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audio-technica®

INSTRUCTIONS AND SPECIFICATIONS

AT300P

AT301EP

AT311EP

AT316EP

AT331LP

PRELIMINARY INSTALLATION

Before mounting the cartridge, the stylus assembly should be removed for safekeeping. To remove the stylus, hold the cartridge in one hand, grasp the plastic stylus housing with thumb and forefinger, and pull directly away from the cartridge. The stylus assembly pulls away at a slight rearward angle. The stylus removes by pulling straight away from the body as shown in Figure 1. Place the stylus assembly away from harm until installation is completed.

MOUNTING

These models are "Universal" and may be mounted in either "P-mount" turntables or, with the adapter bracket, in standard $\frac{1}{2}$ " mount arms.

To attach the cartridge to a "P-mount" tone arm, follow the manufacturer's instructions and simply plug the cartridge in (be careful not to bend the four connector pins) and tighten the set screw.

When using this cartridge in a $\frac{1}{2}$ " mount tone arm, the adapter bracket must be attached as shown in Figure 1. Tighten the adapter mounting screw until the adapter is securely attached to the cartridge. After the bracket is attached, install the cartridge as described above for the $\frac{1}{2}$ " mount models.

ELECTRICAL CONNECTIONS

Four terminals are provided at the rear of the cartridge—an output and ground connection for each stereo channel (Figure 1). Connect the turntable wiring to the cartridge, observing the lead designation furnished with the turntable. The cartridge pins are color coded, using a well-established standard in the turntable industry.

DO NOT SOLDER TO THE CARTRIDGE TERMINALS. USE SLIP-ON LUGS TO WHICH TONE ARM WIRES HAVE BEEN SOLDERED BEFORE PLACING ON CARTRIDGE TERMINALS. Heat applied to the cartridge terminals will damage the internal cartridge connections.

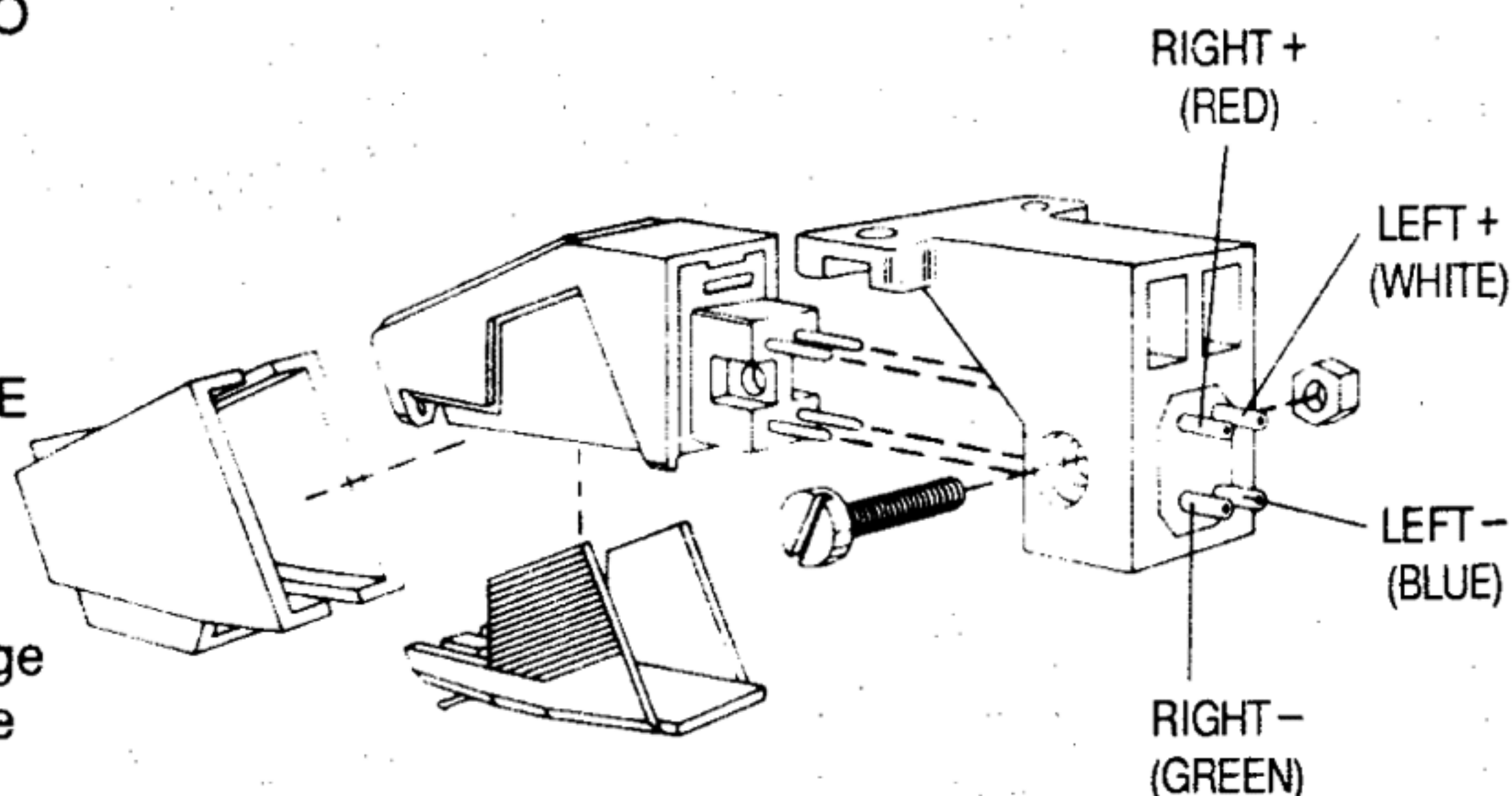


Fig. 1

For monaural operation, the left and right signal terminals should be connected to the monaural signal lead, and the left and right ground terminals should be connected to the ground lead.

FINAL INSTALLATION

Re-install the stylus assembly. If the cartridge is installed in a "P-mount" tone arm, the only adjustment is tracking force, which should be adjusted to somewhere between 1 and 1½ grams. In ½" mount models, begin by following the procedure recommended by the tone arm or turntable manufacturer, and carefully set tracking force within the range shown for your cartridge in the appropriate specifications table. This is a critical adjustment, since tracking force higher or lower than recommended will result in increased distortion and decreased record life. Similarly, the tone arm's adjustments, if any, for stylus overhang and anti-skating must be set properly if maximum benefit is to be obtained from your cartridge. Anti-skating setting for the AT331LP should be 1.2 times standard elliptical value, or as indicated on your turntable. After all tone arm adjustments have been made, the stylus may remain installed in the cartridge. However, the plastic stylus guard should be used to protect against accidental damage, as at any time when the turntable is not in use.

CONNECTION TO SYSTEM

Once the cartridge is properly installed in the tone arm, the turntable may be connected to the rest of the music system. Normally, two shielded audio cables are run from the cartridge connections on the bottom of the turntable to the magnetic phono inputs on the amplifier or receiver, or to the inputs of a separate preamplifier. Make sure to observe left and right channel markings.

In addition, a separate ground wire is required between the chassis of the turntable and the electronics chassis to prevent hum. Usually this ground wire comes attached to the turntable, ready to connect to a ground screw on the connection panel of most electronics.

One of the most common problems encountered in system hookup is hum from the phonograph input. Usually this can be traced to a bad audio cable connecting the turntable to the amplifier, or the absence of the separate ground wire mentioned above. The instruction furnished with most turntables cover the method of connection in detail.

Another problem sometimes encountered during initial system setup is distorted or unbalanced sound from the two phono channels. Usually this can be traced to a mix-up of wires in the turntable. Wires at the cartridge terminals might be interchanged, or slightly touching together. Be certain the cartridge wiring is exactly as shown in the appropriate connection drawing, (Figure 1).

OPERATING SUGGESTIONS

The extremely low tracking force and high compliance of Audio-Technica cartridges provide the highest levels of performance available but also make them susceptible to damage if handled improperly. If a few simple precautions are observed, your cartridge will provide excellent service for years.

Most stylus damage is caused by rough treatment while the tone arm is being operated by hand. A finger used to lift or set down the tone arm should always be placed *under* the tone arm finger lift, never over it. This prevents pressing down on the tone arm, which is likely to put excessive force on the stylus assembly.

The stylus should be set gently on the record, never dropped. A damped cueing device which lowers the tone arm gently to the record is found on many record changers. Use of such a device adds an extra measure of safety for your cartridge and records.

Another common cause of stylus damage occurs when cleaning or dusting the turntable area. Keep the plastic stylus guard in place when not using the turntable. The dust covers made for most turntables represent a good investment not only in keeping the turntable clean, but in preventing this kind of stylus damage.

Another practice common with stiffer and therefore more rugged low-performance cartridges is cleaning the stylus with a finger. While this practice may be safe enough with low performance cartridges, it may well spell disaster to a delicate, high performance stylus. The stylus should be cleaned with a stylus cleaning brush, using a **rear to front motion** of the brush, never front to rear and never side to side.

An accumulation of dirt on the stylus indicates that the records themselves are dirty, a condition which will shorten record life and reduce the potential performance of your cartridge. Keep records stored vertically in their jackets and clean each side of the record just before it is played.

REPLACEMENT STYLI

Audio-Technica grain-oriented diamond styli are carefully selected and polished for minimum wear to themselves and to your records. However, after an extended period of play, even the finest diamond stylus becomes worn. For this reason, it is best to have the stylus inspected annually, or whenever it appears that wear or damage may be a problem. The dealer from whom you purchased this cartridge is equipped and competent to inspect and evaluate the stylus.

ONE-YEAR LIMITED WARRANTY

Audio-Technica phono cartridges purchased in the U.S.A. are warranted for one year from date of purchase by Audio-Technica U.S., Inc. (A.T.U.S.) to be free of defects in materials and workmanship. In event of such defect, product will be repaired promptly without charge or, at our option, replaced with a new product of equal or superior value if delivered to A.T.U.S. or an Authorized Service Center prepaid, together with the sales slip or other proof of purchase date. **PRIOR APPROVAL FROM A.T.U.S. IS REQUIRED FOR RETURN.** This warranty excludes defects due to normal wear, abuse, shipping damage, or failure to use product in accordance with instructions. This warranty is void in the event of unauthorized repair or modification.

FOR RETURN APPROVAL AND SHIPPING INFORMATION, contact the Service Dept., Audio-Technica U.S., Inc., 1221 Commerce Drive, Stow, Ohio 44224.

Except to the extent precluded by applicable state law; A.T.U.S. WILL HAVE NO LIABILITY FOR ANY CONSEQUENTIAL, INCIDENTAL, OR SPECIAL DAMAGES; AND ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE EXPIRES WHEN THIS WARRANTY EXPIRES.

This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

SPECIFICATIONS	AT300P	AT301EP	AT311EP	AT316EP	AT331LP
Frequency Response (Hz)	20-22,000	15-25,000	15-27,000	10-27,000	10-30,000
Output @ 1 kHz, 5 cm/sec (mV)	5	5	5	5	3
Channel Separation					
1 kHz	26	26	29	29	31
10 kHz	16	17	18	20	21
Channel Balance (dB)	1.5	1.5	1.25	1	1
Vertical Tracking Force	1 - 1 ¹ / ₂	1 - 1 ¹ / ₂	1 - 1 ¹ / ₂	1 - 1 ¹ / ₂	1 - 1 ¹ / ₂
Vertical Tracking Angle	20°	20°	20°	20°	20°
Stylus Shape	0.6 mil UniRadial	0.4 x 0.7 mil BiRadial	0.3 x 0.7 mil BiRadial	0.3 x 0.7 mil Nude BiRadial	Linear Contact
Cantilever	Thin-wall	Thin-wall	Thin-wall	Thin-wall tube	Tapered alloy tube
Load Impedance (ohms)	47 k	47 k	47 k	47 k	47 k
Load Capacitance (pF)	100 - 200	100 - 200	100 - 200	100 - 200	100 - 200
Replacement Stylus	ATN3472C	ATN3472BE	ATN3472SE	ATN3472NE	ATN3472LC

Audio-Technica cartridges are protected by the following patents: Canada 856,351 and 909,683; England 1,232,210 and 1,283,404; France 6,928,056; Japan 1,083,037 and 883,307; Sweden 347,636; Switzerland 478,502 and 505,437; United States 3,720,796 and 3,761,647 and 4,075,418; West Germany 1,772,685 and 1,941,569.