

How to Select the Proper Alternator/Generator Pulley

A pulley ratio should be selected which allows the generator to carry 50% of the electrical load at engine idle. Higher output at idle may be required to obtain maximum battery life, by reducing battery cycling. Lower rpm should be used **only** if engine is at idle 10% or less of operating time. Required generator rpm vs output can be obtained from performance curve for each series.

To determine required pulley ratio:

Dividing required generator idle rpm by the engine idle rpm = the pulley ratio. Example — $1600 \div 650 = 2.5$; this means the generator must turn 2.5 times faster than the engine; therefore, the pulley ratio is 2.5:1 is considered minimum.

To determine required pulley size:

Generator pulley diameter (O.D.) is determined by the engine drive pulley. Divide engine pulley diameter by the pulley ratio determined above.

Example: $[9" \div 2.5 = 3.6" (3-5/8")]$ generator pulley diameter.

Pulley bore diameter is determined by the generator shaft diameter.

Belt width (W), number of grooves, and groove spacing (C&D) must match corresponding dimensions of the engine pulley.

Pulley hub to first groove (B) should provide good belt alignment with generator mounted to the engine.

The correct pulley part number can be obtained from the appropriate selection chart, if not, one can be machined from the corresponding pulley blank.

To check for generator over speed:

Multiply the top engine rpm at transmission shift points and/or top engine speed times the pulley ratio to determine generator rpm. The optimum rotor speed is approximately 6500 rpm for passenger and 5000 rpm for heavy-duty; however, speeds upward to 18,000 rpm for passenger car application and 12,000 rpm for heavy-duty at transmission shift points will not damage the generator.

Short battery life is often caused by excessive cycling, resulting from inadequate output at engine idle or maximum charging system rating. Changing pulley ratio and/or generator selection may be required to improve battery life.

To determine the present pulley ratio:

Divide the engine crank shaft pulley diameter by the generator pulley diameter.

To determine the output at engine idle:

Multiply the engine idle rpm times the pulley ratio to determine the generator rpm, and refer to the proper generator performance curve.

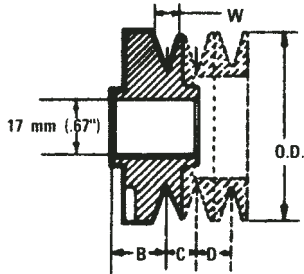
To determine the maximum charge rate:

Multiply the normal engine operating rpm by the pulley ratio to determine the generator rpm and refer to the performance curve.

Pulley Selection

Pulleys for 17 mm (.67") Diameter Shaft Alternators

10SI, 12SI, 15SI, 17SI, 27SI-100



OD - Outside Diameter

w - Groove Width

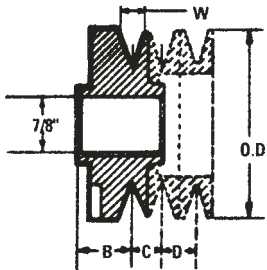
B - Hub to 1st Groove Center

C - 1st Groove to 2nd Groove Center

Part No.	Grooves	Angle	OD		W		B		G		Material
			MM	IN	MM	IN	MM	IN	MM	IN	
1846529	1	38	76	3.30	15.7	.62	14.2	.56	15.7	.62	BS
1949916	1	36	79	3.12	12.7	.50	21.3	.84	15.7	.62	BS
1961261	1	36	76	3.00	12.7	.50	14.2	.56	—	—	BS
1962590	2	38	76	3.00	15.7	.62	14.2	.56	15.7	.62	BS
1970830	2	36	66	2.60	9.6	.38	12.7	.50	15.7	.62	BS

Pulleys for 22 mm (.87") Diameter Shaft Alternators

10SI, 20SI, 21SI, 22SI, 25SI, 26SI, 27SI, 29SI, 30SI & 40SI



OD - Outside Diameter

w - Groove Width

B - Hub to 1st Groove Center

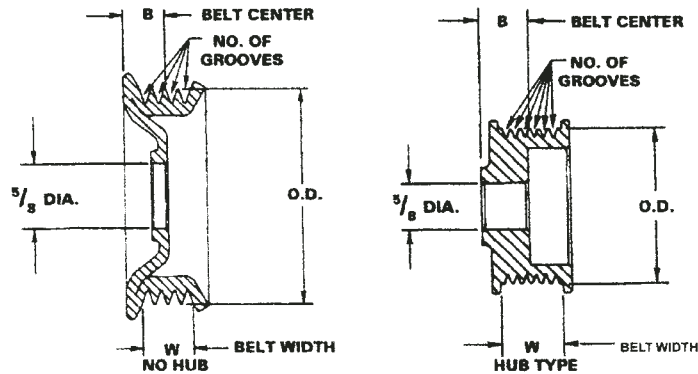
C - 1st Groove to 2nd Groove Center

Pulley Part No.	No. Of Grooves	Groove Angle	OD		W		B		C		Material
			MM	IN	MM	IN	MM	IN	MM	IN	
			BS = Bar Steel		CI = Cast Iron		SS = Stamped Steel				
830279	2	36	83	3.27	12.7	.50	16.8	.66	17.3	.68	BS
1893058	2	36	63	2.48	12.7	.50	12.2	.48	15.7	.62	BS
1962567	2	36	76	3.00	12.7	.50	14.2	.56	15.7	.62	BS

* 4 fan holes 12-24 UNC on .8125 radius

Multi-Pulleys for 17 mm (.67") Diameter Shaft Alternators

10SI, 12SI, 15SI, 17SI & 27SI



Multi-Pulleys for 17 mm (.67") Diameter Shaft Alternators

Pulley Part No.	No. Of Grooves	OD=Dia		W=Width		B=Location		Hub	Material
		MM	IN	MM	IN	MM	IN		
		BS = Bar Steel				RS = Rolled Steel			
10498016	8K	60	2.37	28.5	1.12	26.5	1.06	Y	BS

Multi-Vee Pulleys for 21SI, 22SI (.87") Diameter

Pulley Part No.	No. Of Grooves	OD=Dia		W=Width		B=Location		Hub	Material
		MM	IN	MM	IN	MM	IN		
		BS = Bar Steel				RS = Rolled Steel			
10468526	8K	87	3.43	24.9	.98	20.3	.80	Y	BS
10499362	8K	57	2.24	28.5	1.12	20.3	.80	Y	BS

©1987810 - Use with 1987801 Tapered Collar.

Fans for SI Alternators

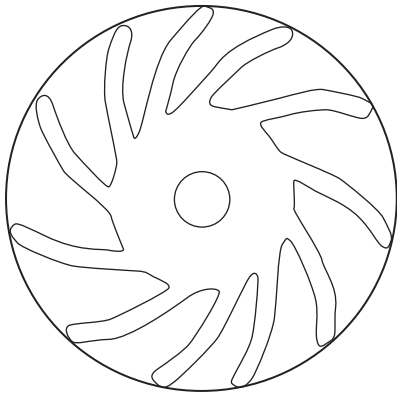
Series/Type	Fan No.	Rotation	Shaft Size	Fan Dia
10SI/100, 102, 116	1959703	EITHER	5/8"	5.5"
10SI/136, 20SI	1970593	EITHER	7/8"	5.5"
12SI/100	1959703	CW	5/8"	5.5"
15SI/100, 116; 17SI100	1959703	CW	5/8"	5.75"
30SI & 33SI, 34SI, 40SI/150	10467133	EITHER	7/8"	6.5"
20SI, 21SI, 22SI	10467272*	EITHER	7/8"	5.75"
20SI & 21SI, 22SI	10471121**	CW	7/8"	5.75"

* Cast Aluminum

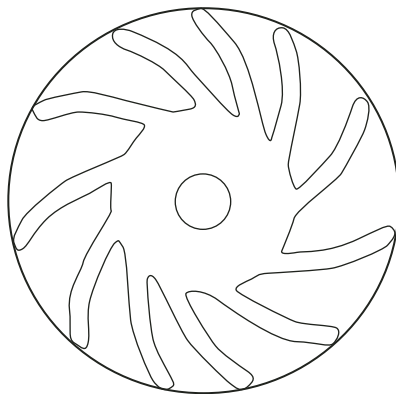
CW — Clockwise

**Quiet Fan

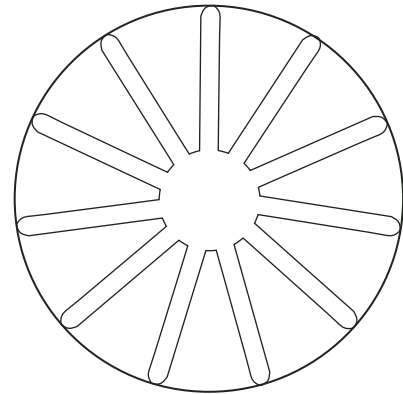
NOTE: In high debris areas, ensure that the screen is kept clear to ensure adequate air flow or use flexible hosing to direct sufficient clean air flow for cooling.



CW Fan



CCW Fan



REV Fan

NOTE: When looking down into fan blades, a CCW rotation fan will have a blade on the right portion welded-on blade while a CW fan will have the blade in the left portion. Note position of aligning slot.