3155 Integrated Amplifier

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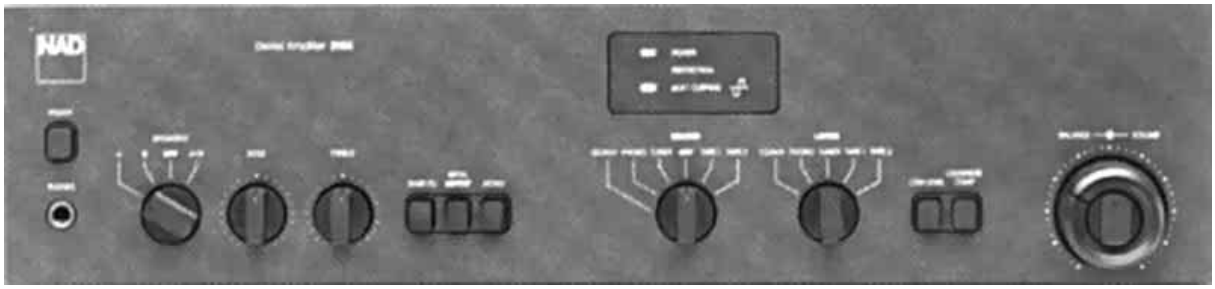
Please note that this document contains the text from the original product brochure, and some technical statements may now be out of date



NAD leads the audio industry in producing amplifiers with high-headroom circuitry and high-current output stages, precisely the qualities needed for musically accurate reproduction of today's wide-range analogue and digital recordings. The 3155 integrated amplifier and the matching 2155 power amp are the finest in a long tradition of highly praised NAD amplifiers, with increased power, improved reliability, and numerous small refinements in both sound quality and ease of use.

The 3155 is two products in one. As a preamplifier it matches most separate audiophile preamps in sonic performance and surpasses them in operating flexibility. As a high-current high-headroom power amplifier it drives even "difficult" loudspeakers to surprisingly high volume levels with clean, solid, full-bodied musical sound that remains refreshingly free from distortion even in transient peaks. The combination of pre- and power amp, sharing one heavy-duty transformer and chassis, offers another traditional NAD virtue: an impressive ratio of performance to price. The 2155, which is simply the power amplifier section of the 3155 packaged on a separate chassis, is NAD's "building-block" amp, offering a variety of convenient and economical approaches to upgrading a stereo system for higher performance and power. The 2155 is an obvious choice if you want to step up from a low-powered receiver or integrated amp, or if you are using a separate preamplifier. If you need still higher power, a pair of 2155s in the "bridged" mode deliver nearly three times as much power output for only twice the cost.

The 3155 and 2155 deliver substantially more than their conservatively rated 55 watts/channel into the complex and varying impedances of real loudspeakers. In the bridged monophonic mode each amplifier is rated conservatively at 150 watts continuous output. And these amplifiers maintain a full 3 dB of IHF dynamic headroom (2.5 dB in bridged mode), meaning that they deliver twice their rated power in brief bursts: over 110 watts/channel in stereo and about 250 watts in bridged configuration. This headroom for peaks is crucially important for reproducing the uncompressed transients in modern digital and DBX-encoded recordings.
When combined as a bridged stereo pair, the 3155 and 2155 function as a 150 W/ch stereo amplifier with 250 watts per channel of short-term output. That power, together with the remarkable flexibility and flawless sonic performance of the 3155's preamplifier section, makes the 3155/2155 combination a remarkable best-buy system.

High Current and Headroom: Designing For Real-Use Conditions

Since amplifiers are usually rated in terms of a few standard specifications (e.g. 8-ohm power and THD), many designers concentrate on optimising test-bench performance. But in the real world, amplifiers are connected to loudspeakers with complex impedances, not to 8-ohm test resistors, and they are used to play music, not sine-wave test tones. In NAD amplifiers every circuit is designed to deliver full performance under real-use conditions. While many specific engineering goals follow from this principle, two have been the cornerstones of every amplifier in NAD history (including the legendary Model 3020): graceful handling of dynamic transients that exceed the amplifier's rated power, and the ability to deliver large bursts of output current to the loudspeakers. Electrical power is the product of voltage and current, but it is the current flowing through the voice coil that causes a loudspeaker cone to vibrate and reproduce sound. As NAD engineers have always known, and other manufacturers have lately begun to realise, to obtain precise electromagnetic control of the speaker's motion the amplifier must be able to supply high peak currents upon demand, unconstricted by transistor "protection" circuits. The NAD 3155/2155 amplifier circuit produces peak cur-rents of up to 40 amperes per channel.

Preamplifier Features (3155)

Digital-ready design.The amplifier's line-level inputs will not be overloaded by high-level signal peaks from a Compact Disc player or digital tape recorder. The 103 dB signal-to-noise ratio of the 3155 exceeds that of any analogue or digital program source. The low-impedance, low-noise design of the volume and tone control circuits guarantees that the transparent clarity of the finest analogue and digital recordings will be preserved.

The phono preamplifier, too, is audibly (and in some cases dramatically) quieter than most other preamp circuits, not only with moving-magnet pickups but also with low-output moving coil cartridges. The entire amplifier circuit has ample dynamic range for every program source, including the widest-range digital Compact Discs. Ultra-quiet MM and MC phono preamp circuits. As long as LPs remain a principal music source, there must be no compromise in the phono preamp. The phono circuit in the NAD 3155 employs ten selected transistors per channel to obtain the widest possible dynamic range with outstanding freedom from noise and distortion at all signal levels. A differential FET input circuit ensures ultra-low-noise operation at the high impedances of MM cartridges, and its linearity in the MegaHertz range, aided by a custom-wound input filter, provides exceptional rejection of all interference from TV, CB radio, and computers. A separate high-gain MC pre-preamp stage uses newly developed transistors optimised for lowest noise with low MC impedances. A push-pull high-current output circuit drives the precision RIAA equalisation network without slewing distortion, and its 107 dB dynamic range comfortably accommodates all digitally-mastered LP recordings with room to spare.

Bass EQ

A special equalisation circuit provides 6 dB of boost at 32 Hz in order to strengthen and extend the deep-bass response of closed-box loudspeaker systems.
A typical bookshelf speaker that rolls off below 50 Hz will have strong output to 30 Hz when used with the NAD 3155, providing the sort of authentic bass "feel" that might otherwise require a costly separate subwoofer system. Infrasonic filter, Precise infrasonic filtering is included to eliminate signal contamination from turntable rumble, record warps, tonearm/stylus resonances, vibration and acoustic feedback. This guarantees the cleanest possible handling of signals within the audible range and eliminates the excessive woofer-cone excursions that can cause intermodulation distortion and muddy bass in systems without filtering.

Power Amplifier Features (3155 and 2155)

Loudspeaker impedance matching. Standard lab tests of amplifiers use 8-ohm resistors in place of loudspeakers, But most loudspeakers have a lower and more complex impedance that increases the required amplifier output current. (And if you connect two pairs of loudspeakers, the effective impedance of the pair is halved.) For this reason the 3155 and 2155 amplifiers are designed to deliver their maximum power into low impedances of 4 or even 2 ohms. But the exclusive NAD impedance selector allows you to re-optimise the amplifier circuit to produce greater output voltage, for the most effective delivery of power to loud-speakers whose true impedance is 8 ohms or higher.

Soft Clipping

NAD's trademarked Soft Clipping circuit gently limits the waveform when the amplifier is driven beyond its maximum power rating. By preventing the out-put transistors from being driven fully into saturation, the Soft Clipping reduces the harshness that is normally heard when an amplifier is overdriven. Because of this and the amplifier's high dynamic headroom, the sound remains clean and musical even at very high sound levels, rather than being distorted as in other amplifiers.

Bridging

If still more output power is needed, a bridging switch immediately converts the stereo amplifier into a monophonic unit conservatively rated at 150 watts. A matching NAD 2155 power amplifier (also bridged) can be used for the second stereo channel. With an IHF dynamic headroom of +2.5 dB in the bridged mode, the 3155 and 2155 can produce peak levels of over 250 watts per channel for musical transients. The combination of the 3155 and 2155 in bridged mode becomes, in effect, the world's most powerful integrated amplifier while retaining all of the operating simplicity of the 3155 amplifier alone. Since the 3155 has independent preamp outputs and power amp inputs, it can also be used with an electronic crossover for bi-amplification with either full-range speakers or a separate sub-woofer.

Exceptional Performance and Value

The 3155 amplifier represents the kind of value that has made NAD world-famous. With its flexible and musically useful controls, its very low noise and wide dynamic range, its powerful high-current output stage, its unique speaker-impedance matching for maximum power transfer, its "building block" expansion options, and its consistently musical sound quality, the NAD 3155 is a strong con-tender for the title of the best integrated amplifier in the world today.

The NAD 2155 is a superb general-purpose power amplifier with an unusually attractive ratio of performance and power to price, and it is also the core of the unique NAD building-block concept that allows the stereo system to evolve with your needs or your budget, now and in the future.

PRE-AMP SECTION

Phono input		
Input impedance *(R and C)*	MM	47kΩ / 100/200/320pF
	MC	100Ω / 1000pF
Input sensitivity, 1kHz	MM	2.8mV
	MC	0.28mV
Signal/Noise ratio *(A-weighted with cartridge connected)*	MM	78dB ref. 5mV
	MC	78dB ref. 0.5mV
THD *(20Hz - 20kHz)*		<0.04%
RIAA response accuracy *(20Hz - 20kHz)*		±0.5dB
Line level inputs		
Input impedance *(R and C)*		10kΩ / 220pF
Input sensitivity *(ref. 1W)*		25mV
Maximum input signal		>10V
Signal/Noise ratio *(A-weighted ref 1W)*		86dB
Frequency response		20Hz - 20kHz / ±0.5dB
Line level outputs		
Output impedance	Pre-amp	800Ω
	Tape	Source Z + 1kΩ
Maximum output level	Pre-amp	10V
Tone controls		
Treble		±7dB at 10kHz
Bass		±7dB at 100Hz
Bass EQ		+3dB at 70Hz
		+6dB at 32Hz
Infrasonic filter *(switchable)*		-3dB at 15Hz - 12dB/octave

POWER AMP SECTION

Continuous output power into 8Ω *		55W (17.4dBW)
Rated distortion *(THD 20Hz - 20kHz)*		0.03%
Clipping power *(maximum continuous power per channel)*		65W
IHF Dynamic headroom at 8Ω		+3dB
IHF dynamic power *(maximum short term power per channel)*	8Ω	100W
	4Ω	100W
	2Ω	130W
Damping factor *(ref. 8Ω, 50Hz)*		>50
Input impedance		22kΩ
Input sensitivity *(for rated power into 8Ω)*		1.3V
THD *(20Hz - 20kHz)*		<0.03%
Bridged Mode		
Continuous output power into 8Ω *		125W (21dBW)
IHF Dynamic headroom at 8Ω		+2.5dB
IHF dynamic power *(maximum short term power per channel)*	8Ω	250W
Remote		Yes
NAD Link		Yes

PHYSICAL SPECIFICATIONS

Dimensions (W x H x D)	420 x 108 x 380mm
Net weight	8.4kg
Shipping weight	9.8kg
Power consumption *(120 ~ 240V, 50/60Hz)*	340W

* Minimum power per chnnel, 20Hz - 20kHz, both channels driven with no more than rated distiortion.

Dimensions are of unit's cabinet without attached feet; add up to 18mm for total height.

Dimension depth excludes terminals, sockets, controls and buttons.