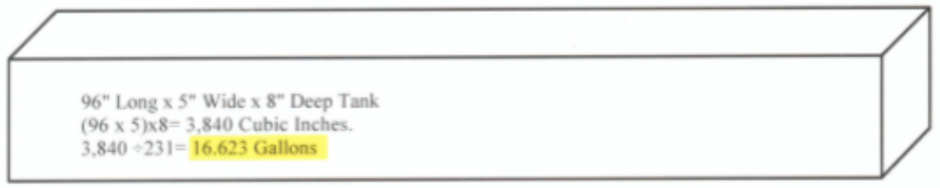
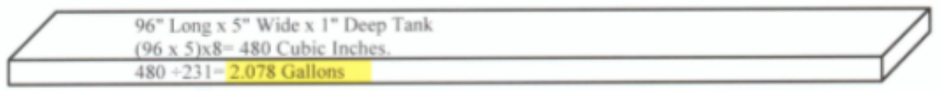
LET'S TIE IT ALL TOGETHER AND PUT IT TO USE.

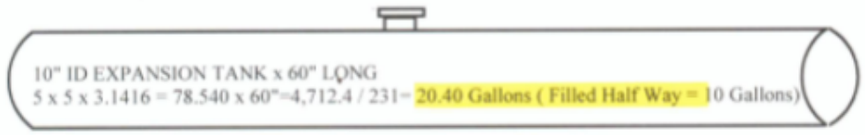


96" Long x 5" Wide x 8" Deep Tank
(96 x 5)x8= 3,840 Cubic Inches.
3,840 ÷231= 16.623 Gallons

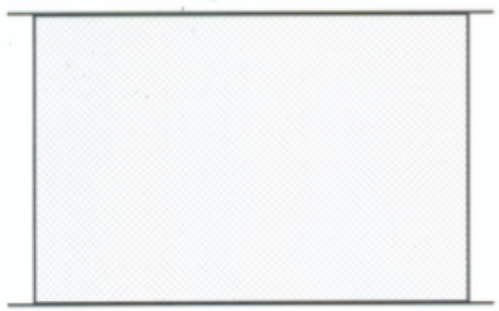


96" Long x 5" Wide x 1" Deep Tank
(96 x 5)x8= 480 Cubic Inches.
480 ÷231= 2.078 Gallons

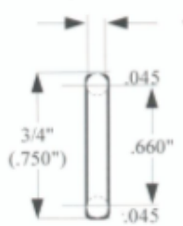
96" Long x 5" Wide x 8" Deep Tank
(96 x 5)x8= 3,840 Cubic Inches.
3,840 ÷231= 16.623 Gallons



10" ID EXPANSION TANK x 60" LONG
5 x 5 x 3.1416 = 78.540 x 60"=4,712.4 / 231= 20.40 Gallons (Filled Half Way = 10 Gallons)



Radiator has 4 cores.
Each Core is 48" Tall x 45" Wide x 4-5/8" Deep
Has 6 rows of 3/4" Tubes on 5/8" Centers
So 45 ÷ .625 = 72 Tubes per Row
72 Tubes x 6 Rows = 432 Tubes
432 Tubes x 48" Long = 20,736" of tubes per core



.045 x .045 = .002025
.002025 x 3.1416=.006362

.090" x .660" = .0594

.006362 ÷ .0594 = .065762 Square Inches

.065762 Square Inches x 48" Tall Tubes=3.157 Cubic Inches

3.157 Cubic Inches x 432 Tubes= 1364 Cubic Inches on ID's of tubes per core.

4 Cores x 1364 Cubic Inches = 5,456 Cubic inches total ÷ 231 = 23.619 Gallons

16.623 + 2.078 + 16.623 + 10 + 23.619 + 73.439 = 142 Gallons

BTU

Basic Engine	8V-71				8V-71T			
Basic engine model	7083-7005				7083-7305			
Engine type	Two Cycle				Two Cycle			
No. of cylinders	8				8			
Bore & stroke—in (mm)	4.25 x 5 (108 x 127)				4.25 x 5 (108 x 127)			
Displacement—cu in (litres)	568 (9.32)				568 (9.32)			
Application	Standby				Standby			
Frequency @ rpm	60 Hz @ 1800		50 Hz @ 1500		60 Hz @ 1800		50 Hz @ 1500	
Rated Power, less fan @ 85°F and 500 ft SAE—BHP (kW)*	285	(213)	239	(178)	370	(276)	323	(241)
kW Rating max. @ P.F. 1.0**	200		165		255		220	
Generator efficiency assumed—%	94		94		93		93	
Compression ratio	18.7 to 1		18.7 to 1		17 to 1		17 to 1	
Piston speed—ft/min (m/sec)	1500	(7.62)	1250	(6.35)	1500	(7.62)	1250	(6.35)
No. of main bearings	5		5		5		5	
Approx. net weight dry—lbs (kg)***	5400	(2449)	5400	(2449)	5500	(2495)	5500	(2495)
Air and exhaust system:								
Combustion air requirements—cfm (m^3/min)	753	(21)	631	(18)	1130	(32)	930	(26)
Max. air intake restriction—in H_2O (kPa)	25.0	(6.22)	18.0	(4.48)	14.0	(3.48)	10.5	(2.61)
Exhaust gas temp. @ Rated BHP—°F (°C)								
Engine manifold dry	970	(521.1)	955	(512.8)	865	(462.8)	895	(479.4)
Engine manifold wet	920	(493.3)	910	(487.8)				
Exhaust gas flow @ Rated BHP—cfm (m^3/min)								
Engine manifold dry	1976	(56)	1638	(46)	2747	(78)	2312	(65)
Engine manifold wet	1907	(54)	1586	(45)				
Max. exhaust back press. allowable—in Hg (kPa)	3.3	(11.17)	2.3	(7.79)	2.0	(6.77)	1.4	(4.74)
Exhaust outlet I.D.—in (mm)								
Engine manifold dry	3.5	(88.9)	3.5	(88.9)				
Engine manifold wet	4	(101.60)	4	(101.60)				
Rec. stack single outlet minimum	5	(127)	5	(127)	5	(127)	5	(127)
Cooling system:								
Basic engine water capacity—gal (litres)	8	(30.28)	8	(30.28)	8	(30.28)	8	(30.28)
Jacket water flow—gpm (litres/min)	110	(416.39)	92	(348.26)	110	(416.39)	92	(348.26)
Jacket water temp., normal operation—°F (°C)	170-185	(76.7-85.0)	170-185	(76.7-85.0)	170-185	(76.7-85.0)	170-185	(76.7-85.0)
Heat rejection to jacket water @ Rated BHP—Btu/min (W)								
Exhaust manifold dry	8550	(150345)	7170	(126079)	12210	(214704)	10659	(187431)
Exhaust manifold wet	9690	(170391)	8125	(142890)				
Engine heat radiated @ Rated BHP—Btu/min (W)								
Engine manifold dry	2206	(38827)	1910	(33594)	2186	(38440)	1898	(33379)
Engine manifold wet	1877	(33003)	1624	(28555)				
Max. static head @ water pump inlet—ft H_2O (kPa)	30	(89.58)	30	(89.58)	30	(89.58)	30	(89.58)
Max. heat exchanger raw water press.—psi (kPa)	65	(448.18)	65	(448.18)	65	(448.18)	65	(448.18)
Generator heat radiated to room @ Rated BHP—Btu/min (W)†	728	(12801)	708	(12450)	1094	(19237)	1090	(19167)
Air required to radiator—cfm (m^3/min)††	14500	(411)	11000	(312)	18000	(510)	14500	(411)
Static pressure for air flow—in H_2O (kPa)	1.0	(.25)	.75	(.19)	1.1	(.27)	1.0	(.25)
Fuel system:								
Fuel pump max. suction, clean system—in Hg (kPa)	6	(20.32)	6	(20.32)	6	(20.32)	6	(20.32)
Fuel quantity pumped—gph (litres/hr)	90	(340.69)	90	(340.69)	90	(340.69)	90	(340.69)
Lubrication system:								
Oil pan capacity—qts (litres)†††	23	(21.77)	23	(21.77)	23	(21.77)	23	(21.77)
Starting system:								
Electric motors—quantity	1		1		1		1	
Voltage††††	24		24		24		24	
Battery recommended capacity—amp/hr	205 [2]		205 [2]		205 [2]		205 [2]	
Engine rolling current @ 32°F (0.0°C)—amps	845		845		845		845	

*Nominal basic engine horsepower rating.

**Maximum kW rating at assumed generator efficiency.

***Radiator-cooled set.

Cooling system:

Basic engine water capacity—gal (litres)	6
Jacket water flow—gpm (litres/min)	110
Jacket water temp., normal operation—°F (°C)	170-185
Heat rejection to jacket water @ Rated BHP—Btu/min (W)	
Exhaust manifold dry	8550
Exhaust manifold wet	9680
Engine heat radiated @ Rated BHP—Btu/min (W)	
Engine manifold dry	2208
Engine manifold wet	1877
Max. static head @ water pump inlet—ft H_2O (kPa)	30
Max. heat exchanger raw water press.—psi (kPa)	65
Generator heat radiated to room @ Rated BHP—Btu/min (W)†	728
Air required to radiator—cfm (m^3/min)††	14500
Static pressure for air flow—in H_2O (kPa)	1.0

285 HP/ 200 kW at 1800 RPM
Jacket water flow 110 GPM
Jacket water temp 170-185F
Heat Rejection 9690 BTU/ MIN

Water weighs 8.34 pounds/ gal
1 Btu is heat to raise 1 LB water
1 Degree F.

110 Gallons x 8.34 = 917.4 LB.
9690 btu/min / 917.4 LB Water
= 10.56 Degree F.

So at Full Load if the water goes Into the radiator at 180F and Comes out 10.56F cooler the Radiator is working "Good Enough".

The mechanic said 14 degree F cooler.

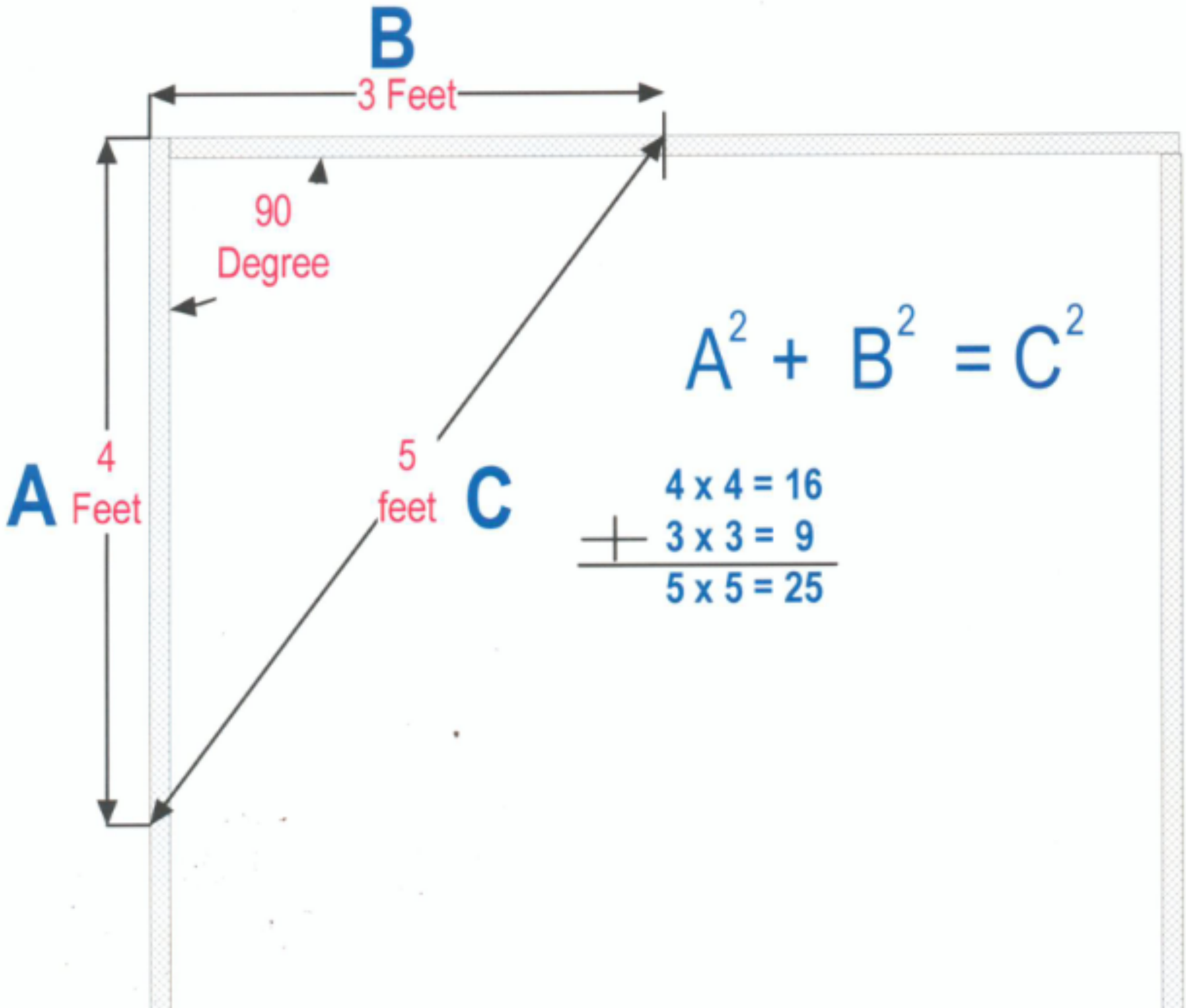
917.4 x 14 = 12,843.6 BTU's.

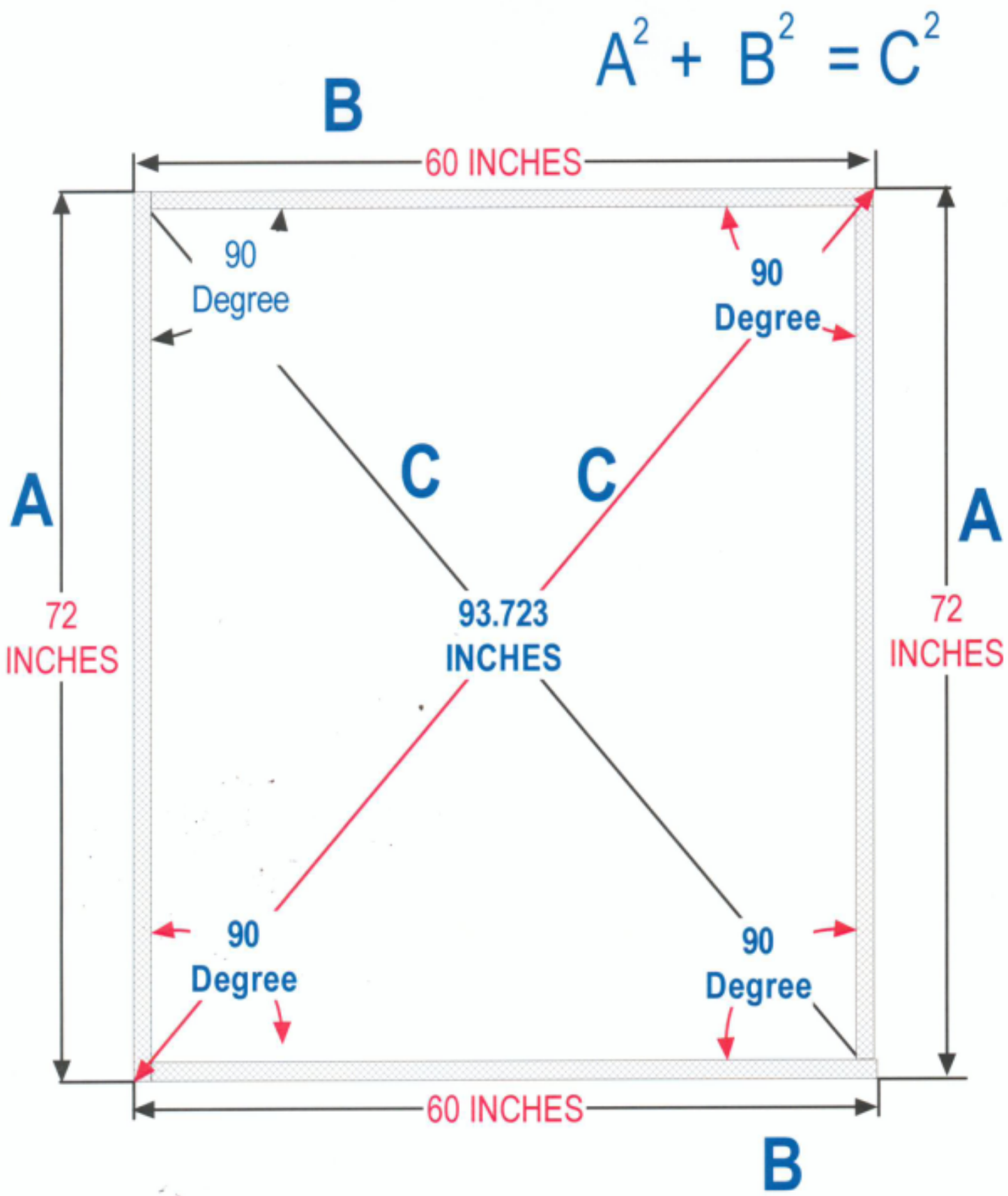
		85.0)
Heat rejection to jacket water @ Rated BHP—		
Btu/min (W)		
Exhaust manifold dry	8550	(150345)
Exhaust manifold wet	9690	(170391)
Engine heat radiated @ Rate u/min (W)		
Engine manifold dry	2206	(38827)
Engine manifold wet	1877	(33003)
Max. static head @ water pu H_2O (kPa)	30	(89.58)
Max. heat exchanger raw wat psi (kPa)	65	(448.18)
Generator heat radiated to room @ Rated BHP—		
Btu/min (W)†	728	(12801)
Air required to radiator—cfm (m^3/min)††	14500	(411)
Static pressure for air flow—in H_2O (kPa)	1.0	(.25)

Spec sheet says 9690 with
A water cooled exhaust manifold!

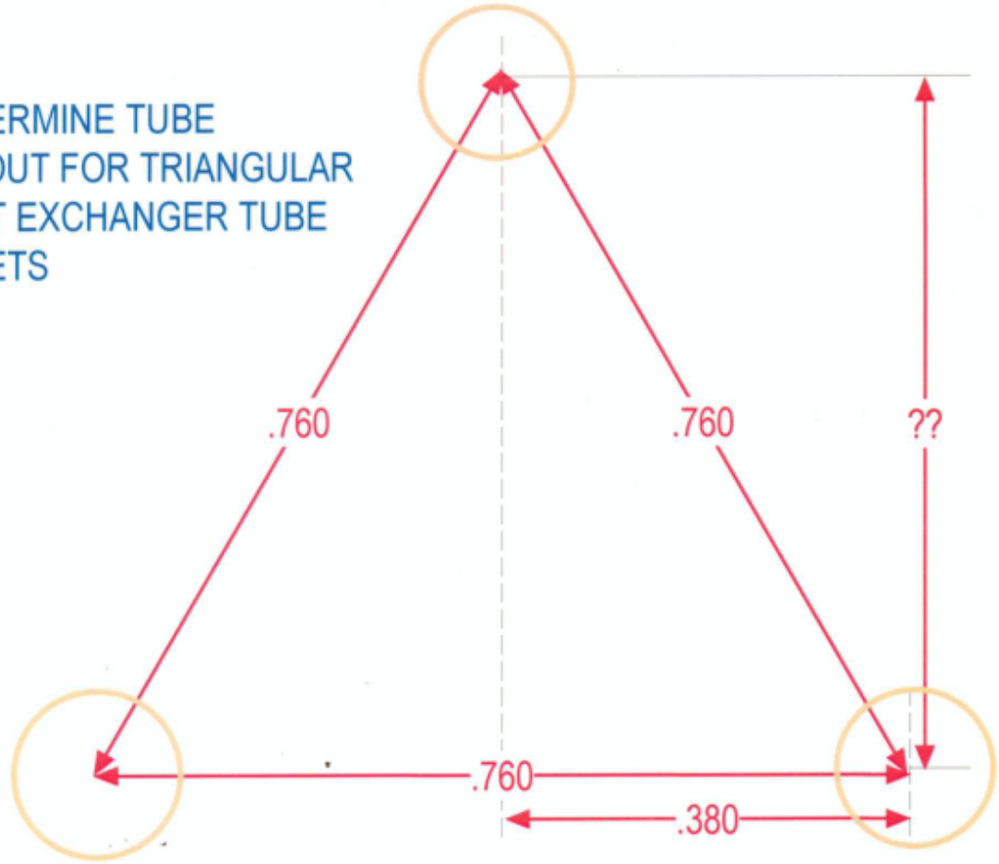
Not the radiators problem. Perhaps something mechanical.

GEOMETRY


B
3 Feet
90
Degree
A
4
Feet
5
feet
C
$A^2 + B^2 = C^2$
4 x 4 = 16
3 x 3 = 9
5 x 5 = 25

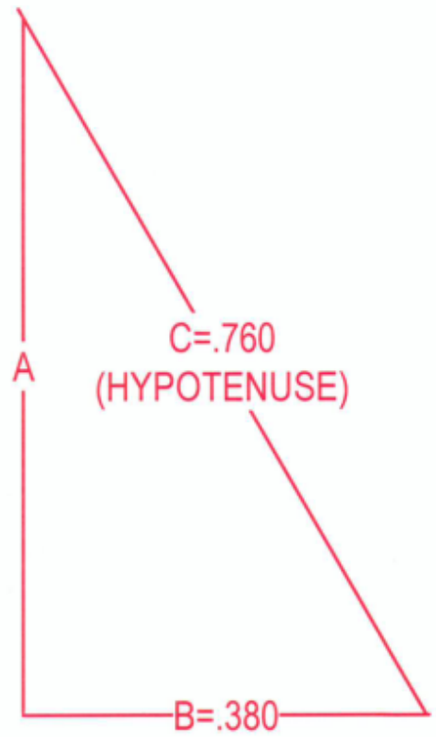

$A^2 + B^2 = C^2$
B
60 INCHES
90
Degree
90
Degree
A
C
C
A
72
INCHES
93.723
INCHES
72
INCHES
90
Degree
90
Degree
60 INCHES
B

DETERMINE TUBE LAYOUT FOR TRIANGULAR HEAT EXCHANGER TUBE SHEETS



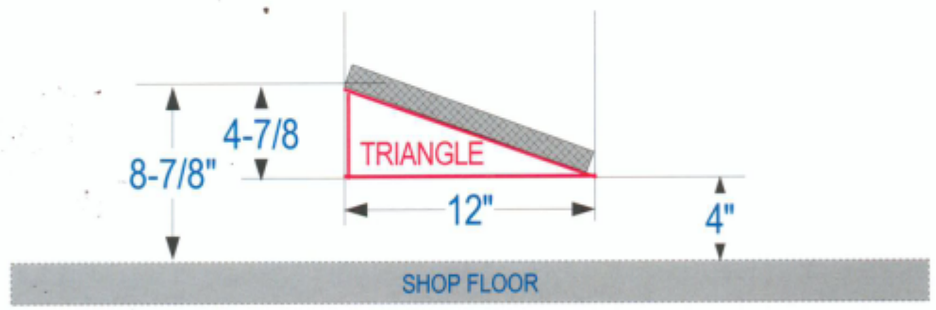
C= .760 x .760 = .5776
− B= .380 x .380 = .1444
A= $\sqrt[2]{X}$ of .4332
$\sqrt[2]{\ }$ of .4332= .658

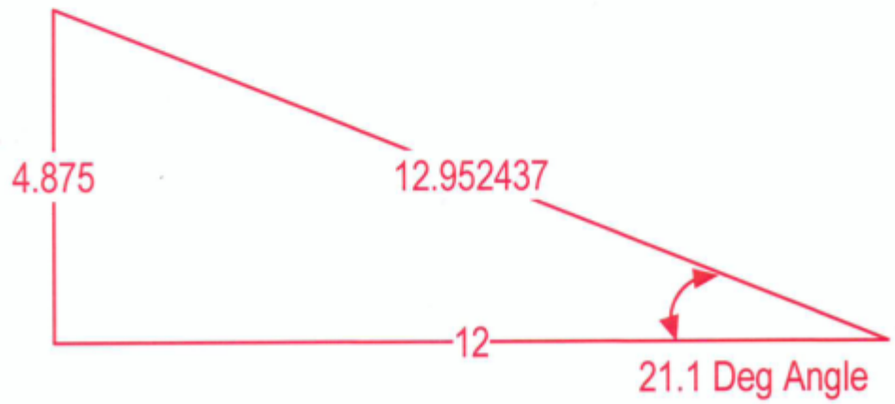
So A = .658"




DEWALT

DETERMINE FAN BLADE ANGLE



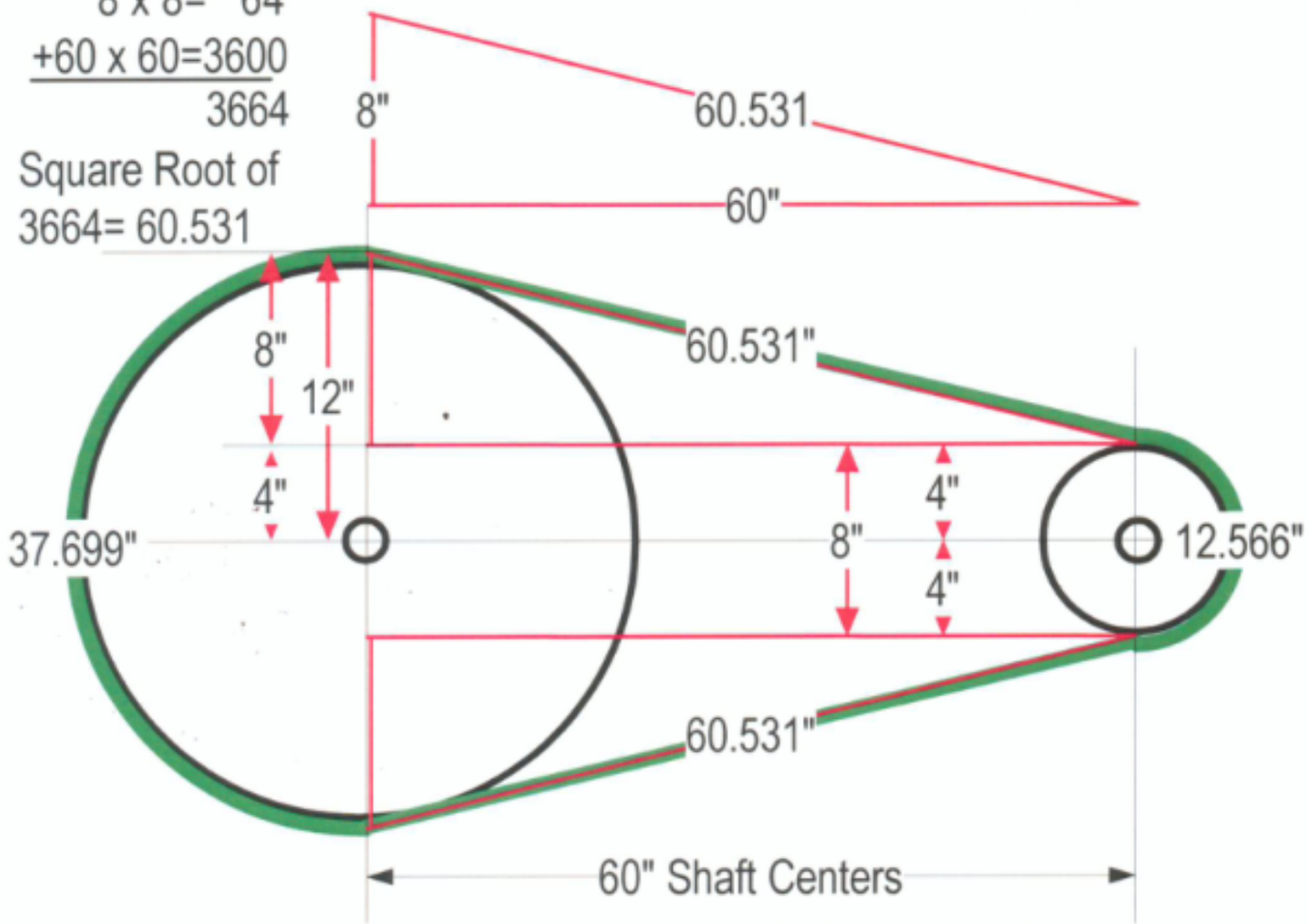


BELT LENGTH

$A^2 + B^2 = C^2$

8 x 8= 64
+60 x 60=3600
3664

Square Root of
3664= 60.531



24" Diameter Pulley
Circuference = Pi x Diameter
3.1416 x 24 = 75.398"
Half of Circumference = 37.699"

8" Diameter Pulley
Circuference = Pi x Diameter
3.1416 x 8 = 25.132"
Half of Circumference = 12.566"

Belt Length= 37.699" + 60.531" + 60.531" + 12.566" = 171.327" (5VX1710 Belt)

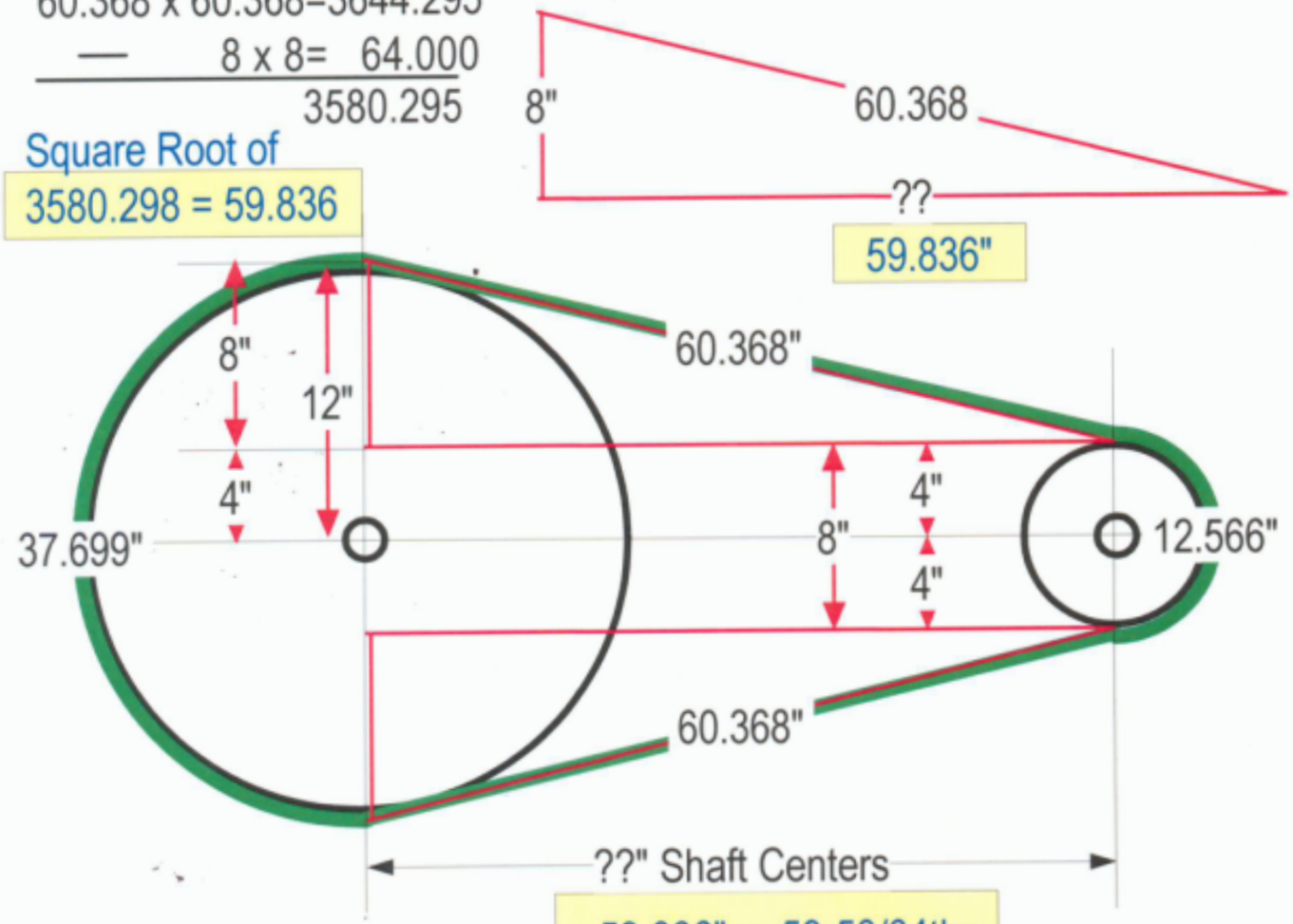
5VX171 BELT- YOU KNOW PULLEY SIZES AND BELT SIZE.
WHAT DOES SHAFT CENTERS HAVE TO BE?

171" - (37.699 + 12.566") = 120.735"
HALF OF 120.735 = 60.368"

SHAFT CENTERS

60.368 x 60.368=3644.295
— 8 x 8= 64.000
3580.295

Square Root of
3580.298 = 59.836



59.836" or 59-53/64ths

24" Diameter Pulley
Circuference = Pi x Diameter
3.1416 x 24 = 75.398"
Half of Circumference = 37.699"

8" Diameter Pulley
Circuference = Pi x Diameter
3.1416 x 8 = 25.132"
Half of Circumference = 12.566"

AT&T 9:25 PM

Light

Speedometer

Find iPhone

WORK APPS

STORES

RECOVERY

CATHOLIC

Voice Memos

FaceTime

Draw Free

LinkedIn

Wig It!

WeldSettings

PreSize

Carpenter

TriangleCalc

db meter

New

right-angled triangle

perimeter: 29.827437

area: 29.25

h: 4.5165246

67.890552°

12.952437

4.875

22.109448°

12


22.2°
Y
X
Hold
i

Fan Blade Angle Cheat Sheet

(Fill in [ ] only!

\ D=Ang

A \

B

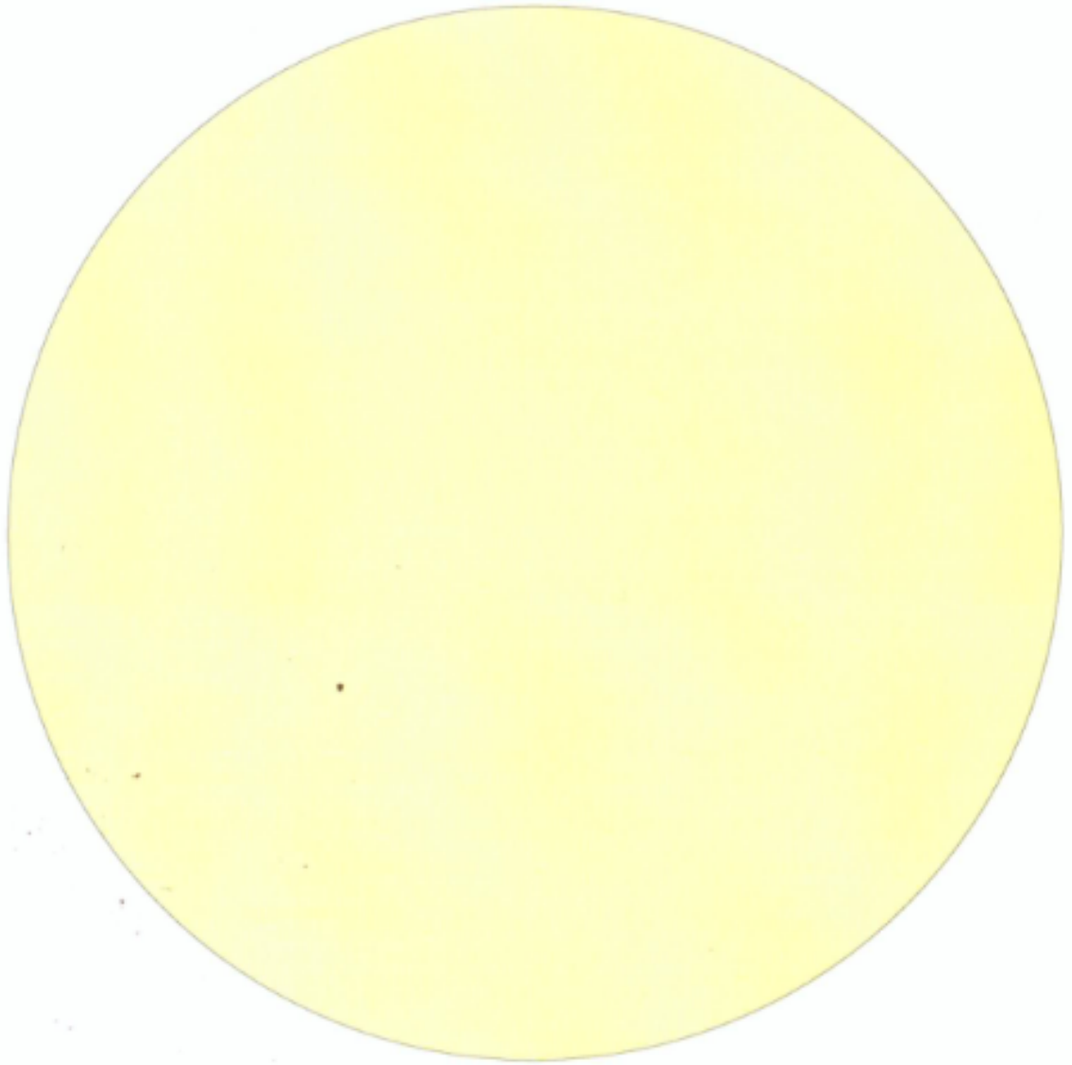
A	B	C	D
2	4		26.56505
1.25	3.625		19.02561
1.875	3.5		28.17859
3	6.5		24.77514
2	9		12.52881
2.25	3.25		34.69515
2.5	4.625		28.39302
2.5	3.1875		38.10758
4	9.5		22.83365
2.25	5.25		23.19859
4.25	8		27.97947
6.875	3.75		61.38954
			#DIV/0!
			#DIV/0!
			#DIV/0!

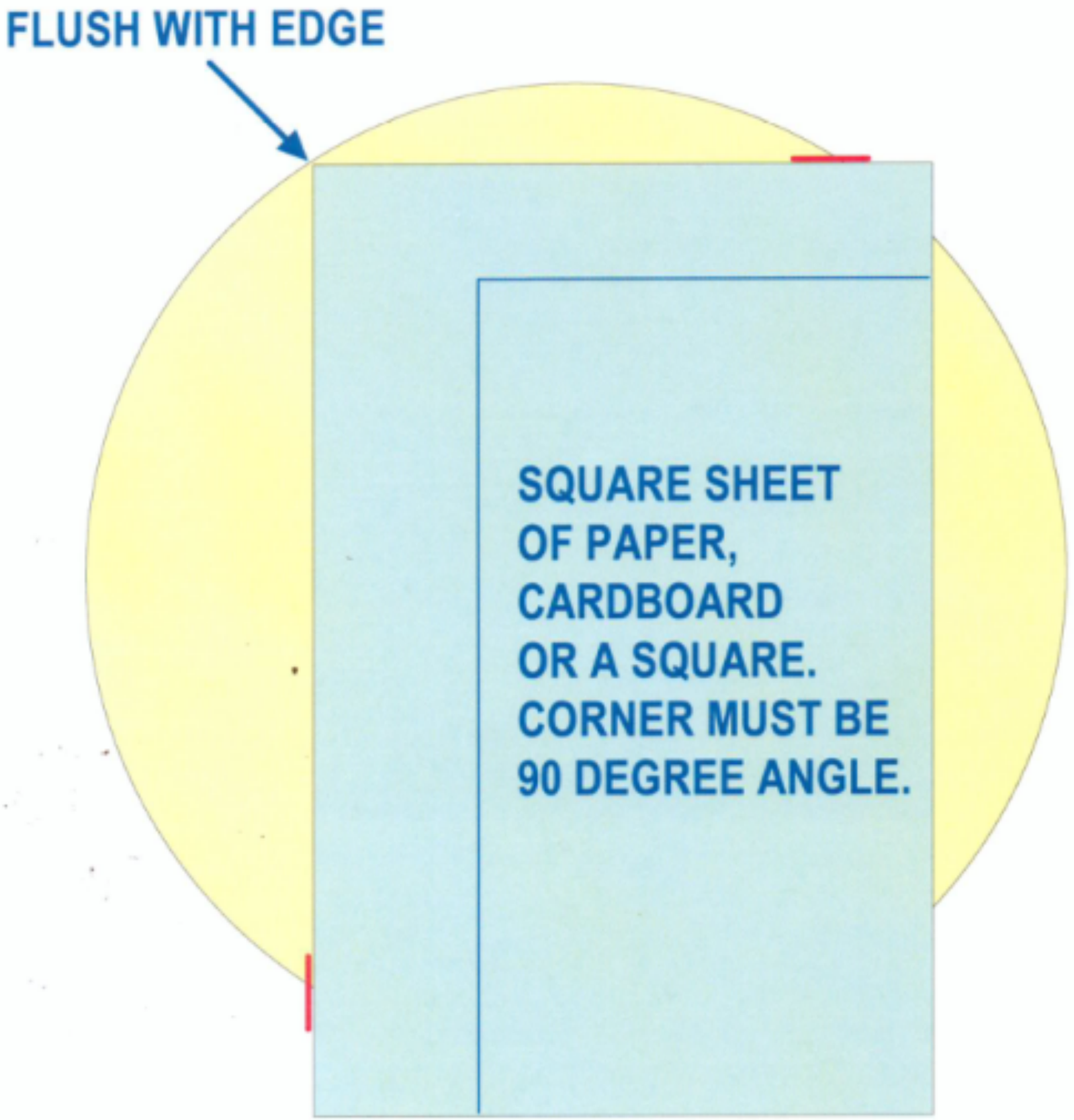
FAN TIP SPEED CALCULATION CHART

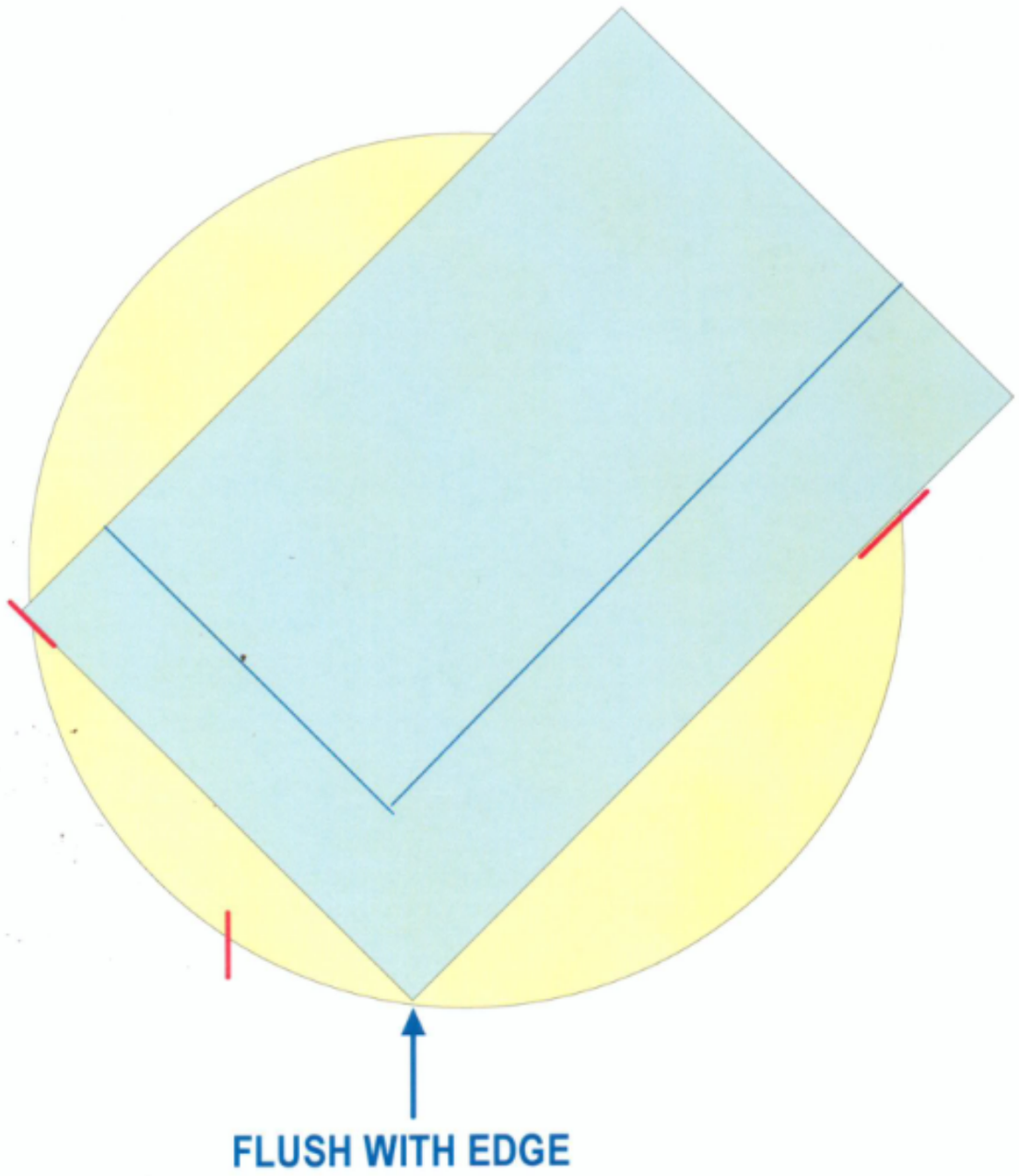
Fill in colored area information only.

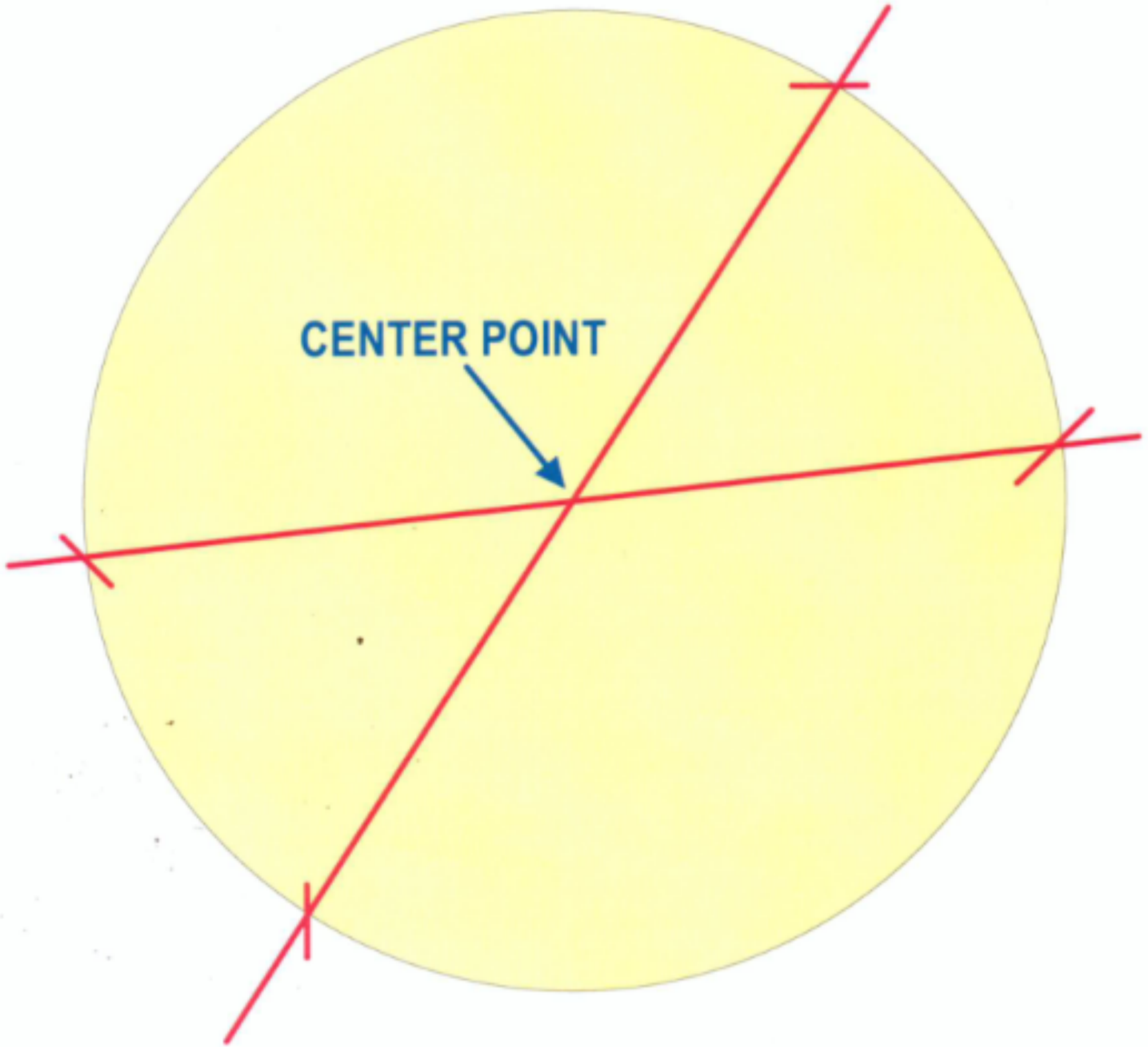
Blade Diameter	Fan Pully OD	Crank Pully OD	Engine RPM	Fan Dia./ Engine	Feet Per Second Actual	Feet Per Second Allowable	Fan RPM	
33	18	11.025	1200	D353 Cat	105.8327	377	735	
34	7	10.5	1200	26"6-71	267.036	377	1800	
40	9	8.5	2100	40"8V92T	346.1578	377	1983.333	
40	6	6	1800	Sample	314.16	377	1800	
16	5	6.25	1800	Tetra-Onan	157.08	377	2250	
56	14.5	9	2250	BJ FRAC	341.2428	342	1396.552	14-16 FAN
26	7.25	9	1500	LMSales	211.2455	377	1862.069	
34	8.5	7	2100	D Tech	256.564		1729.412	
30	8	7.375	2100	BJ DDC50	253.4142		1935.938	
27	7.25	7.5	2100	Sup 6V71	255.9321	377	2172.414	
40	12	7.5	2300	Sup New Su	250.8917		1437.5	
40	10.5	8.5	2300		324.9644		1861.905	
48	16.75	11	1200	SS266A	165.0512		788.0597	Unocal
48	1	0.85	1800		320.4432		1530	
35.75	1	1	2100	SUPREME	327.5773	377	2100	CUMMINS
48	15.25	2.875	1725	Shop fan	68.11092		325.2049	
44	9.5	7.5	2100	HWC Cat	318.2937	377	1657.895	
40	10	8	1800		251.328		1440	

HOW TO LOCATE THE CENTER POINT OF A CIRCLE




FLUSH WITH EDGE
SQUARE SHEET
OF PAPER,
CARDBOARD
OR A SQUARE.
CORNER MUST BE
90 DEGREE ANGLE.


FLUSH WITH EDGE


CENTER POINT

CUBIC INCH/61= Cubic Litres
CUBIC LITRES x 61= Cubic Inch

350 CID/61= 5.7L
5.7L x 61 = 350 CID

METRIC TO US CONVERSION WORK SHEET

FROM	UNIT	TO	UNIT	FORMULA	ANSWER	
1680	Kg	TO	Lb.	1Kg=2.204623	3703.77	Lb.
1085	Lb	TO	Kg.	2.204623Lb=1Kg	492.15	Kg.
103.4	kPa	TO	PSI	kPa/100x14.504	15.00	PSI
60	MM	TO	INCH	MM/25.4	2.362	INCH
50	MM	TO	CM	MM/10.00	5.000	CM
66	INCH	TO	CM	INCH/0.39370	167.640	CM
137.2	CM	TO	INCH	CM x .39370	54.000	INCH
66	INCH	TO	MM	INCHx25.4	1676.40	MM
1	GAL	TO	LIT	1 GAL=3.78L	3.78	LIT
20000	LIT	TO	GAL	3.78L=1GAL	5291.01	GAL
200	ML	TO	OZ	1 ML=0.03381 OZ	6.76	OZ
7	OZ	TO	ML	0.03381 OZ=1ML	207.04	ML
180	Deg C	TO	Deg F	(9xC) /5 + 32	356	Deg F
122	Deg F	TO	Deg C	5/9(F-32)	50.00	Deg C
138	Knots	TO	MPH	Knot/.868	159.0	MPH
159	MPH	TO	Knots	MPH x .868	138.01	Knots
9.5	KGM	TO	ft/lb	KGM x 7.236	68.7	ft/lb
9.5	KGM	TO	in/lb	KGM x 86.81	824.7	in/lb

DRILL FEEDS AND SPEEDS

DRILL SIZE		FEED	REV/	INCH/	SUR FT/		SET UP MILL		
FRC	DEC	I.P.R.	MINUTE	MINUTE	MINUTE		RPM	FEED	
3/8	0.375	0.007	1018.7	7.1307	100	STEEL	1019	7.1	GOOD
27/64	0.422	0.008	724.17	5.7934	80	STEEL	724	5.8	
17/32	0.531	0.007	575.52	4.0286	80	STEEL	576	4.0	
7/8	0.875	0.004	349.26	1.397	80	STEEL	349	1.4	
1/4	0.25	0.004	1222.4	4.8896	80	STEEL	1222	4.9	
1/2	0.5	0.007	611.2	4.2784	80	STEEL	611	4.3	
3/4	0.75	0.007	200	1.4	75	STEEL	200	1.4	
1/2	0.5	0.01	382	3.82	50	SPRING	382	3.8	
			#DIV/0!	#DIV/0!			#####	#####	
			#DIV/0!	#DIV/0!			#####	#####	
			#DIV/0!	#DIV/0!			#####	#####	
1/4	0.25	0.004	2292	9.168	150	BRASS	2292	9.2	
3/8	0.375	0.006	2037.3	12.224	200	BRASS	2037	12.2	
5/8	0.625	0.008	1222.4	9.7792	200	BRASS	1222	9.8	
1/2	0.5	0.007	1528	10.696	200	BRASS	1528	10.7	

1 BAR = 14.504 PSI
1 BAR = 100 kPa
CONVERT kPa TO PSI? Kpa/100 x 14.504= PSI

KW to BTU/Hour (Develops) KW x 3412.874
KW to BTU/Min KW x 56.8
1 HP= 2545 BTU/hr

Perfect vacuum= 29.92" Mercury

Liter/min x .26417 = GPM

MM to inches? Inches / 25.4= MM

Inches to MM? MM x 25.4= inches

Cooling water: °F x GPM x °F Liquid Temp Drop x 8.33 = Btu/Hr.
1 gallon of water weigh 8.34 lb
1 pound of fresh water x 1.6-1.9= Pound of seawater

Gallon x 3.78= Liter

Liter/3.78= Gallons

Celsius= $\frac{5(F-32)}{9}$

Fahrenheit= $\frac{9C}{5} + 32$

Torque KGM x 7.236 =ft/lb or x 86.81 (7.236x12)= in/lb

1 foot of head = .433 PSI

Pressure Head Measurement of water pressure based on the water depth. Measurement is stated as "feet of head" or "meters of head". One foot of head is the pressure at the bottom of a 1 foot high column of water, which is also equal to 0.433 PSI. So it's really a measure of the weight of water of a given depth. It doesn't matter how much water is present, the pressure head is only determined by the depth of the water. The water pressure at the bottom of a 2" diameter, 20 foot tall water filled pipe is the same as the water pressure at the bottom of a 20 foot deep lake. (No joke, it's true!)

HEAT EXCHANGER SURFACE AREA CALCULATION CHART

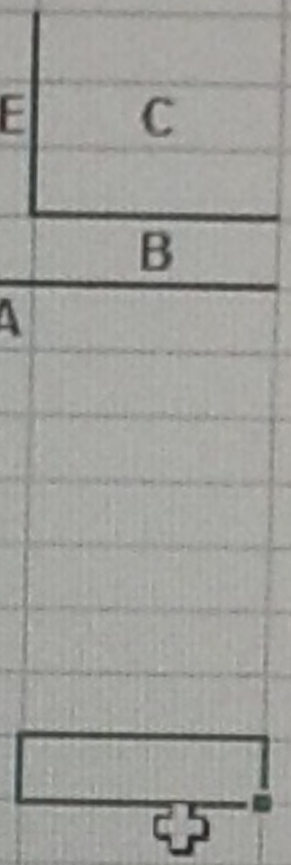
Fill in colored area information only.

Tube Diameter	Cooler Type	Tube Count	Discription MFD By	Tube Length	Surface Area Sq. Inch	Sq. Foot
0.375	KTA1150	150	Low HP	17.5	3092.513	21.47578
					0	0
0.25	KTA1150	366	Hi HP	17.5	5030.487	34.93394
0.375	D399	222	CAT	50.5	13207.68	91.71999
0.394	ELI	76	GERMAN	27	2539.946	17.63851
0.375	CONVERT	79.67631	3/8TH	27	2534.4	17.6
0.375		80		27	2544.696	17.6715
1.66	keel cool	96.51826		20	10066.96	69.90946
					0	0
0.375		76.05466		18	1612.8	11.2
0.375		76		15	1343.034	9.326625
0.375	WMI U T	371		84	36714.31	254.9605
0.425		371		84	41609.55	288.9552
2.375		1		482.4896	3600	25
2.375		1		6	44.7678	0.310888
					0	0
0.31	CUM	109		25.75	2733.483	18.98252
0.25		136		25.75	2750.471	19.10049
					0	0
0.625	BWC	118		81	18767.13	130.3273
0.375		220		72	18661.1	129.591

CNC TUBE SHEET HOLE LOCATION CALCULATION CHART

Fill in colored area information only

	Side to Side Hole Spacing	Half of Hole S to S Lgth	Hypothe. Length	C*2-B*2 Calculation	Square Root Calculation
9	0.481	0.2405	0.481	0.173521	0.416558
10	0.76	0.38	0.76	0.4332	0.658179
11		0		0	0
12		0		0	0
13		0		0	0
14		0		0	0
15		0		0	0
16		0		0	0
17		0		0	0
18		0		0	0
19		0		0	0
20		0		0	0
21		0		0	0
22		0		0	0
23		0		0	0
24		0		0	0
25		0		0	0
26		0		0	0
27		0		0	0
28		0		0	0
29		0		0	0
30		0		0	0



CALCULATE Cu & CuNi TUBE WEIGHT

MUST PUT IN SHADED AREA INFORMATION

Tube dia	Date	Wall thick	Gauge	No of pieces	Lnth n inch	Weight	Customer	
0.625	12/21/2005	0.049	18	302	72	623	Radiator Service- 15072 CPK	
0.375	12/21/2005	0.028	22	622	72	442	Radiator Service- 13072 CPK	
0.375	2/29/2008	0.028	22	1054	44.75	465	Trico Marine XRW-1605 Hondo River	
0.375	3/18/2008	0.028	22	1057	192	2001	Stock Order 3/19/2008	
						0		Linderman 216-481-
0.375	5/7/2008	0.028	22	211	192	400	Linderme 400# Box	
0.375	5/7/2008	0.028	22	212	192	401	Linderme 401# Box	
0.375	5/7/2008	0.028	22	183	192	347	Linderme 347# Box	
						0		
						0		
						0		
						0		
						0		
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						0		

Allison Transmission BTU Formular

DATE	CUSTOMER	TRANSMISSION	HORSEPOWER	BTU/HR	BTU/MIN
08/26/04	Superior	HT750	495	377932.5	6298.9
04/25/06	D Source		99	75586.5	1259.8
04/08/06	Gulf Coast	6061	700	534450.0	8907.5
				0.0	0.0
				0.0	0.0
				0.0	0.0
				0.0	0.0
				0.0	0.0
				0.0	0.0
				0.0	0.0
				0.0	0.0
				0.0	0.0
				0.0	0.0
				0.0	0.0
				0.0	0.0
				0.0	0.0
				0.0	0.0
				0.0	0.0
				0.0	0.0
				0.0	0.0
				0.0	0.0
				0.0	0.0

SHAFT CENTERS

Fill in colored area information only

DRIVE PULLEY	DRIVEN PULLEY	BELT LENGTH	CALCULATION TO COMPENSATE FOR HYPOTENUSE LENGTH					SHAFT CENTERS
9	20	117	14.137155	31.4159	35 3/4	1245.916487	35.298	35 5/16
			0	0	0	0	0.000	0
			0	0	0	0	0.000	0
			0	0	0	0	0.000	0
			0	0	0	0	0.000	0
			0	0	0	0	0.000	0
			0	0	0	0	0.000	0
			0	0	0	0	0.000	0
			0	0	0	0	0.000	0
			0	0	0	0	0.000	0

BELT LENGTH

Fill in colored area information only

DRIVE PULLEY	DRIVEN PULLEY	SHAFT CENTERS	CALCULATION TO COMPENSATE FOR HYPOTENUSE LENGTH					BELT LENGTH
9	20	35.3125	14.137155	31.4159	5.50	1277.222656	35.738	117
6	22.5	48	9.42477	35.3428875	8.25	2372.0625	48.704	142 3/16
			0	0	0.00	0	0.000	0
			0	0	0.00	0	0.000	0
			0	0	0.00	0	0.000	0
			0	0	0.00	0	0.000	0
			0	0	0.00	0	0.000	0
			0	0	0.00	0	0.000	0
			0	0	0.00	0	0.000	0
			0	0	0.00	0	0.000	0

CIRCLES

Fill in colored area information only.

DIA. IN INCHES	CIR. IN INCHES	CIR IN FEET							
90	282.743	23.562	23	276	6 3/4	23	FT	6.743	IN
	0.000	0.000		0	0	0	FT	0.000	IN
	0.000	0.000		0	0	0	FT	0.000	IN
	0.000	0.000		0	0	0	FT	0.000	IN
	0.000	0.000		0	0	0	FT	0.000	IN
	0.000	0.000		0	0	0	FT	0.000	IN
	0.000	0.000		0	0	0	FT	0.000	IN
	0.000	0.000		0	0	0	FT	0.000	IN
	0.000	0.000		0	0	0	FT	0.000	IN
	0.000	0.000		0	0	0	FT	0.000	IN

PLATE AND FRAME TIGHTNING DIMENSIONS

FORMULAR - A=n(3.95 + t) (0.03937)

A= Dimension in inches. n= number of plates. t= plate thickness. .03937 conv. to in

Fill in "yellow" area only!

Plate Stack	Number of plates	MM plate thickness	Plate + Gasket	Tightning Dimension MM	Tightning Dimension INCHES	Fraction Inches	
Flow Plates	38	0.500	4.45	169.1	6.657	TODCO	
Return Plt's			3.95	0	0.000	206	
TOTAL TIGHTNING DIMENSION				169.1	6.657	6 5/8	
Flow Plates	80	0.500	4.45	356	14.016	A-10BFG	Weeks
Return Plt's	81	0.500	4.45	360.45	14.191	Al/Lav	#302
TOTAL TIGHTNING DIMENSION				716.45	28.207	28 3/16	
Flow Plates			3.95	0	0.000		
Return Plt's			3.95	0	0.000		
TOTAL TIGHTNING DIMENSION				0	0.000	0	
Flow Plates			3.95	0	0.000		
Return Plt's			3.95	0	0.000		
TOTAL TIGHTNING DIMENSION				0	0.000	0	
Flow Plates			3.95	0	0.000		
Return Plt's			3.95	0	0.000		
TOTAL TIGHTNING DIMENSION				0	0.000	0	

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985-868-5076 FAX 868-0477
EMAIL: davidradiator@bellsouth.net

Contact: **David J. Bienvenu**
President

ANY

QUESTIONS?

THANK YOU FOR ALLOWING ME TO SHARE

THE END