Front operated automatic HiFi stereo record player with Direct Control

STYLUS FORCE

0.5 1 1.5 2 2.5 3
Outstanding performance
The AF 729 has a high standard of performance. Rumble, for example, is better than 
-65 dB (DIN B), and wow & flutter is less than 0.05% (weighted ms). These very 
good figures are attributable to the thorough design and construction of the 
various sub-sections of the turntable: the suspension, tonearm, headshell, and 
especially the Direct Control electronics which regulate so precisely the speed of 
the turntable.

Speed sensing at the turntable
To ensure that the record always rotates at 
exactly the right speed, the rate of rotation 
of the turntable itself is continuously 
monitored and regulated by the Direct 
Control electronics. The turntable, which is 
belt-driven from a separate d.c. motor, has 
a tachometer built into it. The output of the 
tachometer is converted very accurately 
into a d.c. voltage whose level is propor-
tional to the actual speed of the turntable. 
This signal is continuously compared with a 
stable d.c. reference signal. If anything 
tends to alter the turntable speed, the 
tacho-derived signal will differ from the 
reference; this difference causes the Direct 
Control electronics to immediately 
accelerate or slow down the drive motor so 
as to correct the speed of the turntable.

Record speed unaffected by external 
influences (e.g. drag of cleaning device)
In addition to improving rumble, wow & 
flutter and drift specifications, direct control 
of the turntable speed has the important 
advantage that the record speed is un-
affected by external influences such as the 
drag of a cleaning device or different stylus 
force. Similarly, the Direct Control electronic 
compensate for fluctuations in 
temperature or mains voltage and 
frequency.

Top-quality tonearm
The straight tubular-aluminium construc-
tion of the tonearm gives it an ideal 
combination of lightness, strength and 
rigidity, mechanical properties so vital to a 
top-quality tonearm. Because it is straight, 
with the stylus on its longitudinal axis, and 
since the aluminium headshell is so light, 
the tonearm's center-of-gravity lies very
close to its axis. Consequently, torsional forces on the arm are minimal. This helps to eliminate unwanted high frequency resonances and keeps the natural resonance of the arm, with the cartridge, to an acceptable low frequency. Decoupling of the tonearm's counterweight provides wideband damping.

**Very low-friction bearings**
Horizontal and vertical friction forces in the bearings have been reduced to an exceptionally low value (<15 mg), so that there is almost no resistance to movement of the arm. As a result, the stylus is able to faithfully follow even the most delicate modulations in the record groove.

**Minimal tracking error**
Geometric characteristics of the tonearm, such as offset angle and location of the stylus on the tonearm's axis, have been designed to minimize tracking error (<0.9'/cm).

**Excellent trackability**
The exceptional small tracking error, combined with the very low friction of the bearings, contributes to the tonearm's excellent trackability (90 μm at 315 Hz).

**Free-floating sub-chassis**
The turntable and tonearm assemblies are mounted on a separate sub-chassis which is suspended from the main chassis via three nickel-chromium leaf-springs with butyl-rubber dampers. This free-floating sub-chassis type of suspension is a well-proven and extremely effective technique that achieves superb mechanical isolation of the turntable and tonearm from the main chassis.

**Rumble-free, shock-proof and protects record and stylus**
The mechanical isolation of the turntable and tonearm has been further improved by careful location of the springs and by using materials with the best possible damping properties. Suspension of the motor from the main chassis has also helped improve isolation. The result is that rumble from the motor is virtually eliminated, and external disturbances, such as vibration and acoustical feedback, are not transferred to the cartridge. Even quite violent knocks to the outer casing will not cause unwanted acoustical noises. And, of course, the valuable stylus and records are better protected from accidental damage.

**Peak performance and high reliability through extensive use of electronics**
The very high standard of performance and reliability of the AF 729 can be largely attributed to the use of electronics in preference to mechanical operations. The Direct Control electronics, for example, compensate for variations in mechanical loading. Electronic pitch controls are more accurate and reliable than their mechanical counterparts, while the LED-bar speed indicator is so much more accurate and convenient to use than the usual stroboscopes.
Front-operated – ideal for rack-mounting
With all its main operating controls front-mounted, the AF 729 is tailor-made for the top deck of a rack-mounting stereo Hi-Fi system. To ensure maximum operator convenience and ease of operation, the controls and indicators are arranged along a slightly-inclined front panel, making them visible and accessible, from the front and from above. The AF 729 also has many other attractive design features – like its slim, low profile; its precision-machined aluminium parts with eye-catching diamond-cut grooves; and, of course, its tinted dust cover with friction hinges that support it at almost any angle – all designed to make the AF 729 look every bit as good as it performs.

Automatic operation with many features and facilities
The AF 729 has been designed to function automatically with individual records. At the touch of a button, the turntable is started and the arm is automatically placed on to the beginning of the record. At the end of the record, the arm is automatically raised and returned to its rest and the turntable switched off.

Safety clutch
A safety clutch protects the arm mechanism against damage during automatic setting-up and return.

Pitch controls with LED speed indication
For fine adjustment of the turntable speed (± 3%), two pitch controls are provided. Accurate indication of the speed is given by a LED-bar comprising three separate LED's.

Controls
Four push-button controls are provided. Two of these are for selecting the desired speed (33 and 45 rpm). Operation of the PLAY button sets the turntable in motion and causes the arm to be raised, positioned above the record's starting point and lowered on to the record. Correct positioning of the arm is determined by the diameter of the record; this is automatically sensed by a switch built into the turntable. When the REJECT control is operated, the arm is raised and returned to its rest, the turntable is stopped, and the secondary power supply switched off.

Detachable headshell
The headshell has been made detachable from the arm to facilitate cleaning or changing of the cartridge.

Direct readout of the adjustable stylus force
Stylus force can be set quickly, easily and accurately to the appropriate value, thanks to the direct readout dial that is provided. The setting is done by means of the tonearm's adjustable counterweight.

Universal anti-skating adjustment
An anti-skating adjustment enables horizontal bias compensation to be set according to the type of stylus in use. It is marked with separations for spherical and elliptical stylus.

Hydraulically damped cueing lever
Manual raising and lowering of the tonearm is done by means of a hydraulically damped cueing lever. This ensures that the arm is always raised, or lowered, gently yet firmly, to prevent damage to the record or stylus.

Technical specification

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turntable speeds</td>
<td>33½ and 45 rpm</td>
</tr>
<tr>
<td>Wow &amp; flutter</td>
<td>DIN: better than 0.08 %</td>
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<tr>
<td></td>
<td>Weighted rms: better</td>
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<tr>
<td></td>
<td>than 0.05 %</td>
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<tr>
<td>Rumble</td>
<td>DIN A: better than</td>
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<tr>
<td></td>
<td>– 43 dB</td>
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<tr>
<td></td>
<td>DIN B: better than</td>
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<tr>
<td></td>
<td>– 65 dB</td>
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<tr>
<td>Pitch control range</td>
<td>± 3 %</td>
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<tr>
<td>Speed indication</td>
<td>3-element LED-bar</td>
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<tr>
<td>Tonearm</td>
<td>Tubular-aluminium</td>
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<tr>
<td>Tracking error</td>
<td>Better than 0.97 /cm</td>
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<tr>
<td>Bearing friction</td>
<td>Better than 15 mg,</td>
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<tr>
<td></td>
<td>vertically and</td>
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<tr>
<td></td>
<td>horizontally</td>
</tr>
<tr>
<td>Resonant frequency</td>
<td>(with test cartridge)</td>
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<tr>
<td></td>
<td>10 Hz</td>
</tr>
<tr>
<td>Effective arm length</td>
<td>215 mm; 8.48 inches</td>
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<tr>
<td>Effective moving mass</td>
<td>16.5 g</td>
</tr>
</tbody>
</table>

Anti-skating adjustment
For spherical and elliptical stylus

Cueing lever
Hydraulically damped

Headshell
Die-cast aluminium

Stylus force
Range: 7.5 – 30 mN (0.75 – 3 gf)
Indication: direct readout

Turntable
Material: aluminium
Diameter: 310 mm approx. (12 19/32 inches)

Power supply voltage
110 V, 60 Hz

Power consumption
0.1 amperes

Dimensions
With dust cover closed:
141 (h) x 450 (w) x 365 (d) mm
5 1/2 (h) x 17 3/4 (w) x 14 1/8 (d) inches
With dust cover open:
335 (h) x 450 (w) x 412 (d) mm
13 1/4 (h) x 17 3/4 (w) x 16 1/4 (d) inches

Weight
5.8 kg (13 lb, approx.)