

# The **Oyster**<sup>™</sup> Series Phono Cartridges by

## S U M I K O

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Thank you for purchasing your new Sumiko Oyster Series phono cartridge. Sumiko Oyster<sup>™</sup> cartridges are products resulting from over four decades of cartridge design. We believe that delivered high performance can be achieved at reasonable prices. The Oyster<sup>™</sup> line is the embodiment of this philosophy. Oyster<sup>™</sup> is your ticket of entry for the "high-end" – a world of high technology, where companies go to great lengths to recreate music in your home. The Oyster<sup>™</sup> Series offers superior construction and sound quality with an emphasis on real world performance. Whether you have purchased a moving magnet or moving coil Sumiko Oyster<sup>™</sup>, you can be assured of performance and quality second to none. Enjoy your new cartridge.

### User Guidelines

**Mounting:** The stylus/cantilever assembly is the most fragile part of any phono cartridge. Please use extreme caution while handling the cartridge and keep the stylus guard mounted whenever possible to prevent damage during the mounting process. Do not solder the leads to the cartridge terminals as excessive heat may permanently damage the cartridge.

Once the cartridge is mounted, balance the tonearm for the proper vertical tracking force indicated for each model cartridge (see specifications at the end of this manual). To set the tracking force, first balance the tonearm. Locate the counterweight. On virtually all pivoted tonearms, it will be located at the rear of the tonearm (meaning at the opposite end from the cartridge). Generally, it looks like a fairly large, shallow cylinder, usually black in color and often has numbers (indicating grams of force) ranging from 0 to 3 or more printed on it. As you move the counterweight backwards, the cartridge end of the arm will lighten (reducing stylus tracking weight), while moving the counterweight forward will increase the stylus tracking weight. The first objective is to "statically balance" the arm, which is to achieve the proper weight balance such that the arm "floats" level. Practice a bit and you'll find it's fairly easy to achieve. Remember to exercise caution so that the stylus and cantilever are kept clear of any obstructions and are prevented from striking anything that could cause damage. After achieving static balance, adjust the counterweight to the desired tracking force by bringing the weight in toward the cartridge. Do not apply anti-skate until the cartridge is aligned. This will be addressed later in the setup process.

We recommend the use of a high-quality alignment protractor to determine correct cartridge positioning for the minimum tracking error. If none are available, follow the tonearm manufacturer's guidelines for overhang and offset angle. Now tighten the mounting bolts.

**Note:** Do not over tighten the mounting bolts as this may cause damage to the cartridge and is not necessary for optimum performance.

**Tracking Force:** After achieving the correct alignment of the cartridge in the headshell, final adjustment of tracking force can be made. The suspension systems and stylus types used in Oyster<sup>™</sup> cartridges are designed to perform optimally when a tracking force of between 1.5 – 2.5 grams is applied (pending the model). Tracking below its recommended VTF range, the stylus will not securely seat in the record groove, resulting in increased record and stylus wear. Tracking above the recommended range, the suspension will no longer functioning properly and dynamics will be lost. Record damage will occur more readily with too little tracking force, rather than too much. A recommended optimum tracking force setting is given for each model in the specification section of this manual.

**Anti-Skate/Bias:** Due to the rotational inertia of pivoted tonearms, the friction of the stylus on the record groove produces a force that pulls the stylus toward the center of the record. Anti-Skate (or mechanical bias) is added to compensate for this force in order to equalize the stylus tracking on the sides of the groove walls. Because this is a dynamic force, do not attempt adjustment using a blank or grooveless record as this will result in over compensation. When using a Sumiko Oyster<sup>™</sup> moving magnet cartridge, a value equal to the tracking force should be applied as anti-skate. Two grams tracking force = Two grams of anti-skate.

**Vertical Tracking Angle/Stylus Rake Angle:** The dimensions of the cutting stylus used in mastering each vinyl record create a rake (forward-backward tilt) of the record groove. The rake angle may change for different records depending on the method of mastering used. The corresponding rake of the playback stylus will be one of the determining factors in the delivered performance of your Oyster™ cartridge; however, all Oyster™ cartridges are designed to give excellent performance over a very wide window of rake angles. If your tonearm does not have rake or adjustable height adjustment, you may rest assured that your cartridge will deliver a very high degree of performance. The following is intended for those who own a tonearm that allows for the adjustment of rake or arm pillar height. To optimize, start with the tonearm oriented with the back of the arm lower than the front by  $\approx 1/2$  inch. Listen to a recording of acoustical music, recorded in real space, to determine the tonal balance and soundstage presentation. Adjust the tonearm pivot height upwards  $\approx 1/6$  inch at a time and listen to the changes. When the correct orientation has been achieved, the soundstage will be better defined and the music will have a richer harmonic structure. Additionally, surface noise will be reduced dramatically. If the soundstage comes into focus and becomes very lifelike but the sound has a slight hardness to the upper frequencies, the azimuth may be off (see azimuth section for adjustment details).

**Azimuth:** For optimum tracking of the record grooves, the stylus must be in correct azimuth (side-to-side tilt) alignment. Gross side-to-side tilt will result in an actual channel imbalance, but this is not a likely scenario. More likely, any sort of an azimuth error that you will experience will result in tonal aberrations in the upper frequencies and not a channel imbalance.

**Loading:** All Sumiko Oyster™ moving magnet cartridges are designed to work into a standard moving magnet phone stage at 47k $\Omega$  loading. It is normal to experience a slightly lower output from your phono stage relative to a line stage device such as a CD player.

**Note:** If your receiver or pre-amp has capacitance loading capabilities, Sumiko cartridges should be loaded with a value no higher than 200pf.

**Maintenance Cleaning:** Optimum performance can only be achieved by maintaining a clean stylus and record surface. If your records are kept very clean, the brush supplied with your cartridge will suffice to remove accumulated dust if it is used after each play. Be sure to either turn the volume down or select a different input prior to doing this. Only use a back to front motion when contacting the stylus during cleaning. To remove compacted debris, we recommend LAST cleaning products as the best and safest stylus cleaner available.

**Important:** Extreme caution should be exercised in cleaning the stylus. A single front to back motion can permanently damage the cantilever.

**Stylus Replacement:** Please contact your dealer for details on how to replace and/or upgrade the stylus on your Oyster Series™ cartridge. All moving magnet models can accept a replacement stylus/cantilever assembly.

Sumiko offers 5 stylus options utilizing the latest Rainier Family generator. Users with Rainier can upgrade to Olympia, Moonstone or even Wellfleet with a simple stylus swap. Owners of, say, Wellfleet may choose to install a Rainier stylus for a party or for vinyl that may be contaminated or damaged, preserving the pristine Wellfleet for high quality, well-cleaned albums. Owners of Amethyst can enjoy the same versatility. Although the generator for Amethyst is different from that of the rest of the Rainier Family, the physical body & mechanics are the same so it is possible to use, for example, a Rainier or Olympia stylus with an Amethyst body. This also means one can install an Amethyst stylus in a Rainier body (it sounds fabulous, but be advised it does not extract the full potential of Amethyst's sophisticated stylus/cantilever). RS 78 works with any of the cartridges in this family, including Amethyst! Take note that our Pearl & Black Pearl styli are also physically interchangeable.

<b>Rainier Family Cartridges</b>	<b>Rainier</b>	<b>Olympia</b>	<b>Moonstone</b>	<b>Wellfleet</b>	<b>Amethyst</b>	<b>RS 78</b>
Type	MM	MM	MM	MM	MM	Replacement Stylus
Stylus	0.3 x 0.7mil Elliptical	0.3 x 0.7mil Elliptical	0.3 x 0.7mil Elliptical	0.3x0.7mil Nude Elliptical	0.2 x 0.8mil Line Contact	3mil Bonded Spherical
Cantilever	Aluminum Pipe	Aluminum Pipe	Φ0.5 Aluminum Pipe	Φ0.5 Aluminum Pipe	Φ0.5 Aluminum Pipe	Aluminum Pipe
Magnet	Alnico	Alnico	Alnico	Alnico	Alnico	Alnico
Coils	Pure Copper	Pure Copper	Pure Copper	Pure Copper	Pure Copper	Pure Copper
Internal Impedance	1130Ω	1130Ω	1130Ω	1130Ω	700Ω	1130Ω
Loading	47k Ohms	47k Ohms	47k Ohms	47k Ohms	47k Ohms	47k Ohms
Frequency Response	15Hz - 25kHz	12Hz - 30kHz	12Hz - 33kHz	12Hz - 33kHz	12Hz - 35kHz	15Hz - 25kHz
Output	5.0mV	4.0mV	3.0mV	3.0mV	2.5mV	4.0mV
Channel Separation (1kHz)	25dB	30dB	30dB	30dB	30dB	25dB
Channel Separation (15kHz)	15dB	15dB	15dB	15dB	17dB	15dB
Channel Balance (1kHz)	1.5dB	1.5dB	0.5dB	0.5dB	0.5dB	1.5dB
Compliance (100Hz)	10 x 10-6cm/dyne	12 x 10-6cm/dyne	12 x 10-6cm/dyne	13 x 10-6cm/dyne	12 x 10-6cm/dyne	10 x 10-6cm/dyne
VTF Range	1.8 - 2.2g	1.8 - 2.2g	1.8 - 2.2g	1.8 - 2.2g	1.8 - 2.2g	4.0-5.5 grams
Recommended VTF	2.0g	2.0g	2.0g	2.0g	2.0g	2.0g
Mass	6.5g	6.5g	6.5g	6.5g	6.5g	6.5g
Replacement Stylus	RS Rainier	RS Olympia	RS Moonstone	RS Wellfleet	RS Amethyst	RS 78
Frequency Range (-3dB)	6kHz(-3dB)	6kHz(-3dB)	6kHz(-2.5dB)	6kHz(-2.5dB)	6kHz(-1.5dB)	6kHz(-3dB)
Tracking Ability (315Hz)	60μm/2g	60μm/2g	70μm/2g	70μm/2g	70μm/2g	60μm/2g
DC Resistance	510Ω	510Ω	510Ω	510Ω	290Ω	510Ω
Internal Inductance	450mH	450mH	450mH	450mH	300mH	450mH
Capacitance	100-200pF	100-200pF	100-200pF	100-200pF	100-200pF	100-200pF
Recommended VTA	25 deg	25 deg	25 deg	26 deg	25 deg	25 deg

<b>Classic Oyster Cartridges</b>	<b>Oyster</b>	<b>Black Pearl</b>	<b>Pearl</b>
Type	MM	MM	MM
Stylus	0.7mil Spherical	0.7mil Spherical	0.3 x 0.7mil Elliptical
Cantilever	Aluminum Pipe	Aluminum Pipe	Aluminum Pipe
Magnet	Alnico	Alnico	Alnico
Coils	Pure Copper	Pure Copper	Pure Copper
Internal Impedance	1,130Ω	1130Ω	1130Ω
Loading	47k Ohms	47k Ohms	47k Ohms
Frequency Response	30Hz - 20kHz	18Hz - 27KHz	12Hz - 30kHz
Output	5.0mV	4.0mV	4.0mV
Channel Separation (1kHz)	25dB at	28dB	30dB
Channel Separation (15kHz)	15dB	17dB	17dB
Channel Balance (1kHz)	1.0dB	0.5dB	0.5dB
Compliance (100Hz)	12 x 10-6cm/dyne	12 x 10-6cm/dyne	12 x 10-6cm/dyne
VTF Range	1.5 - 2.5g	1.5 - 2.0g	1.5 - 2.0g
Recommended VTF	2.3g	2.0g	2.0g
Mass	5.3g	6.0g	6.0g
Replacement Stylus	RS Oyster	RS Black Pearl	RS Pearl
Frequency Range (-3dB)	5kHz(-1.5dB)	6kHz(-3dB)	6kHz(-3dB)
Tracking Ability (315Hz)	60μm/2g	60μm/2g	60μm/2g
DC Resistance	530Ω	510Ω	510Ω
Internal Inductance	490mH	520mH	520mH
Capacitance	100-200pF	100-200pF	100-200pF
Recommended VTA	25 deg	25 deg	25 deg

### Fine Print (Warranty)

This product is warranted to be free of all defects in material and workmanship for one year from the date of original purchase by the original owner. A purchase receipt or other proof of original purchase will be required before warranty service is rendered. This warranty is not transferable and does not apply to any defects caused by negligence, accidents, misuse, modification, disassembly, or repair by other than the manufacturer, or by other than normal use for which this product was intended. Within the period of this warranty, Sumiko will repair or replace at our service center located at 2431 Fifth St., Berkeley, CA 94710 any part proving defective in material or workmanship. All expenses, except collateral expenses, related to replacing or repairing a defective part under this warranty will be assumed by Sumiko, except for the cost of transporting and insuring the product to our above-named service center. The buyer must notify Sumiko of any defect, malfunction, or nonconformity promptly upon discovery. Within 30 business days after receiving the defective product from the buyer, Sumiko will repair or replace the defective part. We neither assume nor authorize any representative or other person to assume for us any other liability in connection with the sales or shipment of our products. We reserve the right to make changes or improvements in our products without incurring any obligation to similarly alter products previously purchased. The buyer has the right to bring any action at law or equity to resolve disputes concerning or to enforce the provision of this warranty.