

Pass Labs XP-17 Phono Stage: Cartridge Matching & DIP Switch Reference Sheet (v2)

This guide provides precise, source-grounded configuration instructions for setting up the **Pass Labs XP-17 Phono Stage** for various high-performance cartridges, including the comprehensive lineup available via Moon Audio (featuring Ortofon Concorde Music, Ortofon MC Cadenza, and Grado Labs Prestige/Timbre/Lineage series) as well as reference models from high-end audio literature.

1. Master DIP Switch Legend

The XP-17 features two banks of eight-pole DIP switches per channel on the rear panel:

- **LOADING BANK:** Determines resistive loading for matching cartridge impedance.
- **CAP/GAIN BANK:** Selects capacitive loading, gain settings, and houses a hidden resistive load option.

Loading Bank (Resistive)

These switches put resistive values in parallel with the fixed 47k Ohm default input value.

Switch	Resistance Value	Notes
1	10 Ohms	For extremely low-impedance Moving Coil (MC) cartridges.
2	27 Ohms	
3	47 Ohms	Close match to 50 Ohms on its own.
4	100 Ohms	standard MC starting point.
5	250 Ohms	
6	500 Ohms	
7	750 Ohms	
8	1K Ohm (1000 Ohms)	

- **Default (All Switches Down/OFF):** 47k Ohms (Standard MM cartridge load).
- **Parallel Equation:** Flipping multiple switches to ON places those values in parallel with the fixed 47k Ohm load.

Cap/Gain Bank (Capacitance, Gain, & Hidden Load)

These switches determine the overall gain, additive capacitance, and a hidden high-impedance load.

Switch	Function	Value / Setting	Notes
1	Capacitance	+100 pF	Additive to default 100 pF.
2	Capacitance	+220 pF	Additive to default 100 pF.
3	Capacitance	+320 pF	Additive to default 100 pF.
4	Resistive Load (Hidden)	10K Ohms	Wayne Colburn's hidden switch for Moving Iron cartridges.
5	N/A	<i>Reserved</i>	Leave Down/OFF under normal use.
6	Gain	56 dB (Balanced) / 50 dB (RCA)	Perfect for Moving Magnet (MM) / high-output MI.
7	Gain	66 dB (Balanced) / 60 dB (RCA)	Standard starting point for medium-to-low output MC.
8	Gain	76 dB (Balanced) / 70 dB (RCA)	For very low-output MC cartridges.

- **Default Capacitance (Switches 1-3 Down/OFF):** 100 pF.
- **Capacitance Parallel Equation:** Turning on multiple switches adds their value to the default 100 pF base (ranging up to 750 pF).

2. Moon Audio Cartridge Configurations

Category A: Ortofon Concorde Music Series (Moving Magnet)

Optimized for the entire high-fidelity MM lineup, including **Concorde Music Red, Blue, Bronze, Black, and Black LVB 250**.

- **Output / Requirements:** High output (~6.0 mV). Standard MM load of 47k Ohms and 150–300 pF recommended capacitance.
- **XP-17 Target Settings:** **56 dB Gain, 47k Ohms Resistive Load, 200 pF or 320 pF Capacitance** (depending on personal cable capacitance to hit the recommended 150-300 pF window).

DIP Switch Configurations:

1. Recommended Base Setting (56 dB gain, 47k Ohm load, 200 pF capacitance)

LOADING BANK (Resistive)

ON ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐OFF ☒ ☒ ☒ ☒ ☒ ☒ ☒ ☒ (All switches OFF = Default 47k Ohms)

1 2 3 4 5 6 7 8

CAP/GAIN BANK (Capacitance, Gain, Hidden Load)

ON ☒ ☐ ☐ ☐ ☐ ☐ ☒ ☐ ☐ (Switch 1 ON = +100 pF for 200 pF total; Switch 6 ON = 56 dB Gain)OFF ☐ ☐ ☒ ☒ ☒ ☒ ☐ ☒ ☒

1 2 3 4 5 6 7 8

2. Alternative High-Capacitance Setting (56 dB gain, 47k Ohm load, 320 pF capacitance)

LOADING BANK (Resistive)

ON ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐OFF ☒ ☒ ☒ ☒ ☒ ☒ ☒ ☒ (All switches OFF = Default 47k Ohms)

1 2 3 4 5 6 7 8

CAP/GAIN BANK (Capacitance, Gain, Hidden Load)

ON ☐ ☐ ☒ ☐ ☐ ☐ ☐ ☒ ☐ ☐ (Switch 2 ON = +220 pF for 320 pF total; Switch 6 ON = 56 dB Gain)OFF ☒ ☒ ☐ ☒ ☒ ☒ ☐ ☒ ☒

1 2 3 4 5 6 7 8

Category B: Ortofon MC Cadenza Series (Moving Coil)

Optimized for the high-end MC lineup, including **Cadenza Red, Blue, Bronze, and Black**.

- **Output / Requirements:** Low output (0.3 mV to 0.5 mV). Recommended resistive loading between 50 and 500 Ohms.
- **XP-17 Target Settings:** **66 dB Gain** (starting default for low-output MC) or **76 dB Gain** (if using unbalanced RCAs or if your line stage requires a hot signal), **50 to 100 Ohms loading**, **100 pF default capacitance**.

DIP Switch Configurations:

1. Cadenza Series Standard Setting (66 dB Gain, 100 Ohm load, 100 pF capacitance)

LOADING BANK (Resistive)

ON ☐ ☐ ☐ ☐ ☒ ☐ ☐ ☐ ☐ ☐ (Switch 4 ON = 100 Ohms load parallel with 47k)OFF ☒ ☒ ☒ ☐ ☐ ☒ ☒ ☒ ☒ ☒

1 2 3 4 5 6 7 8

CAP/GAIN BANK (Capacitance, Gain, Hidden Load)

ON ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒ ☐ (Switch 7 ON = 66 dB Gain)OFF ☒ ☒ ☒ ☒ ☒ ☒ ☐ ☐ ☒ ☒ (Capacitance switches OFF = Default 100 pF)

1 2 3 4 5 6 7 8

2. Cadenza Series High-Definition Setting (66 dB Gain, ~47 Ohm load, 200 pF capacitance)

Karl Sigman's alternative choice for softening treble edge and expanding acoustic depth.

LOADING BANK (Resistive)

ON ☐ ☐ ☒ ☐ ☐ ☐ ☐ ☐ ☐ (Switch 3 ON = 47 Ohms load parallel with 47k)OFF ☒ ☒ ☐ ☐ ☒ ☒ ☒ ☒ ☒

1 2 3 4 5 6 7 8

CAP/GAIN BANK (Capacitance, Gain, Hidden Load)

ON ☒ ☐ ☐ ☐ ☐ ☐ ☐ ☒ ☐ (Switch 1 ON = +100 pF for 200 pF total; Switch 7 ON = 66 dB Gain)OFF ☐ ☐ ☒ ☒ ☒ ☒ ☒ ☐ ☒

1 2 3 4 5 6 7 8

Category C: Grado Labs Timbre Wood & Prestige Series (Moving Iron)

Optimized for the handcrafted wood/plastic MI bodies, including **Opus3/Opus4, Platinum3/Platinum4, Sonata3/Sonata4, and Reference3.**

1. High Output Versions (~4.0 mV to 4.8 mV output)

- **XP-17 Target Settings: 56 dB Gain, 47k Ohms Resistive Load, 100 pF Capacitance** (MI designs are insensitive to capacitance).

LOADING BANK (Resistive)

ON ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐OFF ☒ ☒ ☒ ☒ ☒ ☒ ☒ ☒ ☒ (All switches OFF = Default 47k Ohms)

1 2 3 4 5 6 7 8

CAP/GAIN BANK (Capacitance, Gain, Hidden Load)

ON ☐ ☐ ☐ ☐ ☐ ☐ ☒ ☐ ☐ (Switch 6 ON = 56 dB Gain)OFF ☒ ☒ ☒ ☒ ☒ ☐ ☒ ☒ ☒ (Capacitance OFF = Default 100 pF)

1 2 3 4 5 6 7 8

2. Low Output Versions (~1.0 mV output)

- **XP-17 Target Settings: 56 dB or 66 dB Gain** (depending on your preamp's sensitivity), **47k Ohms Resistive Load** (or the hidden **10K Ohm load** for a warmer, meatier balance), **100 pF Capacitance.**

LOADING BANK (Resistive)

ON ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ (All switches OFF = Default 47k Ohms)OFF ☒ ☒ ☒ ☒ ☒ ☒ ☒ ☒ ☒

1 2 3 4 5 6 7 8

CAP/GAIN BANK (Capacitance, Gain, Hidden Load)

ON ☐ ☐ ☐ ☐ ☒ ☐ ☒ ☐ ☐ (Switch 4 ON = 10K Hidden Load; Switch 6 ON = 56 dB Gain)OFF ☒ ☒ ☒ ☐ ☒ ☐ ☒ ☒ ☒

1 2 3 4 5 6 7 8

Category D: Grado Labs Lineage Series (Moving Iron)

Optimized for the ultra-premium Brazilian Ebony flagship flux-bridger designs, including **Statement4**, **Aeon4**, and **Epoch4**.

- **Output / Requirements:** Low output (1.0 mV). Requires a quiet, high-gain, high-resolution phono stage that loads at 47k Ohms or 10k Ohms.
- **XP-17 Target Settings:** **56 dB Gain** (if using balanced XLRs and highly sensitive preamps) or **66 dB Gain** (to fully flesh out dynamics from the 1.0 mV output), **47k Ohms load** or **10k Ohms load**, **100 pF Capacitance**.

DIP Switch Configurations:

1. Reference Setting (66 dB Gain, 47k Ohm load, 100 pF capacitance)

```
LOADING BANK (Resistive)
ON  [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]
OFF [X] [X] [X] [X] [X] [X] [X] [X] (All switches OFF = Default 47k Ohms)
    1  2  3  4  5  6  7  8
CAP/GAIN BANK (Capacitance, Gain, Hidden Load)
ON  [ ] [ ] [ ] [ ] [ ] [ ] [X] [ ] (Switch 7 ON = 66 dB Gain)
OFF [X] [X] [X] [X] [X] [X] [ ] [X] (Capacitance OFF = Default 100 pF)
    1  2  3  4  5  6  7  8
```

2. Karl Sigman's "Hidden 10k" Sweet Spot (56 dB Gain, 10k Ohm load, 100 pF capacitance)

This setup utilizes Wayne Colburn's hidden switch for an organic, full, and quiet presentation.

```
LOADING BANK (Resistive)
ON  [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]
OFF [X] [X] [X] [X] [X] [X] [X] [X] (All switches OFF = Default 47k Ohms)
    1  2  3  4  5  6  7  8
CAP/GAIN BANK (Capacitance, Gain, Hidden Load)
ON  [ ] [ ] [ ] [X] [ ] [ ] [X] [ ] (Switch 4 ON = 10K Hidden Load; Switch 6 ON = 56 dB Gain)
OFF [X] [X] [X] [ ] [X] [ ] [X] [X]
    1  2  3  4  5  6  7  8
```

3. Reference Configurations from High-End Literature

Profile A: Grado Labs Statement v2 (Moving Iron)

Optimized by Karl Sigman (*Audiophilia*) for rich, lifelike timbres, massive soundstaging, and a deep black background.

- **Output / Requirements:** Requires moderate-to-high gain (≥ 56 dB) and a dedicated 10K Ohm load.
- **Target Settings:** **56 dB Gain**, **10K Ohm Resistive Load**, **100 pF Capacitance**.

DIP Switch Configurations:

LOADING BANK (Resistive)

ON [] [] [] [] [] [] [] [] []

OFF [X] [X] [X] [X] [X] [X] [X] [X] [X] (All switches OFF = Default 47k Ohms)

1 2 3 4 5 6 7 8

CAP/GAIN BANK (Capacitance, Gain, Hidden Load)

ON [] [] [] [X] [] [X] [] [] [] (Switch 4 ON = 10K load; Switch 6 ON = 56 dB Gain)

OFF [X] [X] [X] [] [X] [] [X] [X]

1 2 3 4 5 6 7 8

Profile B: Ortofon SPU Classic G MkII (Moving Coil)

Optimized by Jeff Day (*Positive Feedback*) for natural violin tones, reduced groove noise, and incredible musicality.

- **Output / Requirements:** 0.2 mV output, 2 Ohms internal impedance.
- **Target Settings:** 76 dB Gain (Balanced) / 70 dB (RCA), 200 pF Capacitance.

Loading Options (Choose One Based on Sonic Preference):

1. **Jeff's Balanced Sweet Spot (17.1 Ohms):** Excellent balance of frequency extension, low-end control, and natural high frequencies.
2. **Jeff's Rich & Lush Setting (5.66 Ohms):** Emphasizes mid-range weight, romanticizes strings, and significantly tames groove noise on older records.
3. **Jeff's Neutral Setting (21.3 Ohms):** Highly accurate, well-balanced response with maximum high-frequency resolution.

DIP Switch Configurations:

1. Jeff's Balanced Option (17.1 Ohms load, 76 dB gain, 200 pF capacitance)

LOADING BANK (Resistive)

ON [] [X] [X] [] [] [] [] [] [] (Switch 2 & 3 ON = 17.1 Ohms parallel)

OFF [X] [] [] [X] [X] [X] [X] [X]

1 2 3 4 5 6 7 8

CAP/GAIN BANK (Capacitance, Gain, Hidden Load)

ON [X] [] [] [] [] [] [] [] [X] (Switch 1 ON = +100 pF for 200 pF; Switch 8 ON = 76 dB Gain)

OFF [] [X] [X] [X] [X] [X] [X] []

1 2 3 4 5 6 7 8

Profile C: Audio Note (UK) Io I (Moving Coil)

Optimized by Jeff Day (*Positive Feedback*) for maximum recovery of micro-nuance, dramatic dynamics, and stunning acoustic space.

- **Output / Requirements:** Ultra-low output (0.04 mV), internal impedance of 1 Ohm.

- **Target Settings: 76 dB Gain** (essential for this extremely low output), **21.3 Ohms Resistive Load** (Jeff's ideal musical sweet spot, though 21.3 to 166 Ohms perform beautifully), **100 pF Capacitance**.

DIP Switch Configurations:

```
LOADING BANK (Resistive)
ON  [ ] [X] [ ] [X] [ ] [ ] [ ] [ ] (Switch 2 & 4 ON = 21.3 Ohms parallel)
OFF [X] [ ] [X] [ ] [X] [X] [X] [X]
    1  2  3  4  5  6  7  8
CAP/GAIN BANK (Capacitance, Gain, Hidden Load)
ON  [ ] [ ] [ ] [ ] [ ] [ ] [ ] [X] (Switch 8 ON = 76 dB Gain)
OFF [X] [X] [X] [X] [X] [X] [X] [ ] (Capacitance switches OFF = Default 100 pF)
    1  2  3  4  5  6  7  8
```

Profile D: Ortofon MC Verismo (Moving Coil)

Optimized by Paul Wilson (*Future Audiophile*) for stunning explosive dynamics, precise instrument separation, and a pitch-black background.

- **Output / Requirements:** Very low output (0.2 mV).
- **Target Settings: 76 dB Gain** (necessary to achieve full dynamic scale from low-output MC without using an auxiliary step-up transformer).

DIP Switch Configurations:

```
LOADING BANK (Resistive)
*Adjust to sonic preference by ear (Pass Labs recommends trying different parallel resistive values to find the sweet spot for your room).*
CAP/GAIN BANK (Capacitance, Gain, Hidden Load)
ON  [ ] [ ] [ ] [ ] [ ] [ ] [ ] [X] (Switch 8 ON = 76 dB Gain)
OFF [X] [X] [X] [X] [X] [X] [X] [ ]
    1  2  3  4  5  6  7  8
```

4. Recommended Optimization Workflow

When setting up a new cartridge on the XP-17, follow the engineering team's recommended trial method to "find your sound":

1. **Set Gain First:** Use 56 dB for MM/MI (high output). For low-output MC, begin at 66 dB. If dynamic transients lack punch or require excessive preamplifier volume, increase the gain to 76 dB.
2. **Standardize Resistive Load:** Use 47k Ohms for MM. For MC cartridges, starting between 20 to 100 Ohms is standard. If the high frequencies sound hard, metallic, or produce sibilant vocals, decrease the resistive load (e.g., dial in lower Ohm parallel combinations).

3. **Trim with Capacitance:** While MC cartridges are historically less sensitive to capacitance, adding capacitive load (100 pF to 200 pF) can subtly smooth high-frequency response and open up the reverberant acoustic space of a recording venue.