## Setting Up and Operating Delta No. 890 14-Inch Band Saw

General. A band saw requires a reasonable amount of care and attention in order to insure perfect performance and accurate work. No matter how good a machine a manufacturer may make, it will not do its best work unless the user takes the trouble to familiarize himself with the proper method of using the machine and setting the adjustments, and to learn what is necessary for best results. It takes but a few minutes to read these instructions, and it may save hours of trouble or delay later.

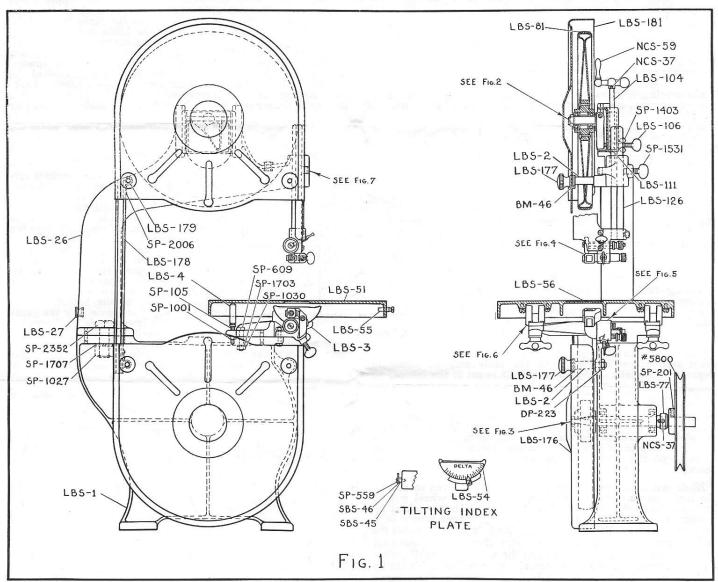
Setting Up. The band saw is ready for operation as received, except that the table has been tilted for easier packing. Remove the side boards carefully from the crate, unbolt the base of the machine from the crate bottom, remove the weatherproof covering and the machine is ready for installation on stand or bench.

The table insert and the tapered pin for the table-alignment hole at the end of the table slot, together with the Allen wrench for the guides, will be found in the envelope attached to the saw. The table pin should be pushed lightly into place—not rapped in with a hammer, as the object of the pin is to align the

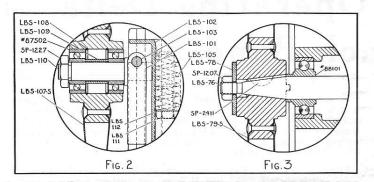
two parts of the table on each side of the saw-blade slot, and if it is pushed too hard into place this object will be defeated, and the table might even be broken. The pin is very easily removed when changing blades simply by turning it backwards with a wrench on the hexagon head in the same manner as when removing a screw.

Power Required. For most work around the small shop or home work-shop a good 1/3-H.P. motor will be found to furnish ample power for this machine. It is recommended that the Delta No. 900 Repulsion-Induction Motor, or a motor of equivalent power, be used. For steady production work, using wide blades, or whenever the Raising Block Attachment is used for cutting thick and heavy stock, a good ½-H.P. Repulsion-Induction Motor, like the Delta No. 820, should be used. Only a constant-speed motor should be selected.

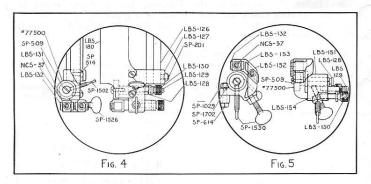
Speed. On the Standard Delta motors or others running at 1725 r.p.m. a 2¾-in. V-pulley should be used, and this will give the band saw the correct speed of 600 r.p.m. This speed will be found ample for all requirements, and nothing is gained by increasing it; in fact, blade life will be considerably short-



ened if this speed is greatly increased except for wide blades. Be sure the motor turns in the right direction. The wheels



of the band saw should rotate in a clockwise direction when viewed from the guard side of the machine, the teeth of the



blade moving downward toward the table. If the motor turns the wrong way, turn it around if it is a double shaft motor, or reverse it in accordance with the

maker's instructions.

Fitting on Stand. No. 891 Steel Stand for the 890 Band Saw is slotted for both 1/3 and 1/2 H.P. motors with standard bases. See Fig. 11 for the proper holes and slots to use when setting up the band saw. When the switch rod (No. 851) is used, the rubber bushing is removed from the clamp and inserted in the right hand hole in the front of the stand top shelf, and the switch rod is inserted through the hole as shown in Fig. 11.

## Adjustments

Tilting Table. The table of the No. 890 band saw may be tilted 45 degrees to the right and 10 degrees to the left. To tilt, loosen star wheel NCS-32 (Fig. 6),

under each trunnion seat, and retighten after table has been tilted to the desired angle. To tilt the table to the left, first tilt it slightly to the right, remove the sleeve LBS-4 (Fig. 1) from stop screw SP-105, when the table may be tilted 10 degrees to the left. Stop screw SP-105 is set at the factory to bring the table square with the blade, but this should be checked before the machine is used to insure that the setting has not been disturbed in shipping. Screwing the screw up or down enables the table to be set square; when set, it is locked with the lock nut. Always set the table square with the sleeve in place on the screw. When the table is set, adjust the movable pointer SBS-46 to the zero mark on the graduated segment on the front trunnion, and it will then indicate the correct tilt in degrees.

Blade and Guide Adjustments. When it is desired to change the blade on this saw remove upper and lower wheel guards by unscrewing the knurled knobs. Lower the upper wheel by turning the ball-crank handle of the adjustment screw in a counter-clockwise direction until the blade is loose. Remove the table alignment pin and the table insert, then slip the blade off the wheel and guide it out through the slot in the table. This can be done without removing the sliding guard with blades up to  $\frac{3}{8}$  in. wide. For  $\frac{1}{2}$  in. and  $\frac{3}{4}$  in. blades it is better to remove

the sliding guard; as the screw holes are slotted for quick removal and installation of this guide, this operation takes but a second to perform.

To install a new blade merely reverse the above procedure. Before attempting to set the guides on the new blade, loosen the Allen screws (NCS-37) that hold the square guide pins, and pull the pins back entirely clear of the blade, so that they will not affect the centering of the blade on the wheel. Loosen all the thumbscrews that lock the blade-support and guide pin brackets, and run the ball-bearing blade supports and guide pins as far back as they will go, so that the blade is completely free of all interference.

Tension. On the back of the upper-wheel slide bracket, as shown in Fig. 9, there is a series of graduations. These indicate the proper tension for various widths of blades. With the blade on the wheel, the ball-crank handle is turned so as to raise or lower the wheel until the red-fiber washer under the tension-screw nut comes to the proper graduation for the size of blade being used.

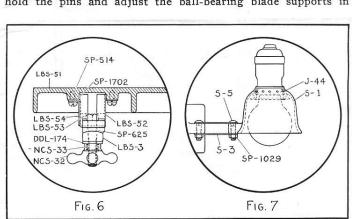
These graduations will be found correct for average work, and are not affected by re-brazing of the saw blade. It is urged that you use these graduations until you have become familiar enough with the operation of the band saw to vary the tension a trifle for varying kinds of blades or work. Overstraining is the commonest cause of blade breakage and other unsatisfactory blade performance, and it will be found that the Delta tension gage will eliminate many of the commoner blade troubles if it is intelligently used.

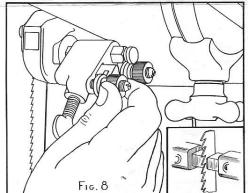
Centering Blade. After the tension has been adjusted, revolve the wheels slowly forward by hand, and watch the blade to see that it travels in the center of the tires. There is a thumb-nut and wing screw on the rear of the upper-wheel bracket (LBS-106 and SP-1403), which are used to alter the tilt of the upper wheel in order to make the blade "track." If, when turning the wheels by hand, the blade begins to creep toward the front edge, loosen the wing screw and tighten the thumbscrew a little. This will tilt the top of the wheel toward the back of the machine and will draw the blade toward the center of the wheel rim. If the blade creeps toward the back of the blade, turn the thumbscrew in the opposite direction. Adjust the thumbscrew only a fraction of a turn at a time, as it does not take much to draw the blade one way or

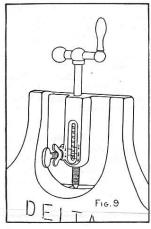
the other, and never adjust the blade while the machine is running. After the blade has been "tracked" in the center of the wheel rims, tighten the wing nut that locks the adjusting thumbscrew.

Setting the Guides. The brackets carrying the guide pins should now be adjusted forward by means of their knurled thumb nuts until the front edges of the guide pins will be just behind the roots of the teeth. If the guide pins are too far forward, the teeth of the blade will be worn against the pins; if they are too far back, the blade will not be correctly supported for curve cutting. The micrometer adjustment on your guides makes it easy for you to set your guides precisely to the bottom of the teeth. In Fig. 8 is shown how the guide bracket on the lower guide is adjusted.

When the brackets have been properly adjusted, then set the guide pins inward until they are as close as possible to the blade, but without binding it, then tighten the setscrews that hold the pins and adjust the ball-bearing blade supports in







toward the back of the blade. The supports should be adjusted so they will be about 1/64 in. clear of the back of the blade whenever the blade is running free—without cutting. The blade should bear against the support only when it is actually cutting. If the blade is allowed to run hard against the supports at all times the back will become case-hardened, and this will cause eventual breakage of the saw. The proper adjustment of the blade and saw is very important for the correct operation of the band saw. Fig. 10 shows the operation of adjusting the upper blade support.

Be sure to readjust the guides every time you change a blade, especially if you use blades of varying widths.

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Fig.10

Blades. A band saw is a delicate piece of steel that is subjected to tremendous strain. However, you can obtain long use from a band-saw blade if you give it fair treatment. Be sure you have blades of the proper thickness and temper for 14-inch wheels. It is insurance against trouble to purchase your blades from us, for our blades are made especially for this machine.

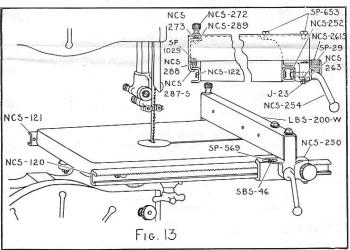
Always use the widest blade possible, using the narrow blades for sawing small, abrupt curves and for fine delicate work only. Change blades and use a wider blade whenever the work will permit its use. This policy will not only save blades but will produce better work. Band saw blades may be purchased welded, set and sharpened ready for use. For cutting wood and similar materials we can supply them in widths of ½ inch, 3/16 inch, ½ inch, 3/8 inch, ½ inch and ¾ inch.

File and set the blades whenever you find it requires pressure to make them cut. If a blade is broken it can be brazed; however, if it has become badly case-hardened it is not economical to have it brazed because it will soon break in another place. If you are not equipped to file, set and braze or weld blades ask us for prices.

Blades for the standard model No. 890 band saw are  $93\frac{1}{2}$  inches long; for the saw equipped with No. 894 Height Attachment they are 105 inches long.

Operating the Band Saw. Before starting the machine, see that all adjustments are properly made and that the guards are in place. Turn the pulley by hand to make sure that everything is correct before turning on the power.

Keep the top guide down close to the work at all times. When using a band saw, do not force the material against the blade too hard. Light contact with the blade will permit easier following of the line and prevent undue friction, heating and case-hardening of the blade at its back edge.



Keep the saw sharp and you will find that very little forward pressure is required for average cutting. Move the stock against the blade steadily and no faster than will give an easy cutting movement.

Avoid twisting the blade by trying to turn sharp corners. Remember you must saw around the corner; use a narrow blade if you want to saw a very small radius.

When cutting curves turn the stock carefully so that the blade may follow without being twisted. If a curve is so abrupt that it is necessary to repeatedly back up and cut a new kerf, either a narrow blade is needed or more set in blade being used is required. The

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SWITCH ROD No 851 IS INSERTED THROUGH HOLE A WHEN No 800 OR 990 MOTOR IS SUED. SWITCH ROD IS INSERTED THROUGH HOLE B WHEN No 820 MOTOR IS USED.

TOP SHELF (FRONT) No 800 MOTOR S No 800 MOTOR FIG. 11

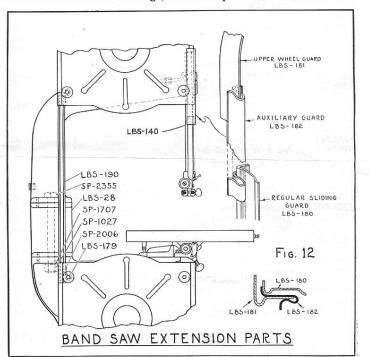
more set a blade has, the easier it will allow the stock to be turned, but the cut is usually rougher than where a medium amount of set is used.

In withdrawing the piece being cut, in order to change the cut, or for any other reason, the operator must be careful that he does not accidentally draw the blade off the wheels. In most cases it is easier and safer to turn the stock and saw out through the waste material, rather than to try to withdraw the stock from the blade.

Blade Breakage. Any one of a number of conditions may cause a band saw blade to break. Blade breakage is in some cases unavoidable, being the natural result of the peculiar stresses to which such saws are subjected. It is, however, often due to avoidable causes, most often to lack of care or judgment on the part of the operator in mounting or adjusting the blades or guides. The

or adjusting the blades or guides. The most common causes of blade breakage are: (1) faulty alignment and adjustments of the guides, (2) forcing or twisting a wide blade around a curve of short radius, (3) feeding too fast, (4) dullness of the teeth or absence of sufficient set, (5) excessive tightening of the blade, (6) top guide set too high above the work being cut and, (7) using a blade with a lumpy or improperly finished braze or weld.

Lubrication. The wheels of the No. 890 band saw are carried on self-sealed ball bearings, which require no lubrication for



the life of the bearing; in fact, they require no attention whatever. Ball-bearing blade supports are of the same type. Oil of every kind should be kept away from the blade supports, and any traces of grease that may be apparent due to slight leakage of lubricant after running for some time should be wiped away before starting to work.

Height Attachment. The capacity of the No. 890 band saw may be increased up to 12 inches at any time by the addition of the No. 894 height attachment, shown diagrammatically in Fig. 12. Bolt SP-2352 (Fig. 1) is loosened and removed, and the upper arm of the saw may then be lifted, and height block LBS-28 (Fig. 12) placed on top of the base, with the dowels fitting into the dowel holes in both arm and base. Long bolt SP-2355 is then inserted and tightened. Since the regular guard, when the guide is now lowered for small work, leaves a portion of the blade exposed, an auxiliary guard, LBS-182, is supplied to cover the exposed portion. This auxiliary guard snaps onto the upper wheel guard as shown in the detail draw-

ing, and can be pushed up or down as desired. A longer hexagon guide support bar, LBS-140, is also furnished in place of the regular one, and a longer wood guard, LBS-190, which is attached to the same stamped brackets as the regular guard.

Rip-Gage Attachment. Due to the short distance between guides on the Delta saw, ripping is done very successfully with the addition of rip-gage attachment No. 893. To attach this, the shoulder screws that come with the attachment are screwed into the tapped holes provided on front and rear edges of the table, the guide bars are slipped over the screws and tightened in place.

The rip gage may be used on either side of the blade, as it can be slipped onto the guide bars from either end. The guide bars need never be removed from the table unless it is desired to do so. Attachment No. 893 has 18-inch guide bars, and permits ripping up to the limits of the table. Attachment No. 895 has 32-inch guide bars, for cuts up to 23 inches.

## REPLACEMENT PARTS

Part No	. Name of Part	No.	Ren	Price Each	Part No.	Name of Part	No. Req.	Price
LBS-1			THE REAL PROPERTY.					Each
LBS-1 LBS-2	Base	•	1	\$7.00	NCS-37	5"-18 Hol. Head Setscrew	. 1	.05
	Wheel-Guard Stud		2	.10	NCS-59	Ball-Crank Handle	. 1	.40
LBS-3 LBS-4	Trunnien Support Bracket		1	1.50	SP-1403	<sup>5</sup> <sub>16</sub> "-18 Wing Nut	. 1	.10
SBS-8	Table-Top Spacer		1	.08	SP-1227	½"-20 Upper Wheel Nut		.08
	34" x 34" Dowel Pin	• 1	1	.05	87502	Special Greseal Bearing	. 2	1.00
SBS-45	Indicator Spacer		1	.04		Upper Saw Guide		
SBS-46	Indicator Pointer		1	.03	LBS-126	Saw-Guide Post	. 1	00.05
SP-105	5 "-18 x 2" Stop Screw		1	.04	LBS-127	Cuido Support	. 1	\$0.35
SP-559	10-32 x ½" Indicator Screw		1	.03	LBS-127-S	Guide SupportUpper Saw Guide Assembly, Complet	. 1	.65
SP-609	5" "-18 x ½" Hex. Cap Screw		2	.06	IID9-121-9			
SP-1001	- 18 Stop-Screw Nut		1	.10		with Ball-Bearing Blade Support	,	0.50
SP-1027		. 56	1	.10	LBS-128	Less Hex. Post	. 1	3.50
SP-1030	<sup>5</sup> 6"-18 Hex. Nut		2	.10		Blade-Support Shaft	. 1	.05
SP-1703			5	.03	LBS-129	Blade-Support Adjusting Screw	. 1	.04
SP-1707	34" Frame Bolt Lock Washer	. 1	1	.05	LBS-130	Blade-Support Adjusting Nut	. į	.04
SP-2352	34"-10 x 2" Frame Bolt		1	.12	LBS-131	Guide-Pin Bracket	. 1	.50
<b>DP-223</b>	76"-14 Stud Nut		2	.10	LBS-132	Straight Guide Pin	. 2	.20
88101	Special Greseal Bearing		2	1.50	LBS-129	5" Guide Pin Adjusting Screw		.04
	Upper Arm				LBS-130	Guide Pin Adjusting Nut		.04
LBS-2	Wheel-Guard Stud	3	2	00.10	NCS-37	15 "-18 x 17 Hol. Head Setscrew	. 2	.05
LBS-26	Unner Arm		i	\$0.10	SP-201	# "-18 x # Hol. Head Setscrew 4"-20 x ½" Blade-Support Screw # "-18 x 78" Thumb Screw	. 1	.05
LBS-27	Upper ArmRubber Bushing		2	6.00	SP-509	14"-20 x 1/2" Blade-Support Screw	. 1	.03
SP-1531	76"-14 x 1¼" Thumb Screw		î	.05	SP-1502	16"-18 x %" Thumb Screw	. 1	.10
DI -1991			L	.13	SP-1526	16"-18 x ½" Thumb Screw	. 1	.10
	Table				77500	Ball-Bearing Blade Support	. 1	1.00
LBS-51 LBS-52	Table		1	\$5.00		Lower Saw Guide		
	Table Trunnion Half		1	.08	LBS-151	Lower Saw-Guide Support	. 1	\$0.65
LBS-53	Trunnion Clamp Shoe			.05	LBS-151-S	Lower Saw-Guide Assembly, Complet		φυ.υσ
LBS-54	Tilting Index Plate		1	.20	ADO TOTO	with Ball-Bearing Blade Support	. 1	3.50
LBS-55	Table Alignment Pin		L	.10	LBS-152	Lower Guide-Pin Bracket	. î	.60
LBS-56	Table Insert		1 3 for	.40	LBS-128	Blade Support Shaft	. î	.05
NCS-32	Star Wheel		3	.20	LBS-129	Blade Support Adjusting Screw	. î	.03
NCS-33	Star Wheel Spring	. :	2	.08	LBS-130	Blade Support Adjusting Nut	· 1	.04
DDL-1		. :	2	.05	LBS-132	Straight Guide Pin	. î	.20
SP-504	14"-20 x 38" Table Screw		3	.03	LBS-153	Angular Guide Pin	. 1	.25
SP-1702	14" Lock Washer		3	.03	LBS-154	Guide-Pin Bracket Spring	. 1	.05
SP-625	16"-14 x 214" Trunnion Clamp Screen	w i	3	.07	LBS-129	Guide-Pin Adjusting Screw	. 1	.04
	Drive Shaft and Wheel				LBS-130	Guide-Pin Adjusting Nut	1	
LBS-76	Drive Shaft		1	\$0.90	NCS-37	<sup>5</sup> / <sub>16</sub> "-18 Hollow-Head Setscrew		.04
LBS-77	Bearing Drive Collar		Ĺ	.30	SP-509	16 " x 16" Hollow-Head Setscrew	. ĩ	.05
LBS-78	Drive-Shaft Washer		1	.04	SP-614	14"-20 x 14" Guide Support Cap Screw	. 1	.05
LBS-79	S Lower Wheel Complete with Tire		ì	3.00	SP-1530	56"-18 Guide-Support Thumb Screw.	9	.05
LBS-81	Rubber Tire	•		.60	SP-1702	14" Lock Washer	. 2	.10
NCS-37	16"-18 Hol. Head Setscrew			.05	77500	Ball-Bearing Blade Support	. ĩ	.03
SP-1207	3%"-24 Drive-Shaft Nut		ĺ	.08	11000		. 1	1.00
SP-2411	No. 6 Woodruff Key	•	ĺ	.03		Saw Guard Parts		
OI WILL				.00	LBS-176	Lower Wheel Guard	. 1	\$1.70
* ***	Upper Shaft and Wheel				LBS-177	Knurled Nut	. 4	.12
LBS-10			1	\$0.25	LBS-178	Wood Guard	. 1	.30
LBS-10			l	.85	LBS-178-S	Wood Guard Assembly, with Bracket	s = 1	.45
LBS-10			Į.	.03	LBS-179	Wood Guard Bracket	. 2	.06
LBS-10				.10	LBS-180	Sliding Guard	. 1	.15
LBS-10				.10	LBS-181	Upper Wheel Guard	. î	1.80
LBS-10	i 16"-18 x 2¼" Tilting Screw		l	.08	BM-46	5 " Steel Washer	. 4	.04
LBS-10	11	;			SP-514	14"-20 Rd. Hd. Mach. Screw		.03
	Less Bearings		t	3.00	SP-2006	No. 5—1/2" Rd. Hd. Wood Screw	. 4	.03
LBS-81	Rubber Tire	. 1	France	.60				.00
LBS-10	Bearing Stop Ring	. %		.04		Miscellaneous		
LBS-10	Bearing Spacer	. 1		.10	5800	V-Pulley (for Saw, 34" Bore)	. 1	\$1.50
LBS-110	Upper-Wheel Shaft	. 1	L	.18	5275	V-Pulley (for Motor, ½" Bore)	. 1	.45
LBS-11	%"-16 Tension Screw Nut	. 1		.04	568	V-Belt	. 1	1.00
LBS-11:	Indicator Washer (Fiber)	. 1	L	.03	SP-2	Plain 5 Allen Wrench	. 1	.05

## DELTA MANUFACTURING COMPANY

Form LBS-10-33