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## MSA STEEL GUITAR

The MSA steel guitar is carried in a single case with an insert tray for maximum protection. The guitar fits into the bottom of the case with the tray securing the guitar and holding the pedal bar, legs and pedal pull rods. The rods and legs have their own position in the tray. This gives maximum protection against possible damage while transporting the MSA steel guitar. Note the position of the guitar in the case with the pedal bar side to the back of the case, and the bottom of the instrument facing up. This allows easy convenient removal from the case.

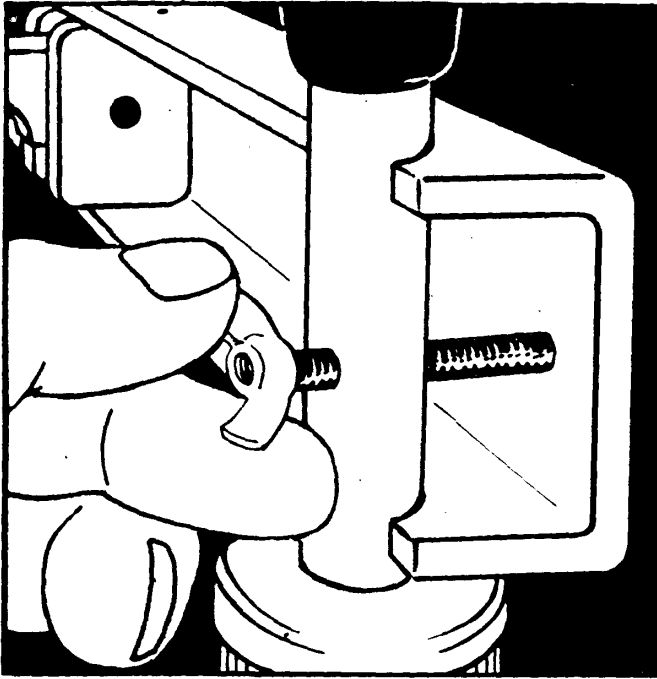


Fig. #2

#### A. Set Up and Removal From Case:

1. Remove the tray from the case, remove the legs from the tray and simply screw the legs into the frame of the guitar while the instrument is still in the case. Note the front legs (or pedal bar legs) are at the back of the case.
2. Remove the pedal bar from the tray and place it at the bottom of the front legs, fitting the notch portion of the bar to the legs and bolt through the front legs. Tighten the wing nut on each leg, securing the pedal bar to the front legs. See Fig. #2

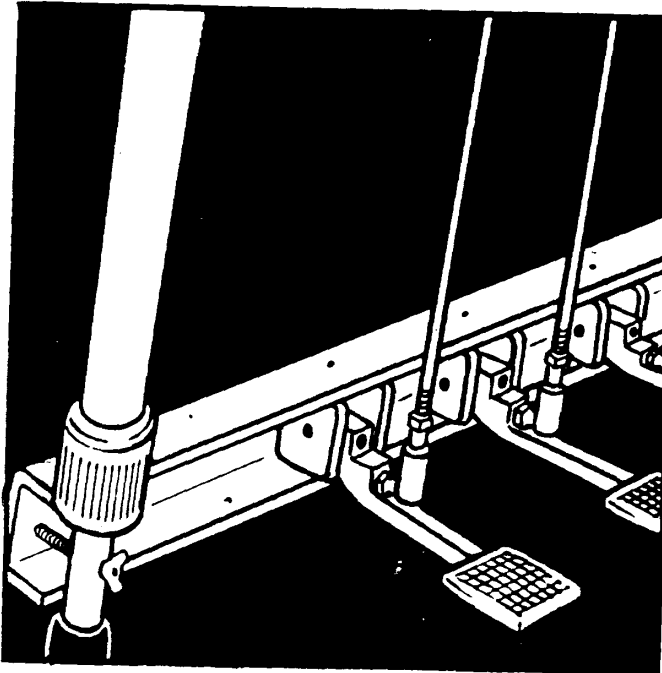


Fig. #3

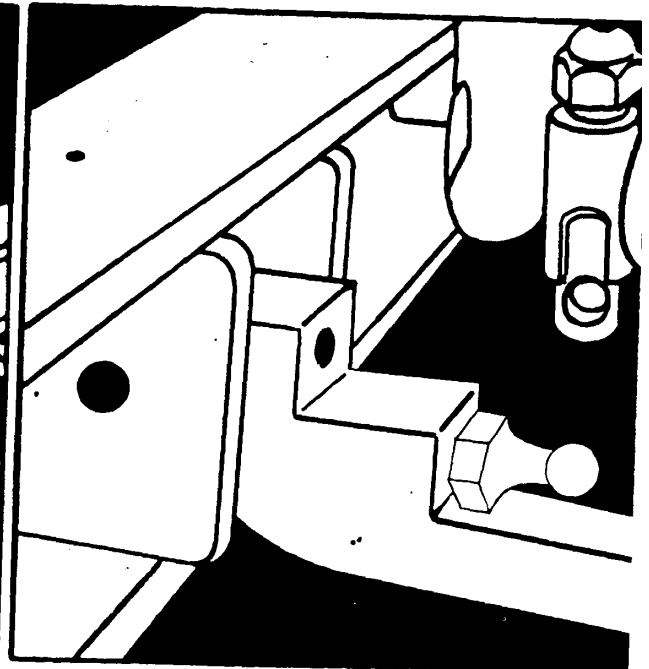


Fig. #4

3. Remove the pedal pull rods from the tray, noting that each rod has a number on its side. Starting with the pedal farthest to your right as you face the guitar and with the rod marked #1, hook the rod in the first pull link on the right and extend the rod up toward the first pedal on your right. Note pedal pull rod connection and safety spring lock for connecting the pedal pull rod to the pedal. (See figure #4) Simply pull the spring loaded safety lock down, then place the hole in the end of the rod over the nipple on the pedal, releasing the safety spring lock. Push on the pedal to see that you have completed the train. Repeat this operation for each of the pedals you have on your guitar, keeping in mind the rods are numbered with the lowest numbered rod on your right.

4. Reach down and raise your knee levers for both the right and left legs. At this point, the guitar is still in the case with legs and pedal rods attached.
5. To remove the guitar from the case, pick up by its legs turning the guitar right side up with front of guitar closest to player.

#### B. Sound Controls

Your MSA steel guitar has the ultimate in sound control, making it one of the most versatile steel guitars on market today.

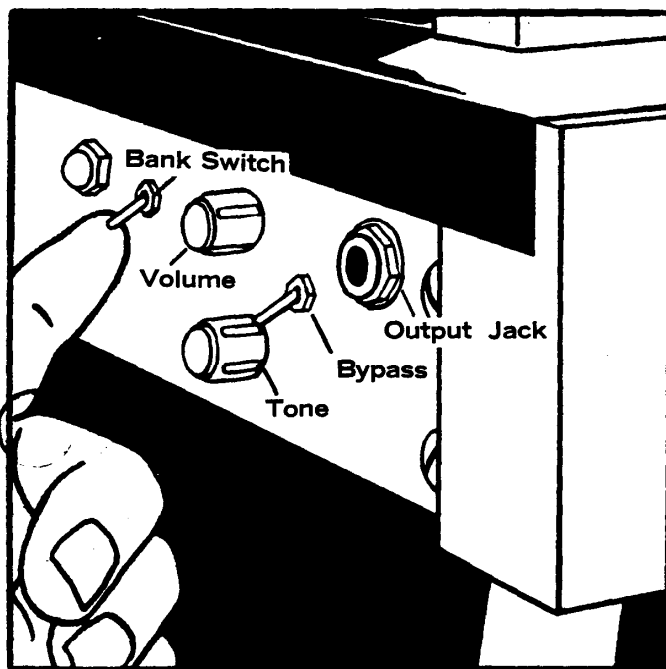


Fig. #5

1. Shown in illustration #5 are the controls on the double neck Classic with the optional bypass switch. When the bypass switch is in an up position, the volume and tone control are bypassed. When the bypass switch is in a down position, the volume and tone control are on.
2. The volume control knob when turned in a clockwise manner increases the volume, rotated in a counter clockwise motion decreases the volume.
3. Rotating the tone control knob in a clockwise motion increases treble, while turning in a counter clockwise motion decreases treble.
4. The bank switch has 3 settings. When the bank switch is all the way up, the top neck is on, when the switch is in the center position both the top and lower necks are on, and when the switch is in the lower position, the lower or bottom neck is on.
5. The output jack is your amplification connection.

These controls will vary depending on the model or the options you requested on your guitar. In general, these will be the mechanical controls you will have on your guitar:

<b>Semi Classic</b>	Output Jack No Controls or Switches
<b>Single Neck Classic</b>	Volume Control Tone Control Output Jack Bypass Switch—Optional
<b>Double Neck Classic</b>	Volume Control Tone Control Output Jack Bank Switch—3 Positions Bypass Switch—Optional

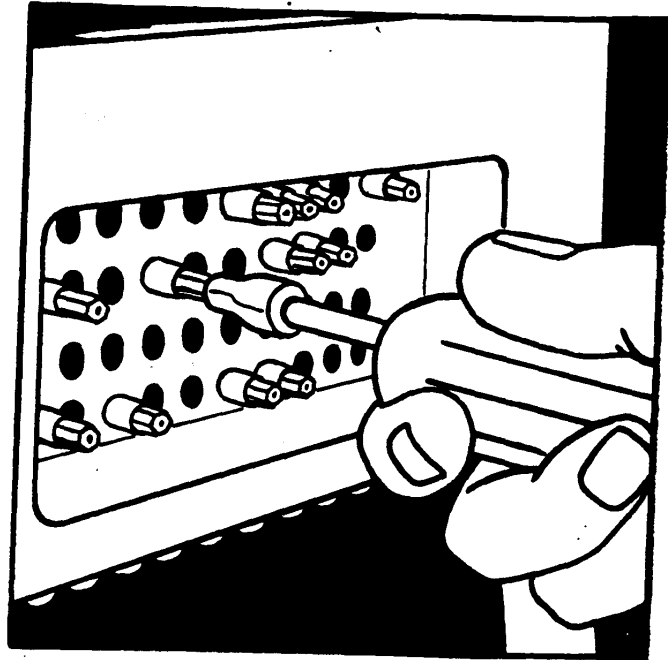


Fig. #6

### C. Tuning Your MSA Guitar

1. Without any pedals depressed, tune each string to the desired pitch using the tuning keys.
2. Tuning the pedals:  
Depress the pedal to be tuned and notice the movement of the tuning nuts on the right end plate. The holes in the end plate correspond to the string positions. There are 4 holes for each string. The lower two rows lower string pitch and the upper two rows raise string pitch. Using the tuning wrench on the lower two rows and turning the tuning nuts in a clockwise direction, increases the lowering of the string pitch. Repeating this operation on the upper two rows of tuning nuts and turning in a clockwise direction raises the

string pitch. With the pedal fully depressed, turn the proper tuning nut using the tuning wrench provided, until the desired pitch is obtained. Turning the nut clockwise will increase the movement of the string. Turning the nut counter clockwise will decrease the movement of the string. Note: There should be slack in the pulling train. If the adjusting nut is turned too far in the clockwise direction, the string will not return to proper pitch after the pedal is relaxed. If this happens, the tuning nut should be turned in a counter clockwise direction until it no longer affects the pitch of the string with the pedal not depressed and the total pedal travel should be readjusted. See Fig. #6 and Sec. D-3.

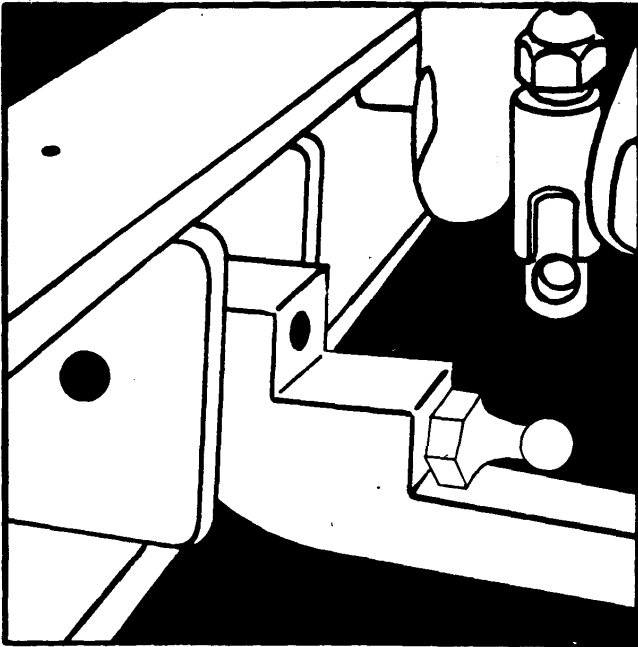


Fig. #7

#### D. Adjusting the MSA Guitar

1. The height of the pedals off the floor can be adjusted by loosening the lock nut on the pull rod at the ball joint connection. After loosening the lock nut, screw the ball joint in or out a desired amount. The lock nut should then be retightened. See Fig. #7

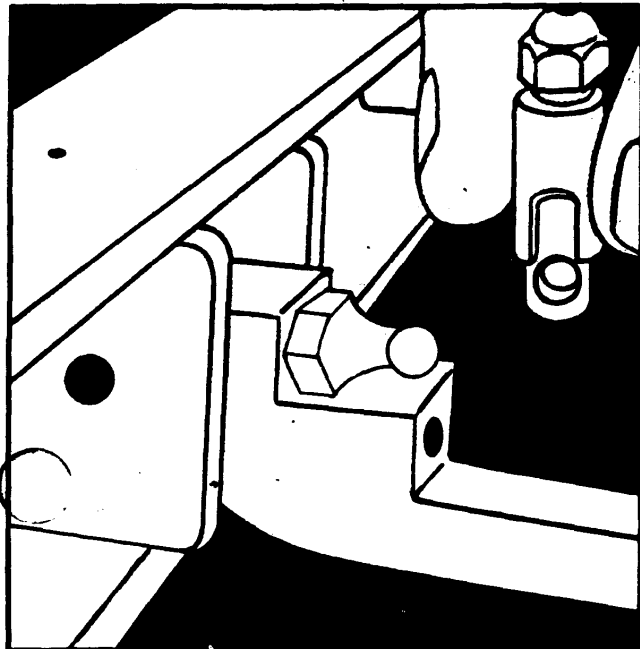


Fig. #8

2. Pedal "feel" can be altered by moving the ball joint on the pedal to a different mounting hole. Moving the ball joint closer to the pedal bar will increase the pedal travel. See Fig. #8

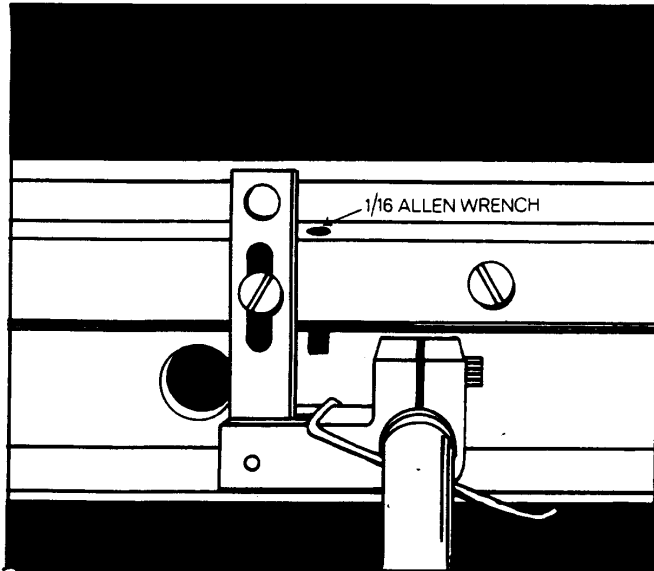


Fig. #9

3. Pedal stop adjustment — To obtain more travel out of the pedals, the pedal must be readjusted and this adjustment is made under the guitar and requires a 1/16" Allen wrench for the pedal stop screws. Turning the screw in a clockwise direction decreases the travel of the pedal and turning the screw in a counter-clockwise direction increases the pedal travel. See Fig. #9

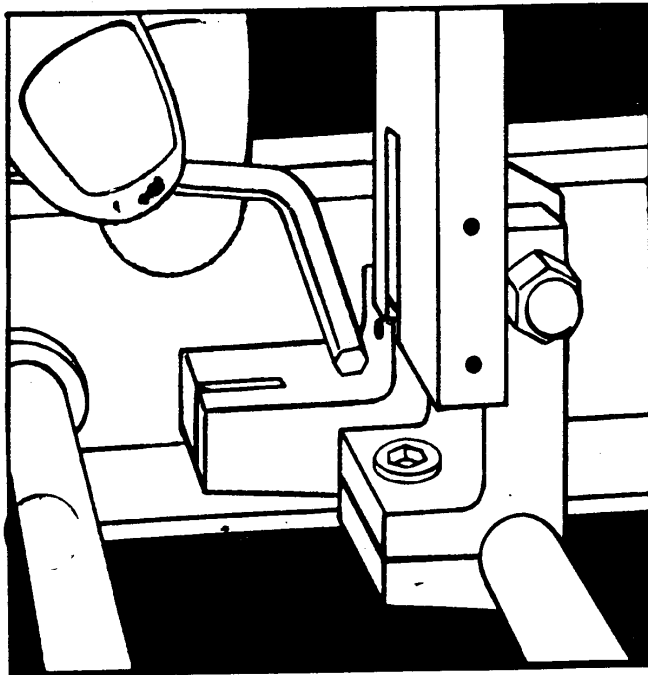


Fig. #10

4. Knee lever angular adjustments
- a.) Knee levers that move to the left can be repositioned on the shaft by loosening the Allen Screw in the mounting bracket and rotating lever to the desired angle. The Allen Screw should then be retightened.

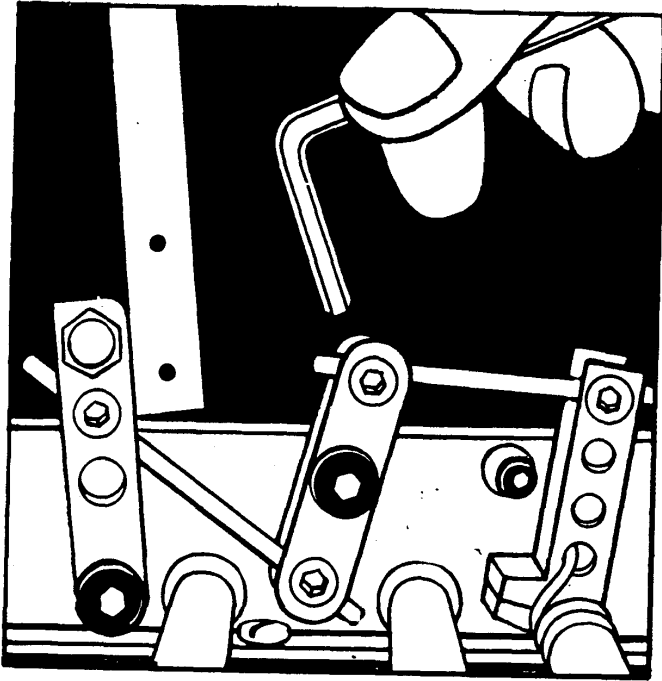


Fig. #11

- b.) Knee levers that move to the right can be repositioned by loosening one of the set screws in the linkage and realigning the lever by allowing the linkage rod to slide in or out of the pull pin until the desired angle is obtained. The set screw should then be retightened.

5. Changing or Adding Pulls. Your new MSA Classic has been engineered so that you can change or add pulls as desired. To change a pull:

- a.) Place guitar upside down on work table with pickup to your left.
- b.) Remove the back cover plate of the guitar retained by six machine screws. The  $\frac{3}{8}$ " dia. cross shafts can now be removed by loosening all the screws in the pullers attached to the shaft. If it is not desired to move pullers to different shafts or to add pullers, omit this step.
- c.) Note that the  $\frac{1}{8}$ " dia. pulling rods are attached to the pivot pin in the pullers using a set screw. When this set screw is loosened, the pull rod can be removed from the guitar by sliding out through the endplate.
- d.) Reposition the pullers as desired on the cross shafts and tighten se-

curely. Replace back cover.

- e.) Insert the pull rod in the proper hole in the endplate and route the rod through the string finger and through the brass pivot pin in the desired puller. In general, longer, easier action is achieved by keeping the pivot pin close to the cross shaft and utilizing the top most tuning hole (looking at the bottom of the guitar) in each raising finger or lowering finger.
- f.) Adjust the nylon tuning nut so that the end of the rod is flush with the end of the nut. Leave a slight amount of slack in the rod when tightening the set screw in the pivot pin. Tune the pull to the approximate pitch desired using the pedal (or knee lever) stop adjustment.
- g.) Do fine tuning with tuning nut.



## TIPS FOR TROUBLESHOOTING THE MSA CLASSIC

TROUBLE	PROBABLE CAUSE	REMEDY
Tuning key is loose feeling and will not hold pitch	Tuning key tensioning screw is loose	Tighten screw
Tuning nut spins and will not tune pedal	Pivot pin set screw is loose	Tighten screw
Raising string comes back sharp after pedal is tuned	Tuning nut has been run in too far due to insufficient travel in pulling train	Back off tuning nut and adjust pedal stop
Lowering string comes back flat after pedal is tuned	Tuning nut has been run in too far due to insufficient travel in pulling train	Back off tuning nut and adjust pedal stop
Raising string comes back flat	Bridge roller stuck or tight	Remove string. Clean and lubricate roller
Lowering string comes back sharp	Bridge roller stuck or tight	Remove string. Clean and lubricate roller
String will not pull to pitch	Pedal out of tune	Tune pedal using tuning nuts
Pulling train has insufficient travel	Pedal or knee lever stops set too close	Adjust stops underneath guitar
Pedals or knee levers pulling to same pitch on same rod will not note out the same	Pulling collars are not synchronized	Adjust one of the pedal stops involved
Fingers will not return to stop even after tuning nut is backed off	1. Return spring has fatigued 2. Excessive drag in pulling train	1. Replace spring or tighten by removing 2 coils 2. Find and eliminate source of drag
String develops "twang"	1. String is defective 2. Dirt or foreign matter under string at tone changer bridge	1. Replace string 2. Remove string and clean bridge
String will not stay in tune open	Keyhead is loose	Tighten keyhead mounting screws

**E. General Care and Lubrication:**

As with any precision instrument, proper care and lubrication of the guitar will greatly enhance its appearance, operation and value. In general, on formica finishes or lacquered finishes, never use an abrasive cleaner. We recommend cleaning the guitar with a spray type furniture polish and buffing with a soft clean cloth. Lubrication should be done on all pivot points under the guitar, approximately twice yearly. A light high grade machine oil is recommended.

STANDARD D12 SET-UP w/8&4

	Top Neck	Btm. Neck																			
1	F.013	F.013	+1/2																	1	
2	E.017	A.010		-1																2	
3	A.010	G.012				+1/2			+1/2											3	
4	E.013	E.015					+1		+1/2						+1/2	-1/2				4	
5	B.017	C.018			+1		+1			+1						-1/2				5	
6	A.024w	A.022				+1/2		+1		+1										6	
7	F.026w	G.026w							-1/2											7	
8	E.030w	E.032w							-1/2							+1/2	-1/2			8	
9	D.036w	C.038w		-1/2										+1/2						9	
10	B.038w	A.042w			+1			+1												10	
11	A.046w	F.052w							+1/2					-1/2						11	
12	E.056w	C.064w							+1					-1 1/2						12	
			LKL		LKR															RKL	RKR
	E9	C6	kn	kn	kn	1	2	3	4	5	6	7	8	9	10					kn	kn

STANDARD D10 SET-UP (w/8&2)

*4 pulls*

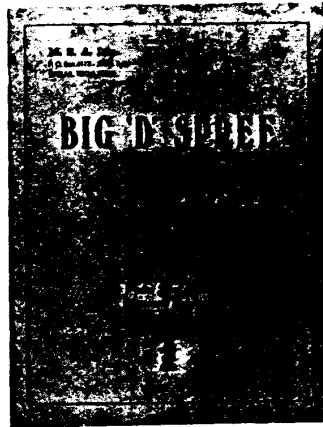
	Top Neck	Btm. Neck																			
1	F.013	G.012							+1/2												1
2	E.017	E.015								+1/2											2
3	A.010	C.018				+1/2					+1									-1/2	3
4	E.013	A.022					+1	+1			+1				+1/2	-1/2					4
5	B.017	G.026w			+1			+1		-1/2											5
6	A.024w	E.032w				+1/2				-1/2											6
7	F.026w	C.038w												+1/2							7
8	E.030w	A.042w						+1							+1/2	-1/2					8
9	D.036w	F.052w							+1/2					-1/2							9
10	B.038w	C.064w			+1				+1					-1 1/2							10
11																					11
12																					12
	E9	C6	kn	kn	kn	1	2	3	4	5	6	7	8	9	10					kn	kn







MSA MicroSmooth Steel Bar  
No. A-2910



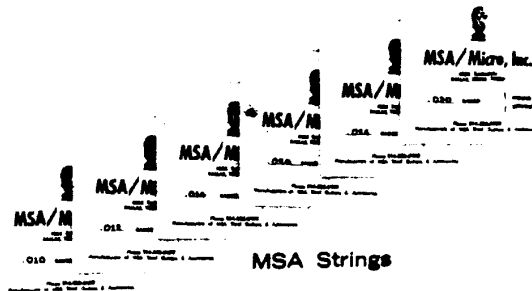
Diagrammed Arrangements



MSA MicroSonic Pedal  
No. C-2940



Record Albums



MSA Strings

## Lifetime Warranty

This new MSA/micro product is warranted to the original purchaser to be free from defects in both material and workmanship for the life of the original purchaser. The original purchaser must be an individual person. Names of bands, clubs, churches, groups, institutions, etc. are not acceptable as the original purchaser.

Should any part of the equipment be defective, it will be repaired or replaced free of charge (except transportation), provided it has been operated according to the instructions which accompany it. All work will be done at the MSA/micro factory.

This warranty does not apply to guitar cases, strings, tunings and adjustments, or surface finishes.

This warranty is void if, in the sole judgment of MSA/micro:

1. Equipment has been damaged by accident, mishandling, or the elements;
2. Equipment has been serviced by other than the MSA/micro factory or authorized representative;
3. Adaptation or accessories other than those of MSA/micro have been made or attached.

The foregoing is in lieu of all other warranties expressed or implied, and MSA/micro, Inc. neither assumes nor authorizes any person to assume for it any other obligation or liability in connection with the product.

THIS WARRANTY IS VOID IF NOT REGISTERED WITHIN 30 DAYS AFTER DATE OF PURCHASE