



Air Force

S e r i e s

The Reference Turntable

To use the “Air Force” range is to swim in the essence of analog reproduction

The “Air Force” system completely eliminates unwanted vibrations, one of the biggest challenges for the perfect turntable.

■ Music is formed from beautiful vibrations that move through the air and wash over people’s minds. Analog recording and playback is a highly elaborate system of capturing wave forms and musical vibrations and sealing them into the micro grooves of a record, to then pick them up and reproduce those beautiful pulses. Turntables serve as the key element in this process, picking up the wave forms of recorded music. Since all this process deals with micro vibrations, we have to take the most thorough approach to the remove of unwanted vibrations.

■ In pursuit of this goal TechDAS Air Force turntables employ a unique and ground-breaking design, utilizing “Air Force” to eliminate unwanted vibrations. This vibration isolation design has been enabled by a combination of aerodynamics and the mass of the high precision parts. The “Air Force” range contains the ultimate mechanism to pull out micro musical wave forms from an LP without adding or deducting anything.

The two core technologies encompassed in the “Air Force” range are air bearing and vacuum hold-down of an LP

■ The key to the performance of a turntable is to achieve, precise, quiet and stable rotation. To attain such rotation, a sufficient inertia is required, and therefore any turntable platter required to be large in proportion. Thus, the Air Force Series turntables have such platters.

On the other hand, any conventional bearing unit would be subject to huge loads because of such massive platters and even the highest precision bearing would become impaired over time, which will lead to the compromised precision, friction sound or unstable rotation.

■ TechDAS Air Force Series employ their own unique air bearing method departing from the conventional bearing systems. The platter sits on a polished glass flat surface, making it an unique system. The platter rests, absolutely still on the glass surface. Once air is injected from the Air Pump, the platter will immediately float to a height of 0.03mm and be ready for extremely quiet rotation – all because of this unique air bearing. Furthermore, the weight of the platter will not place any load on the bearing, which allows the initial performance to continue maintenance free for many years, without any friction sounds or abrasion.

■ If a record is warped and the tonearm rides up and down as the record spins, even the most precise and smooth rotation of a platter cannot attain a high precision signal pickup. Not only can this put a strain on the cartridge but also the up and down movements of the stylus will generate unwanted subsonics and that may compromise fidelity in various aspects.

■ The TechDAS Air Force Series also features a vacuum LP hold-down system as a solution to such issues of warped records, again by utilizing the “Air Force” component of our products. You only have to set a record on the platter and press the SUCTION button, and the record will be firmly and immediately held down, flattened onto the platter while the platter is floating.

■ As well as eliminating unwanted resonance from the record, this hold-down function will dramatically elevate the tracing performance of a cartridge, especially in low frequency range, as the record – combined with the platter - will have enough mass to form a stable platform for the stylus.



Glass Base that accommodates and floats the platter.
At the center of the glass disk is the center shaft that connects with the platter. While the platter is floating, the center shaft floats in unison, there is no mechanical contact.

All the models of the Air Force Series share this air bearing system - the photo shows the Air Force One.

One of the hallmarks of the Air Force Series: Extremely high accuracy of rotation that has never been achieved by any other belt drive system

Very high rotation accuracy is achieved by monitoring and automatically adjusting speed through a microcomputer and a non-stretch fabric belt.

■ A fabric belt-drive method with an AC synchronous motor is employed in the Air Force Series and it is commonly known that the direct drive method has advantage with rotational accuracy, however, this method cannot avoid the issue of deterioration in sound quality caused by cogging. Therefore, we decided to employ a belt drive method and incorporated state-of-the-art technology, making it possible to achieve the best rotation accuracy.

■ In order to make the platter reach the correct speed in a short time span and maintain stable rotation, a non-stretch fiber belt has been used. It is a 4mm wide polyurethane flat fiber belt, with excellent durability and silence characteristics.

Perfect vibration isolation though having the Motor Unit in a separate housing from the Main Unit.

■ Since the motor is housed in a solid and separate chassis and can be placed separately from the main unit, any vibrations generated by the motor are completely isolated.

■ A rotation speed between 33.3 and 45 rpm can be selected. It also offers pitch control by $\pm 0.1\%$ steps.

Tension adjustment mode: solution for easier tension adjustment of the drive belt

■ Belt tension adjustment is an important factor that can affect sound quality.

The "Air Force" range features the tension adjustment mode that achieves the optimal belt tension without difficulty.

A highly sophisticated system is used to achieve the rated speeds, which still focuses on sound quality.

■ The Air Force Series has two 150W DC power amplifiers to drive its synchronous motor. By using two power amplifiers, it supplies electric current to drive the motor with an accurate phase difference.

■ The rotational speeds of the motor is controlled by having the oscillator and a digital direct synthesizer control the frequencies of the current.

■ At the same time, the rotational speed of the platter is always monitored with a noncontact sensor incorporated in the glass base.

■ When it is turned on, the microprocessor demands an increase in the output power of the amplifiers and also has torque increase. When the sensor finds that it has reached a correct speed, it lowers the output power and the motor torque to a minimal.

■ At the same time the frequencies of the digital direct synthesizer are fixed, which leads to the fixation of the motor rotation, thus it enters the rated speed mode.

■ During operation at a rated speed, it should be noted that no servo control is working and the sensor always monitors the rotational speed.

■ If the sensor detects a change in the platter rotation, the microprocessor will convey the difference from the rated speed to the digital direct synthesizer and control the motor speed. Once accurate rotation is retrieved, it will enter the rated rotational mode.



Separately housed Motor Unit in a solid enclosure – it only contacts with the main unit via the belt.

This function is shared by all the Air Force models – the photo shows the Air Force One.

Air Force One

P r e m i u m

Top-of-the-line model for the Air Force Turntable series with new integrated concepts and technologies refining the sound, user-friendliness and external finish.

Air Force One Premium consists of three units: main unit (including motor), power supply / pump unit and air condenser / air charger unit.

Two models available:

Air Force One Premium with A7075 Duralumin Upper Platter

Air Force One Premium with Titanium Upper Platter



A revolutionary change from Air Force One in every aspect bringing it to the next level

■ Since its debut, the Air Force One has gained world-wide acclaim as one of the best analog turntables in the world. While the original Air Force One still remains radiant, TechDAS has pursued ways to bring about even higher standards in recent years: improved user friendliness, refinements in acoustics due to an evolution of technology, refined outer aesthetics by using new finishing techniques, and many more. All improvements have been incorporated in the Air Force One Premium.

Optimal air suspension adjustment through continuous monitoring of air suspension level and air charger unit.

■ One of the major features of the original Air Force One is full air suspension, which requires occasional air input with the provided manual pump. The Premium features automatic and continuous monitoring of the air suspension level and the color of the indicator will change if air charge is required.

■ The Premium is also equipped with an exclusive motor pump for air charging. It automatically stops air filling when the appropriate amount of air has been charged, omitting troublesome labor for the user.

Double capacity air condenser allows even smoother air flow and more dynamic sound

■ The air condenser serves an important function and achieves consistent air bearing for the platter and vacuum hold-down of an LP. While the air condenser for the original Air Force One has a more than adequate version, as a result of pursuing improved sound quality, TechDAS has discovered that increasing the capacity will produce a more dynamic sound.

■ Therefore, the Premium has a double capacitance air condenser over the original model. This has elevated the sound to new heights in every respect including background blackness and dynamics.

Refined main chassis aesthetics with gloss finish on a black layer of aluminum

■ The main chassis of the Premium employs a gloss finish which is achieved by surface polishing a black layer of aluminum. This deep gloss finish adds to the charm of the appearance.

[Air Force One Premium set up on the Air Force Mounting Rack exclusively made for TechDAS turntables \(optional\)](#)

[Air Condenser / Air Charger Unit on the middle level](#)

[Power Supply / Pump Unit on the bottom level](#)

Option of Titanium Upper Platter as well as Gloss Finished Super Duralumin (A7075) Upper Platter

■ For the upper platter of Premium, there are two options: Super Duralumin A7075 and Titanium. Please specify which option you prefer when ordering.

Tapered Spindle and Disc Stabilizer

■ Air Force One Premium features a tapered spindle to absorb any swaying of an off center LP. A disc stabilizer comes with the turntable as a standard accessory that will fit perfectly in with the spindle.



Air Force One

Incredible background blackness and dynamic range far beyond the normal range of what an analog reproduction can achieve.

The Air Force One consists of three units: the main unit (including the motor unit), power supply/air pump unit and air condenser unit.



Three large-sized air suspension feet that provide perfect isolation from external vibrations

■ One of the toughest problems for analog turntables is to create isolation from floor vibrations. Any vibration from the speakers or human footsteps on the same floor would cause various problems as well as having a bad influence on sound quality. Different from many turntables that have a mechanical solution such as springs or other shock absorbing materials, the Air Force One employs air suspension that can minimize any mechanical contacts.

As a result, external vibrations are 100% isolated, which heavily contributes to the background blackness in the Air Force One.

Consisting of the main turntable unit, the air pump/power supply unit and air condenser unit

■ The Air Force One has two separate units in addition to the main unit: one is the air pump/power supply unit. It includes two air pumps, for both floating and vacuum hold-down. In the unit, the two pumps are separately enclosed in a die-cast casing secured with special rubber suspension.

■ The air condenser unit removes air pulsation from the pump to ensure an absolute smooth air flow by taking in air before sending it to float the platters.

Exquisitely finished, the 43kg main chassis has a "sandwich" construction combining different materials – offering the best platform for sound reproduction

■ The chassis of the main unit has a composite structure of two different aluminum alloys that insulate specific resonance frequencies. The two layers of the top and bottom are of A5052, which is an aluminum and magnesium alloy while the black middle layer is of A7075 super duralumin, which offers the maximum strength and excellent vibration damping. The total weight is as much as 43 kg, offering a firm platform for the reproduction of any type of music.

Complex platter system consisting of the main platter and selectable upper platters

■ To match the massive chassis, this model has a heavyweight platter system consisting of the main platter and a selectable upper platter. When the upper platter is placed on the main platter, there will be about 1.1 liter air chamber between the two platters. When an LP is vacuum held, this air chamber serves to remove air ripples while vibrations and resonance are prevented.

■ The main platter is made of SUS316 non-magnetic stainless steel forged with extra care, weighing 19 kg and offering extremely large inertia when in rotation.

■ Two kinds of material are available for the upper platter, dependent on your preference of sound.



Upper platter choices:

Super duralumin A7075 : 4 kg
Non-magnetic stainless steel SUS 316L : 11 kg



Main Platter

Non-magnetic stainless steel SUS 316L : 19 kg

Air Force Two

A standard model which inherits most of all the features of the reference model, Air Force One

The Air Force Two consists of two units: the main unit (including the motor assembly) and the power supply/air pump/air condenser unit.



A signature model that achieves the same level of performance as the reference model while maintaining its own charm despite such a reduction in price.

■ The TechDAS Air Force Two has been developed and designed to instill all the experience and expertise of pneumatic technology and is offered at a drastically lower price. With the air bearing system and vacuum LP hold-down preserved – both of which are hallmarks of the Air Force series - we undauntedly challenged ourselves with the difficult task to halve the production cost. To achieve this goal, we had to redesign all up from the build of the chassis to the exterior design, the result is a fascinating model which produces high cost performance and maintains its own charm.

The precision cast aluminum chassis is the key to the successful cost reduction without sacrificing any of the performance



Top and bottom parts of the cast aluminum chassis

■ To achieve a drastic cost reduction, this model has a precision cast aluminum (AC4C) chassis. This allows the chassis to have sufficient weight to maintain stable sound reproduction.

■ The chassis consists of two separate pieces and weighs 32.6kg in total, which provides a firm platform for energetic music reproduction.

Heavy weight platter CNC machined from solid aluminum: preserving the air bearing and vacuum hold-down functions of the reference model

■ The platter is machined from solid aluminum and weighs 10 kg. This platter enables extremely quiet and smooth rotation with sufficient inertia and has the air bearing system.

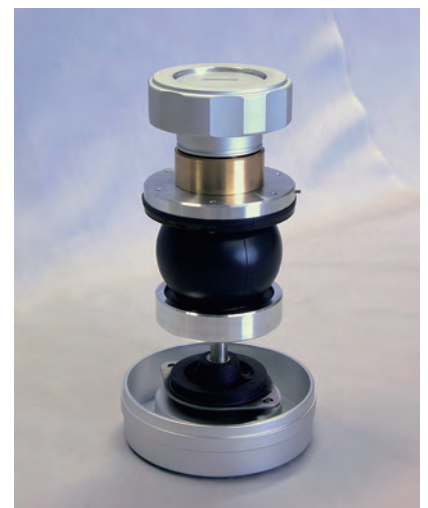
■ The vacuum hold-down flattens out even a warped record onto the platter. At the same time the record combined with the platter will have enough mass to form a stable platform and dramatically elevate the tracing performance of the cartridge.

Newly developed hybrid suspension system for the four feet

■ The air suspension system employed in the Air Force One has top-level vibration insulation properties. However, occasional air filling and some level adjustment will be required, which

might be not so easy for some people. To address this issue, we redesigned the suspension system, with a focus on making it maintenance free while preserving the same level of properties.

■ This new suspension system consists of the air chamber on the top and the rubber diaphragm in the middle enclosing a spring and oil within. This diaphragm is connected through the small hole with the top chamber and the vibrations from the floor are damped with by oil inside the diaphragm and air in the chamber, which as a result can generate a great amount of vibration insulation. This suspension system has an advantage over the reference model in terms of its user-friendliness.



Hybrid suspension system developed for the Air Force Two

The diaphragm in the middle part encloses a spring and oil, and the chamber on the upper part has air captured within it, external vibrations are damped through a combination of air and oil.

Air Force III

A remarkable model offering a more compact size and all of the Air Force's core technologies: adding a unique and new appeal above the larger models

The Air Force III consists of two units: the main unit (including the motor) and the power supply/ air pump/ air condenser unit.



Minimal sized heavyweight chassis allowing for maximum freedom during set up.

■ The Air Force III has minimalized the size of the chassis to offer best flexibility during set up. By machining it from solid aluminum - just like in the Air Force One - the chassis weighs 21 kg, offering sufficient mass while maintaining a compact body, since the chassis needs to be heavy enough to achieve stability and accurate tracing performance for the LF signal.

Much greater flexibility for mounting tonearms: The unit can be fitted with up to four tonearms

■ The Air Force III has a unique feature that the other upper models of the line do not have. This model offers a significantly higher flexibility in mounting tonearms.

It can be fitted with up to four tonearms, and you can freely choose any tonearm from 9 inch to 12 inch.

Excellent suspension provided through pin-point spike supports and air dampers, offering an excellent howling margin

■ The chassis sits on the four rubber suspension feet, which incorporate air dampers. This unique suspension system uses pin-point spikes and ensures an outstanding howling margin.

■ Each corner post can accept a tonearm base. Each post is directly coupled with the spike and the suspension feet. This ensures that tonearms can be firmly secured in order to establish a clear reference point of vibrations and also achieve the optimal tracing performance.

Trickle-down technologies: Heavyweight platter machined from solid aluminum, air bearing, and vacuum LP hold-down.

■ A platter machined from solid aluminum can weigh up to 9 kg, and offers an extremely quiet and smooth rotation due to sufficient inertia and the air bearing system.

■ The disk hold-down system flattens out a record onto the platter. This offers not only a solution to warped records, but also offers a firm platform for the cartridge by combining the platter and the record, which ensures a significant improvement of the tracing performance of the cartridge.

Optional accessories



Disc Stabilizer

The Disc Stabilizer lessens micro vibrations at the level of a record, enhancing the background blackness, and improving the dynamics of the sound.

Diameter : 82.5 mm

Weight : 540 g

- This is an included item in the standard set for the Air Force One Premium.



Exclusive Acrylic Damping Table

This is a special acrylic damping table that has excellent vibration absorbing properties. This provides an optimal platform for the installation of a turntable.

Dimensions : W716 x D483 x H30 mm



Air Force Mounting Rack for the Air Force series

This exclusive rack was developed in collaboration with Artesania Audio, an acclaimed high end rack brand. It ensures a rock-solid stability for sound reproduction through various state-of-the-art vibration isolation technologies.

AIR FORCE ONE Premium

■Main body and Motor unit	
Armless turntable	
Chassis:	Three layered structure with different aluminum alloys. Weight 43 kg
Main Platter:	SUS316L Non-magnetic forged stainless steel. Weight 19 kg
Upper Platter:	A choice of two Upper Platters: A7075 (4 kg) Pure TITANIUM (6 kg)
Total moment of inertia:	(with the A7075 Upper Platter) 3,027 kg·cm ² (with the titanium upper platter) 3,290 kg·cm ²
Drive System:	Belt Drive, Surface polished polyurethane fiber flat belt
Motor:	AC synchronous motor. Rotation Speed controlled by DC amplifiers
Rotation Speed:	33-3/1 rpm / 45 rpm Precise speed adjustment function.
Wow & Flutter:	below 0.03 % (W.R.M.S)
Total Weight:	73 kg (with the A7075 Upper Platter)
Minimum Dimensions for setting up:	680(W)×480(D) mm

■Power Supply / Pump Unit	
Power consumption:	60 W
Dimension and weight:	430(W) x 160(H) x 240(D) mm , 10 kg An extra depth of 300 mm is required for installation.
■Air Condenser / Air Charger Unit	
Dimension and weight:	430(W) x 160(H) x 240(D) mm , 10 kg An extra depth of 300 mm is required for installation.
■Included accessories	
Tonearm Base x 1 (drilled for specified tonearm)	An extra cost may be required according to the tonearm.
Platter Cover x 1	
Exclusive Disc Stabilizer	
Cables, Air hoses, Tools for replacing platters, Users manuals	
■Optional Items & Accessories	
Extra tonearm base (stainless)	
Extra tonearm base (titanium)	
Exclusive Damping Table for the Air Force One Premium	
Exclusive rack manufactured by Artesania Audio	

AIR FORCE ONE

■Main body and Motor unit	
Armless turntable	
Chassis:	Three layered structure with different aluminum alloys. Weight 43 kg
Main Platter:	SUS316L Non-magnetic forged stainless steel. Weight 19 kg
Upper Platter:	A choice of two Upper Platters: A7075 (4 kg), SUS316L (11 kg)
Total moment of inertia:	(with the A7075 Upper Platter) 3,015 kg·cm ² (With the SUS316L Upper Platter) 3,794 kg·cm ²
Drive System:	Belt Drive, Surface polished polyurethane fiber flat belt
Motor:	AC synchronous motor. Rotation Speed controlled by DC amplifiers
Rotation Speed:	33-3/1 rpm / 45 rpm Precise speed adjustment function.
Wow & Flutter:	below 0.03 % (W.R.M.S)
Total Weight:	73 kg (with the A7075 Upper Platter)
Minimum Dimensions for setting up:	680(W)×480(D) mm

■Power Supply / Pump Unit	
Power consumption:	60 W
Dimension and weight:	430(W) x 160(H) x 240(D) mm , 10 kg An extra depth of 300 mm is required for installation.
■Air Condenser / Air Charger Unit	
Dimension and weight:	260(W) x 160(H) x 240(D) mm , 4 kg An extra depth of 280 mm is required for installation.
■Included accessories	
Tonearm Base x 1 (drilled for specified tonearm)	
Platter Cover x 1	
Hand pump for air suspension	
Cables, Air hoses, Tools for replacing platters, users manuals	
■Optional Items & Accessories	
Extra tonearm base	
Optional Upper Platters (A7075/SUS316L)	
Exclusive Damping Table for the Air Force One	
Exclusive rack manufactured by Artesania Audio	
Disc Stabilizer	

AIR FORCE Two

■Main body and Motor unit	
Armless turntable	
Chassis:	Cast aluminum alloy (AC4C) with finish coating. Weight: 33 kg
Main Platter:	Precision machined aluminum alloy (A5056). Weight: 10 kg
Total moment of inertia:	1,244 kg·cm ²
Drive System:	Belt Drive, Surface polished polyurethane fiber flat belt
Motor:	AC synchronous motor Rotation speed controlled by DC amplifiers
Rotation Speed:	33.3 rpm / 45rpm Precise speed adjustment function.
Wow & Flutter:	below 0.03 % (W.R.M.S)
Total Weight:	47 kg
Minimum Dimensions for setting up:	685(W)×460(D) mm

■Air pump & Power supply unit	
Power consumption:	50 W
Dimension and weight:	430(W) x 160(H) x 240(D) mm , 10 kg An extra depth of 300 mm is required for installation.
■Included accessories	
Tonearm Base x 1 (drilled for specified tonearm)	An extra cost may be required according to the tonearm.
Platter Cover x 1	
Cables, Air hoses, tools for replacing platters, Users manuals	
■Optional Items & Accessories	
Extra tonearm base	
Exclusive Damping Table made for Air Force III	
Disc Stabilizer	
Exclusive rack manufactured by Artesania Audio	

AIR FORCE III

■Main body and Motor unit	
Armless turntable	
Chassis:	Precision machined aluminum alloy (A5056). Weight: 21 kg
Main Platter:	Precision machined aluminum alloy (A5056). Weight: 9 kg
Total moment of inertia:	1,052 kg·cm ²
Drive System:	Belt Drive, Surface polished polyurethane fiber flat belt
Motor:	AC synchronous motor Rotation speed controlled by DC amplifiers
Rotation Speed:	33.3 rpm / 45 rpm Precise speed adjustment function.
Wow & Flutter:	below 0.03 % (W.R.M.S)
Total Weight:	35 kg
Minimum Dimensions for setting up:	550(W)×440(D) mm

■Air pump & Power supply unit	
Power consumption:	50 W
Dimension and weight:	350(W) x 160(H) x 270(D) mm , 9 kg An extra depth of 300 mm is required for installation.
■Included Accessories	
Tonearm Base x 1 (drilled for specified tonearm)	An extra cost may be required according to the tonearm.
Platter Cover x 1	
Cables, Air hoses, tools for replacing platters, users manuals	
■Optional Items & Accessories	
Extra tonearm base	
Disc Stabilizer	

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Designed and manufactured by TechDAS
TechDAS is the brand of genuine highend audio produced by STELLA Inc.
All TechDAS products are MADE IN JAPAN