is not connected. (Tremolo control for Model 55C is accomplished by switching audio channels at the organ.)

**Note:** "Wurlitzer" and "Conn" brand designations were dropped in later years. These Leslie types are now used with many different organ makes and models including Hammond.

**FIVE-TO-SIX- PIN HAMMOND SYSTEM** - This configuration was originally used to connect Hammond tone cabinets to Hammond Organs. It was also used to "daisy-chain" early Hammond series (21H, 22H, etc.) Leslies together and connect to Hammond-type (6H) Leslie models to later self-powered Hammond consoles with 8000 series connector kits and five-pin sockets at the console.

FIVE PIN PLUG	COLOR	SIX PIN SOCKET	HAMMOND-TYPE (6H) MODELS ONLY
1	Black	1	Input (Balanced)
2	Gray	3	AC Power In
3	(Shield)	2	Signal/DC Ground
4	Blue	4	AC Power In
5	Red	6	Input (Balanced)
-	(None)	5	No Connection

**Note:** The five-to-six-pin system is **not** applicable to early Hammond console hookups and Leslie connector kits that require DC (B+) from the tone cabinet for preamp power or motor control. It also cannot be used with Wurlitzer/Universal (6W) or Conn/Two-Channel (6C) Leslie models.

**NINE PIN SYSTEMS** - Nine conductor cables were used with various nine-pin Leslie types including the more popular single and two channel models listed below. However, **only** the ground (pin 1) and AC input (pins 8 and 9) are consistent in nine-pin Leslie types. Other nine-pin Leslies are multichannel and their pin connections and functions differ. They are not interchangeable with the models listed below and, in most cases, each other.

**Models:** 760, 770, 825, 825U, 830, 900, 900U, 910, 925, 950, and two-channel models 700 and 710.

PIN	COLOR	FUNCTION
1	Black	Signal/DC Ground
2	Red	Rotary Channel Input
3	Yellow	No Connection
4	Orange	Non-Rotary Channel Input (Models 700, 710 only) or "Aux" control (Models 900, 910, 925, 950 only)
5	Green	DC Output (+28 VDC)
6	White	Fast Motor Control (Switching pin 6 to pin 1 turns on tremolo Motors)
7	Violet	Slow Motor Control (Switching pin 7 to pin 1 turns on chorale Motors)
8	Gray	AC Power In
9	Blue	AC Power In

**Other Nine Pin Leslie Types** - Nonstandard multichannel, nine-pin Leslie models are:

**Model 350** (selected Conn models)

**Models 100GK, 101, 102, 103** (Gulbransen, selected Lowrey theatre models)

**Models 257, 258, 300, 301** (selected Thomas models)

**Models 202, 202S, 212S** (selected Wurlitzer models)

**Models 205, 610** (Hammond H-100 and R-100 series, various other two and three channel organs)

**Model 600** (various two and three channel organs but not Hammond)

**Models:** 610 and 205 (Of the above, only the electrically identical 610 and 205 were used with Hammond.)

PIN	COLOR	FUNCTION
1	Black	Signal/DC Ground
2	Red	DC Output (+125 VDC)
3	Yellow	Lower Drum Chan Input (Amplifier 4)
4	Orange	Bass Channel Input (Amplifier 2)
5	Green	Upper Drum Chan Input (Amplifiers 1 and 3)
6	White	Lower Drum Control (Grounding pin 6 switches amp 4 from lower drum speaker to stationary 6x9)
7	Violet	Upper Drum Control (Grounding pin 7 switches upper drum speed from fast to slow)
8	Gray	AC Power In
9	Blue	AC Power In

**ELEVEN PIN SYSTEM** - All later and current Leslie designs have eleven conductor cables. Current UL, CSA, and other standards no longer allow AC power to be supplied from the console so connecting cables supply only signal and control voltages. 11-pin Leslies have separate power cords and are, for most part, electrically interchangeable.

**Models:** 740 and 750 (typical). Not all pins are connected in Leslie models with fewer channels or features.

PIN	COLOR	FUNCTION
1	Brown	Rotary Chan Input (All except specialized models without the rotary feature)
2	Red	Main Chan/Non-Rotary Input (Leslie models with two or more channels)
3	Orange	Auxiliary #1 Input (Leslie models with three or more channels)
4	Yellow	Signal Ground
5	Green	Control Supply Common (May be grounded at the organ or connector kit)
6	Blue	Control Circuit Common (Switching pin 6 to pin 5 turns the Leslie on)
7	Violet	Fast Motor Control (Switching pin 7 to pin 5 turns on tremolo)
8	Gray	Slow Motor Control (Switching pin 8 to pin 5 turns on chorale)
9	White	External Speed Adjust (Never implemented, pin 9 is usually no connection)
10	Black	Auxiliary #2 Input (Four channel models only)
11	White/Black	+24 VDC Output (For preamp power or Leslie "sensing" circuits in some organs)

**TWELVE PIN SYSTEM** - Only special purpose Leslie models intended for Hammond X-77 and X-77GT organs have 12-pin plugs and sockets. Twelve pin connectors were used with standard nine conductor cables to prevent these Leslies from being used for other applications. They are electrically similar to the multichannel, solid-state, 9-pin models from the 60s and 70s.

**Models** X-77L and X-77P

PIN	COLOR	FUNCTION
1	Black	Signal/DC Ground
2	Red	Rotary Channel Input
3	Yellow	Non-Rotary Input (Channeling determined by tab settings at the organ)
4	Orange	Bass Channel Input
5	Green	Non-Rotary Input (Channeling determined by tab settings at the organ)
6	White	Tremolo Generator Input (Channeling is determined by tab settings at the organ)
7	Violet	Tremolo/Celeste Control (Grounding pin 7 switches horn rotor to slow and vibrato amplifier channeling)
8	(None)	No Connection
9	Gray	AC Power In
10	(None)	No Connection
11	Blue	AC Power In
12	(None)	No Connection