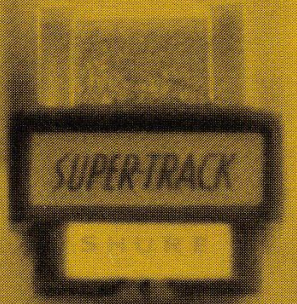
A NEW GENRE OF CARTRIDGE

SHURE

V-15 TYPE II IMPROVED



THE MOST IMPORTANT ADVANCE
IN PHONO CARTRIDGES SINCE
THE ADVENT OF STEREO . . .

THE SHURE V-15 TYPE II IMPROVED

. . . a new genre of cartridge,
analog-computer-designed, and measured against
a new and meaningful indicator
of total performance:

TRACKABILITY:

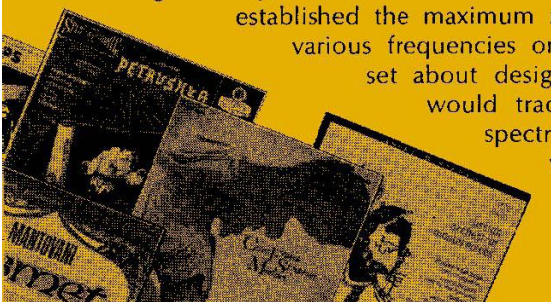
The radically new V-15 TYPE II heralds a new epoch in high performance cartridges and in the measurement of their performance. We call it the era of superior *Trackability*. Because of it, all your records will sound better and, in fact, you will hear some recordings tracked at light forces for the first time without distortion.

THE PROBLEM:

Although audiophiles prefer minimum tracking forces to minimize record wear and preserve fidelity, record makers prefer to cut recordings at maximum levels with maximum cutting velocities to maximize signal-to-noise ratios. Unfortunately, some high level recordings are cut at velocities so great that even excellent cartridges have been unable to track some passages, particularly the high and midrange transients. Hence, high-level recordings of orchestral bells, harpsichords, pianos, etc., cause the stylus to part company with the wildly undulating groove (it actually ceases to track). At best, this produces an audible click; at worst, sustained gross distortion and outright noise results. The "obvious" solution of increasing tracking force is impractical because this calls for a stiffer stylus to support the greater weight, and a stiffer stylus will not track these transients or heavy low-frequency modulation—to say nothing of the heavier force accelerating record and stylus wear to an intolerable degree.

Shure has collected scores of these demanding high level recordings and painstakingly and thoroughly analyzed them. It was found that in some cases (after only a few playings) the high velocity high or midrange groove undulations were "shaved" off or gouged out by the stylus . . . thus eliminating the high fidelity. Other records, which were off-handedly dismissed as unplayable or poor pressings were found to be neither. They were simply too high in recorded velocity and, therefore, untrackable by existing styli.

Most significantly, as a result of these analyses, Shure engineers established the maximum recorded velocities of various frequencies on quality records and set about designing a cartridge that would track the entire audible spectrum of these maximum velocities at tracking forces of less than 1½ grams.



ENTER THE COMPUTER:

The solution to the problem of true trackability proved so complex that Shure engineers designed an analog-computer that closely duplicated the mechanical variables and characteristics of a phono cartridge. With this unique device, they were able to observe precisely what happened when you varied the many factors which affect trackability: inertia of tip end of the stylus or the magnet end of the stylus; the compliance between the record and the needle tip, or the compliance of the stylus shank, or the compliance of the bearing; the viscous damping of the bearing; the tracking force; the recorded velocity of the record, etc., etc. The number of permutations and com-

binations of these elements, normally staggering, became manageable. Time-consuming trial-and-error prototypes were eliminated. Years of work were compressed into months. After examining innumerable possibilities, new design parameters evolved. Working with new materials in new configurations, theory was made fact.

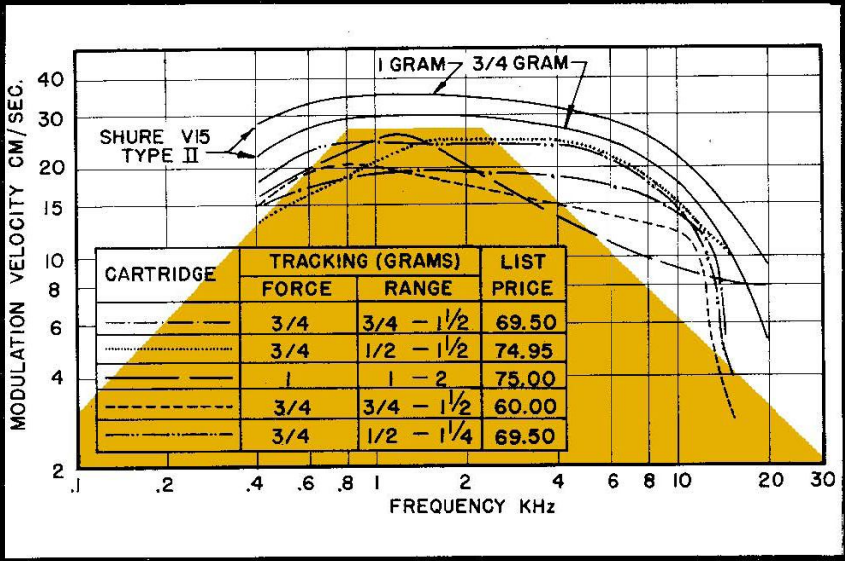
Thus, the first analog-computer-designed superior trackability cartridge was born: the Shure SUPER-TRACK V-15 TYPE II. It maintains contact between the stylus and record groove at tracking forces from 3/4 to 1 1/2 grams, throughout and beyond the audible spectrum (20-25,000 Hz), at the highest velocities encountered in quality recordings.

It also features an ingenious "flip-action" built-in stylus guard.

It is clean as the proverbial hound's tooth and musical as the storied nightingale.

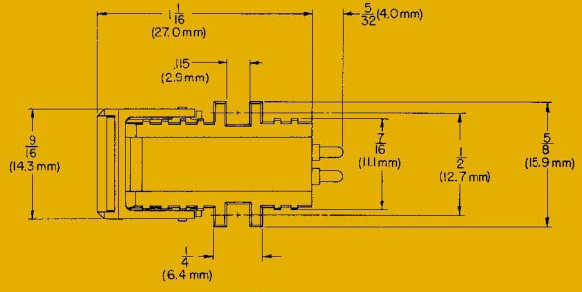
TRACKABILITY AS A NEW SPECIFICATION:

This chart depicts the new performance specification of trackability. Unlike the oversimplified and generally misunderstood design parameter specifications of compliance and mass, trackability is a measure of total performance. The chart shows frequency across the bottom, and modulation velocities in CM/SEC up the side. The outline of the yellow area represents the maximum **theoretica**l limits for cutting recorded velocities; however, in actual practice many records are produced which exceed these theoretical limits. The smoother the curve of the individual cartridge being studied and the greater its distance above the yellow area, the better the trackability. The trackability of the Shure V-15 TYPE II is shown by the top (solid black) lines. Representative curves (actual) for other cartridges (prices indicated) are shown for comparison purposes.

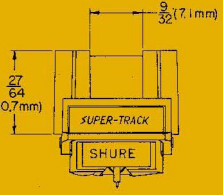


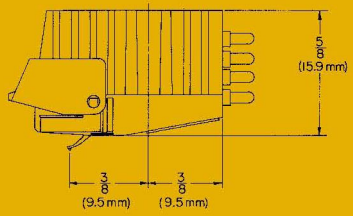
CARTRIDGE	TRACKING (GRAMS) FORCE	RANGE	LIST PRICE
——·—·——	3/4	3/4 – 1 1/2	69.50
.....	3/4	1/2 – 1 1/2	74.95
—— ——	1	1 – 2	75.00
- - - - - - - - -	3/4	3/4 – 1 1/2	60.00
——·——·——	3/4	1/2 – 1 1/4	69.50

SHURE V-15 TYPE II DIMENSIONAL DRAWING



TOP VIEW





OPTIMUM PLAYING POSITION

MOUNTING

The V-15 Type II Dynetic Cartridge has standard 1/2" (12.7 mm) mounting centers. Hardware is supplied with each cartridge for mounting purposes. In some tone arms and plug-in shells, the cartridge sits so deep that the stylus cannot be conveniently replaced. For these applications, spacers are provided to insure adequate clearance for stylus removal.

For optimum vertical tracking angle, the cartridge should be mounted so the top of the mounting block is parallel to the record playing surface. (See Page 11)

SHURE-SME MOUNTING

To mount the V-15 Type II in the Shure-SME or the SME Precision Pickup Arm, Models 3009 and 3012, refer to the paragraphs on Cartridge Installation and Balancing in the Instruction Manual supplied with the pickup arms.

OPERATION

The recommended needle forces for optimum results are listed under "Specifications." Forces greater than

the indicated "Maximum" should not be used.

The V-15 Type II cartridge should be installed in any arm especially designed for low tracking forces and having low friction at all bearing surfaces such as the Shure-SME arm. Although the V-15 Type II cartridge will track records at 3/4 gram, it may be necessary, when used in certain phono arms, to increase the tracking force for optimum results.

The V-15 Type II cartridges play monophonic LP as well as stereo records.

The V-15 Type II Styli incorporate a new retractile design that prevents audible record-scratch or stylus damage when excessive force is applied to the stylus.

NOTE: For playing 78 R.P.M. records the Model N75-3 (.0027") Diamond Stylus is available.

CONNECTIONS

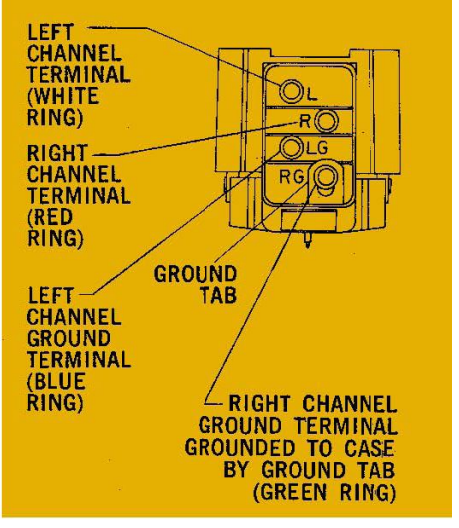
CAUTION: Do not make solder connections to cartridge terminals. Make all solder connections to terminal jacks provided. Soldering should not be done while jacks are on cartridge terminals.

The Shure V-15 Type II Cartridge utilizes a 4-terminal arrangement for connections having a separate ground terminal for each channel. (See illustration).

For Stereo reproduction terminal "R" and its ground terminal "RG" represent the right channel (outside groove wall). Terminal "L" and its ground terminal "LG" represent the left channel (inside groove wall). The metallic cartridge shield may be disconnected from the right channel ground by the removal of the ground tab.

4-Lead Stereo Connection: To use a 4-lead arrangement, connect the "hot" lead of the right channel to terminal "R" and the shield or ground lead of the right channel to terminal "RG." Connect the "hot" lead of the left channel to terminal "L" and the shield or ground lead of the left channel to "LG." To prevent "ground loops" and hum, no common connection should be used at the cartridge terminals.

3-Lead Stereo Connection: When a 3-lead stereo input system is used, the common lead should be connected to both of the ground terminals at the cartridge. No other common ground connection should exist.



MONAURAL PLAYBACK

For reproduction of monaural records, using a stereo system, the amplifier should be set to "Monaural" or "A & B". When the cartridge is used in a monaural system, connect the "hot" lead to both "R" and "L" terminals and connect the ground or shield lead to both of the ground terminals marked "RG" and "LG".

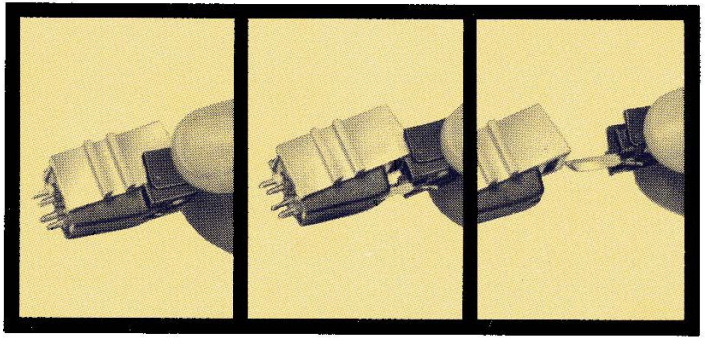
SPECIAL NOTE

The Stereo Dynetic stylus assembly used in these cartridges is the most critical component. To maintain the original performance standards of your cartridge, be certain that any replacement stylus you buy bears the following certification on the package: "This Stereo Dynetic stylus is precision manufactured by Shure Brothers, Inc." Avoid inferior imitations. They will seriously degrade the performance of your cartridge. All genuine "Dynetic" styli are manufactured by Shure Brothers, Inc.

The stylus assembly, when installed in the cartridge, is practically immune to damage during normal usage. However, care should be taken to avoid bending or distorting the stylus assembly when it is installed or removed.

STYLUS REPLACEMENT

Stylus replacement is very simple and fast. To replace—grasp stylus guard between thumb and forefinger. Gently withdraw stylus by pulling forward out of cartridge. Grasp guard of replacement stylus between thumb and forefinger and insert into stylus socket. Press stylus into socket until the molded housing of the stylus touches the cartridge case. Care must be taken not to allow the finger to slip off the stylus guard, resulting in damage to the stylus tip or shank.



GUARANTEE

This Shure product is guaranteed in normal use to be free from electrical and mechanical defects for a period of one year from the date of purchase. Please retain proof of purchase date. This guarantee includes all parts and labor. This guarantee does not include stylus wear.

Shipping Instructions:

Carefully repack the unit and return it to the factory. If outside the United States, return the unit to your dealer or authorized Shure Service Center for repair. The unit will be returned to you prepaid.

SPECIFICATIONS

Typical Trackability (at 1 gram using a Shure/SME Tone Arm)
400 Hz (cps)—28 cm/sec; 5,000 Hz (cps)—30 cm/sec;
1,000 Hz (cps)—35 cm/sec; 10,000 Hz (cps)—22 cm/sec;
Frequency Response: 20 to 25,000 Hz (cps)
Output Voltage: 3.5 mv per channel at 1,000 Hz (cps) at 5 cm/sec peak velocity
Channel Balance: Output from each channel within 2 db.
Channel Separation: Over 25 db at 1,000 Hz (cps)
Over 17 db from 500 to 10,000 Hz (cps)
Tracking Force: 3/4 to 1 1/2 grams.
Recommended Load Impedance: Nominally 47,000 ohms (per channel). Can be used up to 70,000 ohms with almost inaudible change in frequency response.
Input Capacitance: 400-500 Pico-Farads per channel, including tone arm wiring.
Inductance: 720 millihenries. D.C. Resistance: 630 ohms.
Terminals: 4 terminal
V-15 Type II Stylus: VN15E Bi-Radial Elliptical Stylus, Diamond Tip.
18 microns (.0007 inch) frontal radius;
5 microns (.0002 inch) side contact radii;
25 microns (.001 inch)wide between record contact points
V-15 II-7 Stylus: VN7 Spherical Stylus, Diamond Tip.
18 microns (.0007 inch) radius.
Mounting: Standard 1/2 inch (12,7 mm) mounting center.
Weight: Net weight—6.8 grams.
Manufactured under one or more of the following U.S. Patents 3,055,988, 3,077,521, 3,077,522 and 3,463,889.

QUALITY ASSURANCE CERTIFICATE
SHURE V-15 TYPE II STEREO
DYNETIC HIGH FIDELITY CARTRIDGES

The V-15 Type II Stereo Dynetic Cartridge has been manufactured under the Shure Master Quality Control Program. This program embraces stringent safeguards and standards to assure you that your V-15 Type II is in perfect operating condition.

Shure quality control not only covers incoming parts and the finished product, but intermediate sub-assemblies as well. For example: every individual cartridge and every Stylus-Magnet Assembly is tested and microscopically examined. Each finished cartridge is again tested electrically, mechanically and acoustically against quality and tolerance specifications seldom achieved in the High Fidelity industry.

SHURE BROTHERS, INC.
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Shure Performance,
Quality, Reliability

27A569 (KI)