



# *PHONOGRAPH PICKUPS*

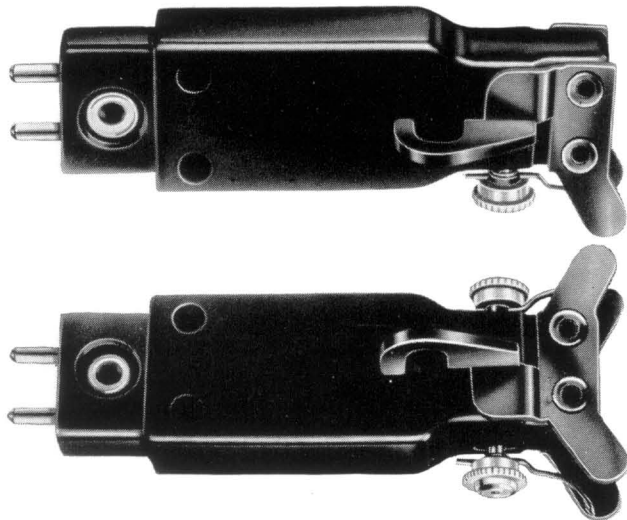


AND  
**REPLACEMENT CARTRIDGES**

**CATALOG No. 160**

FOR INFORMATION ON SHURE MICROPHONES SEE CATALOG No. 159

# SHURE "Vertical Drive" Crystal Cartridges



The new highly compliant Shure "Vertical Drive" crystal pickup cartridges are an exclusive development of Shure engineers. They have been perfected to meet the greater requirements of high needle point compliance and fidelity demanded by the new micro-groove recordings. They are also recommended for standard groove records where extra quality is desired.

**"Vertical Drive" Construction:** The introduction of micro-groove recordings called for new requirements in phonograph pickup cartridges. The objective of Shure engineers was to minimize the mass of the moving system in the cartridge with increased needle point compliance. They sought to do this and still provide a practical cartridge with relatively high output and with replaceable needles. To minimize the mass of the moving system and still permit the convenient use of replaceable needles required a basic new design. The answer was uniquely achieved in the Shure Laboratory through the use of a vertical drive system. In "Vertical Drive" the needle chuck rotates on a vertical axis rather than horizontally. Therefore the principal mass of the needle chuck is on the axis of rotation, reducing its effective mass to a minimum. This permitted the use of a needle chuck that would accommodate finger-tip needle replacement.

**Advantages in "Vertical Drive" Construction:** Needle point compliance expresses the ratio of the lateral

displacement of the needle point to the force applied (shown in terms of centimeters per dyne).

As a result of the "Vertical Drive" construction these new Shure cartridges have a needle point compliance of the order of  $1.0 \times 10^{-6}$  CM per dyne. This is over twice the compliance of conventional pickup cartridges! Although needle point compliance is the prime factor in determining the low needle force required for proper tracking, other factors also play an important roll, such as arm resonances and effective mass of arm. The Shure arms described on the opposite page have been designed to take full advantage of the maximum benefits of these fine cartridges. Shure vertical cartridges will track micro-groove records with a needle force of only 5 grams. They will also play standard 78 r.p.m. records with an amazingly low needle force of only 6-7 grams. This eliminates the need for the shifting of weight or needle force when playing both micro-groove and standard records with one cartridge, as is required with most other cartridges. Because of the "Vertical Drive" construction, the Shure Model W22AB turnover crystal cartridge plays both standard and micro-groove recordings with the same low pressure of 6 grams, simplifying arm design and eliminating many of the problems connected with the shifting of weight.

Another outstanding advantage of the Shure "Vertical Drive" cartridges is their small size and light weight. The cartridge including needle and guards weighs only  $4\frac{1}{2}$  grams.

**Special Features:** The unique design of the "Vertical Drive" series provides the following special features:

- 1—Extended Frequency Response—to 10,000 c.p.s.
- 2—High Output—approximately 1 volt
- 3—High Needle Compliance— $1.0 \times 10^{-6}$  CM per dyne
- 4—Low Tracking Force—only 6 grams
- 5—Finger-Tip Needle Replacement

## Model

- W21A For  $33\frac{1}{3}$ —45 r.p.m. Fine-Groove Records. Extended response. Standard  $\frac{1}{2}$ " mounting. .001" Sapphire needle.
- W21AR Same as W21A, but with bracket for RCA mounting. To replace RCA 45 r.p.m. cartridge.
- W22A Turnover Cartridge. Two Sapphire needles—.001" and .0027".
- W22AB Turnover Cartridge .001" Sapphire needle and .0027" Osmium needle.
- W23A For standard records. Extended response. .0027" Sapphire needle.
- W23B Same as W23A but with .0027" Osmium needle.

## Applications

MODEL	TYPE	LIST PRICE	OUTPUT LEVEL	MIN. NEEDLE FORCE	RESPONSE TO	NET WEIGHT	NEEDLE	SHURE NEEDLE NUMBER	CODE
W21A	MG	\$ 8.75	1.0 V.*	5 grams	10,000 c.p.s.	$4\frac{1}{2}$ grams	.001" Sapphire	A65MG	RUVET
W21AR	MG	8.75	1.0 V.*	5 grams	10,000 c.p.s.	$4\frac{1}{2}$ grams	.001" Sapphire	A65MG	RUVAR
W22A	MG	11.75	1.0 V.*	6 grams	6,000 c.p.s.	5 grams	.001" Sapphire	A65MG	RUVAL
	STD		1.1 V.**				.0027" Sapphire		
W22AB	MG	10.75	1.0 V.*	6 grams	6,000 c.p.s.	5 grams	.001" Sapphire	A65MG	RUVAX
	STD		1.1 V.**				.0027" Osmium		
W23A	STD	8.75	1.1 V.**	6 grams	7,000 c.p.s.	$4\frac{1}{2}$ grams	.0027" Sapphire	A61A	RUVAY
W23B	STD	7.75	1.1 V.**	6 grams	7,000 c.p.s.	$4\frac{1}{2}$ grams	.0027" Osmium	A62A	RUVER

Shipping wt. is 1 oz.

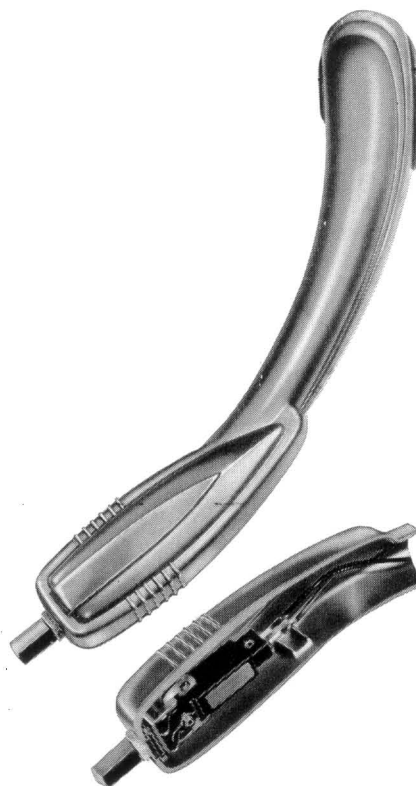
\*Output on Columbia  $33\frac{1}{3}$  r.p.m. records and RCA 45 r.p.m. records. \*\*Output with .0027" needle on 78 r.p.m. records.

# SHURE "Vertical Drive" Crystal Pickups

The new Shure "Vertical Drive" Crystal Pickups are ideal for the reproduction of the new fine-groove vinylite and high quality standard groove recordings. These pickups provide the high needle compliance and the maximum fidelity needed to reproduce the full frequency range of the better records. They use the famous "Muted Stylus" needles designed for longer record and needle life, faithful tracking, and clear, full tone qualities.

**How the "Vertical Drive" Pickups are Constructed:** The Shure "Vertical Drive" Crystal Pickups use the "Vertical Drive" Crystal Cartridges exclusively. The technical story of these cartridges is interesting, and can be found on page two of this catalog. These cartridges use the "Muted Stylus" osmium or sapphire replaceable needles.

The pickup arm is die-cast aluminum, scientifically curved for best tracking angle. The arm has been designed to bring out the best qualities of the "Vertical Drive" cartridges and needles. The Model 901D Dual All-Purpose Pickup has a knob for turning the cartridge to either Fine Groove or Standard playback position. The balanced tracking of the Shure arm coupled with the high compliance of the "Vertical Drive" cartridge and the silent playing of the "Muted Stylus" needles, provide fine quality reproduction of even older records. You will enjoy new listening pleasures from all of your records with these pickups.



**Applications:** The "Vertical Drive" Pickup is supplied in three models to fit every need:

Model	APPLICATION	
901A	For standard 78 r.p.m. recordings. "Vertical Drive" Crystal Cartridge with .0027" Sapphire replaceable needle. Extended response.	
901MG	For new 33 1/3 and 45 r.p.m. fine-groove recordings. "Vertical Drive" Crystal Cartridge with .001" Sapphire replaceable needle. Extended response.	
901D	For both standard and fine-groove recordings. Turnover "Vertical Drive" Cartridge with .0027" Osmium replaceable needle and .001" Sapphire replaceable needle.	

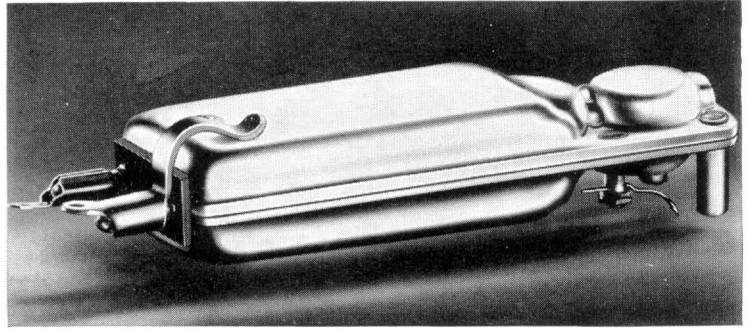
These superlative new pickups will reproduce all the recorded music on the new wide-range high-fidelity pressings. Unusually highly compliant, these "Vertical Drive" pickups will faithfully track standard records with a force of only 7 grams—fine-groove records with a force of only 5 grams. They have adequate output for the average audio stage. They are requisites for the critical listener . . . the lover of fine music. They are especially recommended for those applications where true fidelity is essential. With an extended frequency response going out to 10,000 c.p.s., they will reproduce highs and lows that ordinary pickups will not reproduce.

MODEL	TYPE	LIST PRICE	OUTPUT LEVEL	NEEDLE FORCE	RESPONSE TO	NEEDLE	SHURE NEEDLE NUMBER	SHPG. WT.	CODE
901MG	MG	\$12.75	1.0 V.*	5 grams	10,000 c.p.s.	.001" Sapphire	A65MG	12 oz.	RUZUG
901A	STD	\$11.75	1.1 V.**	7 grams	6,500 c.p.s.	.0027" Sapphire	A61A	12 oz.	RUZAY
901D	MG	\$16.25	1.0 V.*	7 grams	6,000 c.p.s.	.001" Sapphire	A65MG	12 oz.	RUZEL
	STD		1.1 V.**			.0027" Osmium	A62A		

\*Output on Columbia 33 1/3 r.p.m. records and RCA 45 r.p.m. records. \*\*Output with .0027" needle on 78 r.p.m. records.

# SHURE "Muted Stylus" Cartridges

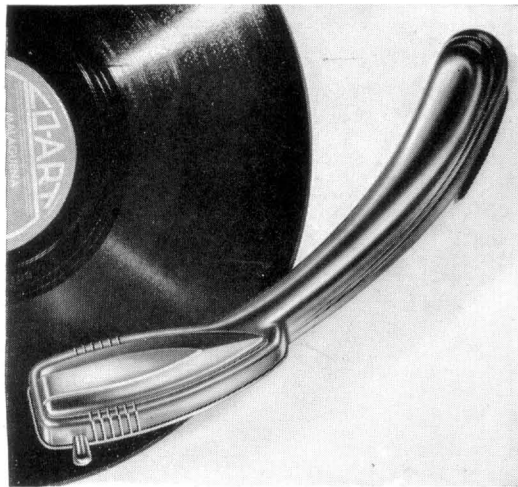
The Shure "Muted Stylus" Crystal Cartridges employ the exclusive Shure lever-type construction (see opposite page) coupled with Shure "Muted Stylus" needles. This combination overcomes problems of surface noise and distortion in quality phonographs. The unique design of the "Muted Stylus" provides a record-matched frequency response for clear, full tone qualities. The cartridges have a flexible needle and rounded guards for protection against undue tone-arm pressure. The cartridges feature extremely low surface noise and needle talk, high output—high needle compliance and low-tracking force. They are provided with replaceable Osmium or Sapphire "Muted Stylus" needles, have high output voltages ranging from 1.8 to 4 volts, and fit all standard flat-type pickup mountings. Ideal replacement for most crystal cartridges of comparable output. "Humi-Seal", Model W60HS,



is especially recommended for tropic areas. These cartridges are not merely adequate replacements—they are acoustic advancements.

MODEL	TYPE	LIST PRICE	OUTPUT LEVEL	MIN. NEEDLE FORCE	RESPONSE TO	CASE MATERIAL	NEEDLE	SHURE NEEDLE NUMBER	SHPG. WT.	CODE
W60A	STD	\$8.50	1.6 V.	1 oz.	4,500 c.p.s.	Aluminum	.0027" Sapphire	A61A	¾ oz.	RUSIS
W60B	STD	\$7.50	1.6 V.	1 oz.	4,500 c.p.s.	Aluminum	.0027" Osmium	A62A	¾ oz.	RUSID
W60HS	"Humi-Seal" for Tropics	\$8.50	1.8 V.	1 oz.	4,500 c.p.s.	Steel	.0027" Osmium	A62A	1 oz.	RUSIB
W60PN	PN Crystal	\$13.00	0.7 V.	¾ oz.	4,500 c.p.s.	Aluminum	.0027" Osmium	A62A	¾ oz.	RUTAP
W61B	STD	\$7.50	1.6 V.	1 oz.	4,500 c.p.s.	Steel	.0027" Osmium	A62A	1 oz.	RUSIC
W65B	High Output	\$8.50	4.0 V.	1 oz.	4,500 c.p.s.	Steel	.0027" Osmium	A62A	1 oz.	RUSIG

## "Muted Stylus" PICKUPS



Shure "Muted Stylus" Crystal Phonograph Pickups play with amazing needle quietness. A needle force of only 1 ounce, high output, and smooth frequency response give the pickups a quality of record reproduction that will give your phonograph new life—and fullness of tone.

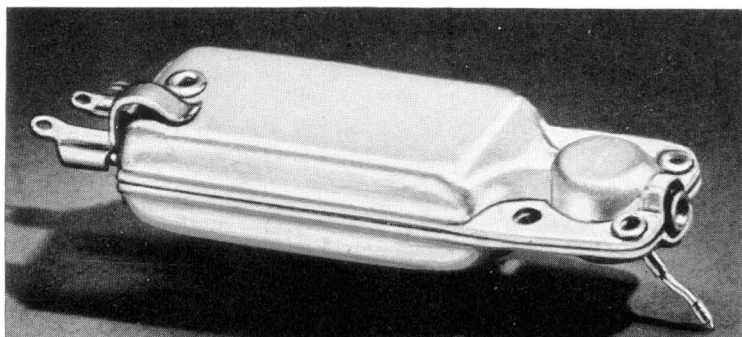
The "Muted Stylus" Pickup has a specially designed sapphire needle for longer record and needle life, faithful tracking, clear, fuller tone qualities, and marked reduction of surface noise.

The "900" Series Shure "Muted Stylus" Pickups are ideal for high-quality home phonographs, coin-operated machines, and all similar applications where shellac or vinylite records are used. Because of their high output coupled with light weight, they can be used as direct replacements for many of the old-fashioned heavy-weight crystal pickups. Available with standard or moisture-proofed crystals for tropic areas.

Unique needle guards provide record and needle protection. The beautiful aluminum arm is light weight and has a small handle for easy placement of pickup on record. Quiet operation and rich tone qualities make these pickups finer. They are recommended for those applications that call for "something better."

MODEL	TYPE	LIST PRICE	OUTPUT LEVEL	NEEDLE FORCE	RESPONSE TO	NEEDLE	SHURE NEEDLE NUMBER	SHPG. WT.	CODE
900B	STD	\$10.50	1.6 V.	1½ oz.	4,500 c.p.s.	.0027" Osmium	A62A	12 oz.	RUZUD
900HS	"Humi-Seal" for Tropics	\$11.50	1.8 V.	1½ oz.	4,500 c.p.s.	.0027" Osmium	A62A	12 oz.	RUZUA

# SHURE *Lever-Type Cartridges*



needle point compliance and high output voltages. They are available in both steel and aluminum cases and are all furnished with quick, easy-to-use pin jacks, eliminating the need of soldering. The crystal is mounted in a trapezoidal aluminum lever. This lever produces a 5-1 increase in energy transmitted from the needle chuck to the crystal; consequently these cartridges will track with needle forces ranging from 3/4 oz. to 1 1/8 oz. with output levels from 1.6 volts to 4.3 volts. The lever also protects the crystal from shock, providing a more rugged cartridge for phonograph use. These cartridges will replace most Rochelle Salt standard flat-type cartridges; and the "Humi-Seal" W58HS is ideal for tropic areas. The use of the aluminum cartridge, in many cases, converts a heavy weight pickup into one of light weight, permitting use of permanent point needles.

The Shure Lever-Type Cartridges are ideal replacements for current crystal cartridges and are widely used by leading radio and phonograph manufacturers. They offer extremely high

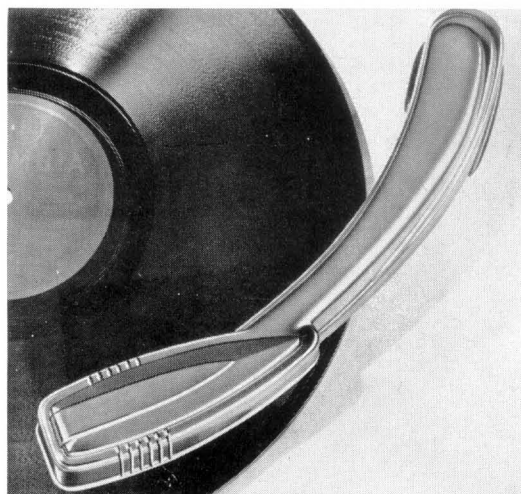
output levels from 1.6 volts to 4.3 volts. The lever also protects the crystal from shock, providing a more rugged cartridge for phonograph use. These cartridges will replace most Rochelle Salt standard flat-type cartridges; and the "Humi-Seal" W58HS is ideal for tropic areas. The use of the aluminum cartridge, in many cases, converts a heavy weight pickup into one of light weight, permitting use of permanent point needles.

MODEL	TYPE	LIST PRICE	OUTPUT LEVEL	MIN. NEEDLE FORCE	RESPONSE TO	CASE MATERIAL	SHURE NEEDLE NUMBER	NEEDLE SCREW	SHPG. WT.	CODE
W42B	STD	\$4.45	1.3 V.	1 oz.	5,000 c.p.s.	Steel	None	Thumb	1 oz.	RUGUB
W53MG	MG	\$8.50	1.0 V.*	6 grams	8,500 c.p.s.	Aluminum	A64MG	Set	3/4 oz.	RUGET
W56A	Hi-Level	\$6.65	4.3 V.	1 1/8 oz.	6,000 c.p.s.	Aluminum	None	Thumb & Set	3/4 oz.	RUGUS
W56R	Cut.—Cart.	\$7.50	4.3 V.	1 oz.	10,000 c.p.s.	Steel	None	Thumb & Set	1 oz.	RUGEV
W57A	STD	\$5.55	1.6 V.	3/4 oz.	6,000 c.p.s.	Aluminum	None	Thumb & Set	3/4 oz.	RUGLA
W58A	STD	\$5.55	1.6 V.	1 oz.	6,000 c.p.s.	Steel	None	Thumb & Set	3/4 oz.	RUGLU
W58HS**	"Humi-Seal"	\$6.55	1.6 V.	1 oz.	6,000 c.p.s.	Steel	None	Thumb & Set	1 oz.	RUGUY
W59A	STD	\$5.55	2.5 V.	1 oz.	6,000 c.p.s.	Steel	None	Thumb & Set	1 oz.	RUGAT
W56PN	PN Crystal	\$10.00	1.9 V.	1 1/8 oz.	8,000 c.p.s.	Aluminum	None	Thumb & Set	3/4 oz.	RUTAR

\*Output on 33 1/3 r.p.m. fine groove records. Output 1.3V. on R.C.A. 45 r.p.m. records. \*\*"Humi-Seal"—Moisture-proofed Rochelle Salt Crystal Cartridge.

## *Glider* CRYSTAL PICKUPS

Shure "Gliders" are modern, light weight, aluminum, crystal pickups employing a needle force of 1 1/8 ounces. They use the high-output lever-type crystal cartridges described above. The arms are scientifically designed for low mass and are curved to minimize tracking error and produce the best results. A new arm rest, gripping the pickup at the side between the cartridge and the tone arm, is supplied for simplicity and ease of use. "Gliders" are especially suited for replacements of older, heavy pickups as well as for modern installations. Shure "Glider" pickups give minimum record and needle wear, reduce surface noise, and reproduce the full tone qualities of the records with natural life-like quality.



MODEL	TYPE	LIST PRICE	OUTPUT LEVEL	NEEDLE FORCE	RESPONSE TO	SHURE NEEDLE NUMBER	NEEDLE SCREW	SHPG. WT.	CODE
93A	STD	\$7.50	1.8 V.	1 1/8 oz.	6,000 c.p.s.	None	Set and Thumb	13 oz.	RUGLI
96A	Hi-Level	\$8.50	4.3 V.	1 1/8 oz.	6,000 c.p.s.	None	Set and Thumb	13 oz.	RUGAB
900MG	MG	\$12.50	1.0 V.*	6 grams	8,500 c.p.s.	A64MG	Set Screw	13 oz.	RUZUZ

\*Output for 33 1/3 r.p.m. fine groove records. Output 1.3 V. on R.C.A. 45 r.p.m. records.

# SHURE Cartridge Replacement "Packs"

## "9-OUT-OF-TEN" PACK



Here is your cartridge-replacement profit-making package. These three cartridges take care of about 90% of the crystal cartridge-replacements—are packaged in a transparent wrap for easy handling and instant identification. The three cartridges are as follows:

- 1—The amazingly-quiet "Muted Stylus," Model W60B.
- 2—Lever-type cartridge (steel case), Model W58A.
- 3—Lever-type cartridge (aluminum case), Model W57A.

A reference chart for exact cartridge replacement is enclosed in each cartridge carton. These cartridges feature low needle force . . . longer record and needle wear . . . high needle compliance . . . crystal shock immunity . . . pin-tip terminals. These lever type cartridges are not merely adequate replacements—they are definite acoustic advancements. Every radio serviceman will profit from this pack. At low cost, he can provide fast, high-quality profitable service to his customers!

For technical data on the W60B refer to Page 4; for technical data on W57A and W58A refer to Page 5.

**Model: W50B Code: RUPAL List Price: \$18.50**

## THE "TROPY-PAC"

The new Shure "Tropi-Pac" is a crystal cartridge replacement package for the Southern States and humid areas in subtropical countries. The "Tropi-Pac" consists of two moisture-proofed "Humi-Seal" Rochelle Salt crystal cartridges that will last many times longer and operate with greater efficiency than any other crystal cartridges of comparable output. The crystals in both cartridges are encased in a special plastic and metal wrap for long life during actual use. For additional protection during shipping and storage, each cartridge is housed in a handy, tight gasketed aluminum container.

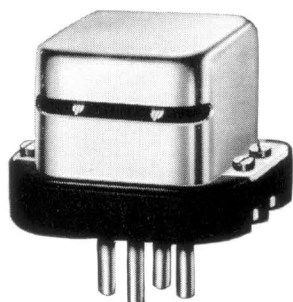


**Model: W50T Code: RUPAT List Price \$15.00**  
(Includes W60HS and W58HS)

**NOTE:** These cartridges are Rochelle Salt Crystal Cartridges and should not be confused with PN-type cartridges. No circuit compensation is necessary! For technical data see Pages 4 and 5.

El nuevo "Tropi-Pac" SHURE es un empaque especial adaptado para los climas tropicales. Se compone de dos cartuchos o pastillas "Humi-Seal" de Sal de Rochela, a prueba de la humedad, que durarán mucho más tiempo que cualquier cartucho ordinario, y con mayor eficiencia. Los cristales en ambos cartuchos están encerrados en una capa especial de metal y material plástico, para mayor duración en servicio. Para protección adicional durante el embarque y almacenaje, cada cartucho está contenido en un envase de aluminio cerrado con tapa hermética.

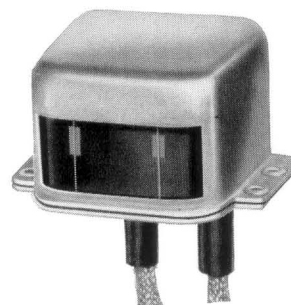
**Modelo W50T Clave: RUPAT Precio de Lista \$15.00**  
N.B. Estos cartuchos son de Sal de Rochela y no deberán confundirse con los cartuchos PN de menor rendimiento. No hay necesidad de compensación en el circuito.



## WIRE RECORDING HEAD

The Shure Magnetic Wire Recording Head Model "812" is a high quality recording unit which combines recording, play-back, and signal erasure in one small compact unit. It is uniform in frequency response and output level, has high erase efficiency, and long operating life. It also provides excellent hum shielding and a simplification of electrical design, permitting various recording and play-back circuits. The "812" is rugged, immune to moisture, temperature, and mechanical vibrations. The wire groove is carefully contoured and polished for maximum performance and long life. Has standard 4-prong adapter base and is a direct replacement unit for the improved Sears-Roebuck Wire Recorder. Is ideal for all types of wire recording applications—will achieve a standard of performance that brings out the fullest potentialities of any wire-recording unit in which it is used.

**Model: 812 Code: RUWIR List Price: \$15.00**



## TAPE RECORDING HEAD

The Shure Tape Recording Head, Model "815," is a high quality, precision-engineered unit incorporating recording, reproducing, and erasing in one head. The Tape Recording Head displays excellent uniformity in frequency response and output level. It is suitable for all types of tape recording: professional, semi-professional, experimental, technical, and amateur use.

Like the Shure Wire Recording Head, the tape head offers great flexibility in the mechanical arrangement of hum-producing components—due to excellence of hum shielding, and greater freedom in low frequency compensation.

It is ruggedly built, precision engineered for long life, and is immune to all effects of moisture, temperature, and mechanical vibration.

**Model: 815 Code: RUWAT List Price: \$15.00**

# SHURE

## CRYSTAL CARTRIDGE REPLACEMENT CHART

SHURE Model No.	REPLACES SHURE MODEL	OTHER MANUFACTURERS' MODEL NUMBERS	OTHER MANUFACTURERS' MODEL NUMBERS
W53MG	P93MG, P95MG		
W56A	P89, P89S	L72, L-72A, L-72AS, L-72S, L-82, L-82A, L-46A, L-50A	
W56R	P89R (Pickup-cutter)		
W57A	P87, P87B, P90D, P93, -B, -C, -D, P94B, P94		F1P, F3P, F5P
W58A	P87S, P90B, P90C, P90S, P92B, P93S, W42A, 99-182	L-22A, L-25A, L-26A, L-27A, L-32A, L-40A, L-41A, L-70, L-70A, L-70AS, L-70S, L-71, L-71A, L-71AS, L-71S, L-75, L-75A, L-75AS, L-75S, L-76, L-76A, L-76AS, L-76S	E4, E4-1, E9, N1-1, N2, N3, N4, N6, N6P, N6P-4, N7, N7-1, N7P, N7P-2, N8, N8P, N9, N10, N10P, N10-P-1, N11P, F2P, F4P, F6P, GX-82, X-82, X-82CH-1, Y-82
W59A	P88, P88S, W40A, W41A, 99-180, 99-181	L24A, L-36A	
W60A	P30, P30B, P30C, W57AN, P30W	1-J, 1-M, LT3-M, LT3-MA, MLP-1J, QT-J, QT3-J, QT3-JA	N5, F7P, F7P-2
W60B	P30, P30B, P30C, W57AN, P30W	1-J, 1-M, LT3-M, LT3-MA	N5, F7P, F7P-2
W60HS	P94E, P93E, P30E, P30, -B, -C, -D, -G, -S, -W, -HS, also W57A, W58A and its replacements.	Same cartridges replaced by W57A, W58A, W60A, W60B, W61B.	
W61B	P30D, P30S, P30G	LP-6, LP-21, LP-23, LT1-M, LT1-MA, LT2-M, LT2-MA, MLP-1, MLP-2, QT-M, QT3-M, QT3-MA	Q1, Q2
W65B	P35, P35S, P89, P89S		
W56PN	PN88, PN88S, PN89, PN89D, PN89E, PN89S	L-73, L-73A, L-74, L-74A, L-73AS, L-73S, L-74AS, L-74S	YN2, YN2-1
W60PN	PN30, PN30S	MLP-3, QT-J-PN, QT2-M-PN, QT3-J-PN, QT3-M-PN, Nylon 1-J-PN, Nylon 1-M-PN	
W21A	P73, P73A		
W21AR	P73R, P73AR		RCA Microgrove Cartridge 74067
W22A	P76, P76A, P77, P77A, P79, P76AF		
W22AB	P76, P76A, P77, P77A, P79, P76AF		
W23A	P70, P70A		
W23B	P70, P70A		
W42B	99-182, W42A, W41A, 99-181, 99-180, W40A	L26A, L40A	N3, E4
W58HS	Same as for W58A—especially recommended for humid or very dry areas.		

For free numerical, comprehensive cross-reference chart of all replacement cartridges—write Department "C". (Easy-to-use, printed on heavy stock.)

# SHURE

## “Muted Stylus” Needles

### For Vertical Drive and “Muted Stylus” Crystal Cartridges

**General Features:** Shure “Muted Stylus” needles can be used only in the Shure “Muted Stylus” and Vertical Drive Crystal Cartridges. They are ideal for high quality phonographs, coin-operated machines and in all other applications where shellac and Vinylite pressings are commonly used. These needles bring record playing to a new unmatched standard of performance, greatly reducing the noise and distortion caused by ordinary needles. Surface noise, needle talk and needle hiss are considerably reduced. The needles have been life tested. They are soft riding, smooth working, silent track-

ing—permit true fidelity of tone.

The quality of the needle points is carefully controlled by wearing tests at the Shure Laboratories. The standard Sapphire point needle should give high quality performance for 5 years' average use; the fine-groove Sapphire point needle should give high quality performance for 2-5 years' average use; The standard Osmium point needle should give high quality performance for 1 year's average use; the fine-groove Osmium point needle should give high quality performance for 6 months to 1 year's average use.



**A62A**—.0027" Osmium tip needle for standard 78 r.p.m. records. Good for a year's average use.

**Code: RUZAP** **List Price: \$1.50**

**A61A**—.0027" Sapphire tip for standard 78 r.p.m. records. Good for five years' average use.

**Code: RUZAN** **List Price: \$2.50**

**A63MG**—.001" Osmium tip for 33 1/3 and 45 r.p.m. fine-groove records. Good for six months to one year's average use.

**Code: RUGAZ** **List Price: \$1.50**

**A65MG**—.001" Sapphire tip for 33 1/3 and 45 r.p.m. fine-groove records. Good for two to five years' average use.

**Code: RUGAY** **List Price: \$2.50**

**A64MG**—.001" Osmium tip for 33 1/3 and 45 r.p.m. fine-groove records. Good for six months to one year's average use. Standard bent-shank needle not shown.

**Code: RUZAS** **List Price: \$2.00**

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