

BARBER - R 0000554

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1																	
2			Engineer:	Ronkainen		Project #:	241460		TLW #:	2125							
3																	
4			Date Submitted:	10/17/2006		Requested Completion Date:	10/31/2006										
5																	
6			Completion Date:	Parts are needed for DAT scheduled to start in November and need to be sent to													
7			Justification:	Ilion for subsequent processing after inspection.													
8																	
9			Test Description:	Inspect 25 Rear Spacer Blocks (301444) per highlighted dimensions on the attached print.													
10																	
11																	
12																	
13			Test Procedure:	Double click inside this field to open MS Word object.													
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CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

BARBER - R 0000554 R 2194056

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Provide the final measurement data in an Excel spreadsheet.

	A	B	C		K	L	M	N	O	P	Q
35											
36											
37											

BARBER - R 0000556

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q						
38																							
39	Special Requirements:																						
40																							
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42																							
43																							
44	Supplies Availability:			Parts are available now.																			
45																							
46																							
47																							
48																							
49	Results Required:			Data Only																			
50																							
51	*****This section to be completed by Test Lab Manager*****																						
52																							
53	Assigned To:			Wade, Steve				Start Date:			10/23/2006												
54																							
55	Assigned Date:			10/23/2006				Completion Date:			11/7/2006												
56																							
57	Comments:																						
58																							
59																							
60																							
61																							

BARBER - R 0000557

	R	S	T	U	V	W
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51					Data Only Formal Report	
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	A
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3	
4	 301444 - Rear Spacer Block NR markup for inspection.pdf
5	
6	
7	
8	View with Adobe Acrobat to properly show highlighting.

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BARBER - R 0000558 R 2194060

BARBER - R 0000559

	A	B	C	D	E	F
1	Part Name:	REAR SPACER BLOCK				
2	Drawing Num:	301444		NOTE- Dimension identifiers will be provided on the prints supplied by engineering & the CAD group.		
3	TLW Number:	241460				
4	Revision Level:	F		INSTRUCTIONS:		
5	Vendor:	Lincoln Tool		1. STAMP ALL PARTS WITH AN I.D. NUMBER AND CHANGE I.D. AT TOP OF PAGE CORRESPONDINGLY.		
6	Requisition #:			2. TAG PARTS ONLY IF STAMPING IS NOT POSSIBLE.		
7	Material:	AISI 1008		3. ENTER FEATURE DESCRIPTIONS WHEN POSSIBLE. (OPTIONAL)		
8	Hardness:	NA		4. WHEN COMPLETE, RETURN ALL PARTS TO ENGINEER IN ORIGINAL SHIPPING CARTON (IF POSSIBLE) AND DRAWING WITH IDENTIFIERS.		
9	Metallurgist:	NA				
10	Engineer:	JIM RONKAINEN		INSPECTOR NOTES: Parts are OK to use. Sent to Ilion on 6/5/2007.		
11	Inspected by:	JIM RONKAINEN				
12	Date:	5/31/2007				
13	Reviewed by:	JR				
14	Date:	6/5/2007				
15						
16						
17						
18						
19	<u>identifier</u>	<u>feature description</u>	<u>DIM</u>	<u>plus</u>	<u>minus</u>	<u>1</u>
20	A	THICKNESS	0.1750	0.001	0.001	0.1754
21	B	I.D.	0.0995	0.001	0.001	0.0983
22	B	I.D.	0.0995	0.001	0.001	0.099
23	B	I.D.	0.0995	0.001	0.001	0.0988
24	C	I.D.	0.0995	0.001	0.001	0.0986
25	C	I.D.	0.0995	0.001	0.001	0.099
26	C	I.D.	0.0995	0.001	0.001	0.0988
27	C	Bonus				0.0003
28	C	Positional	0.0030	0.000	0.003	IN
29	D	Vert. DISTANCE Hole	0.160	0.0015	0.0015	0.1601
30	E	DISTANCE	0.289	0.0025	0.0025	0.2892
31	F	DISTANCE	0.265	0.0025	0.0025	0.2644
32	G	DISTANCE	0.271	0.0025	0.0025	0.2713
33	H	DISTANCE	0.315	0.0025	0.0025	0.3154
34	I	Horiz DISTANCE Hole	0.105	0.0015	0.0015	0.1050
35	J	DISTANCE	0.143	0.0025	0.0025	0.1438
36	K	DISTANCE	0.100	0.0025	0.0025	0.1010
37	L	DISTANCE	0.250	0.0025	0.0025	0.2504
38	M	RADIUS	0.015	0.0025	0.0025	0.0227
39	N	RADIUS	0.010	0.0025	0.0025	0.0108
40	O	RADIUS	0.015	0.0025	0.0025	0.0638
41	P	RADIUS	0.050	0.0025	0.0025	0.0519
42	Q	RADIUS	0.015	0.0025	0.0025	0.0144
43	R	RADIUS	0.300	0.0025	0.0025	0.2992
44	S	RADIUS	0.015	0.0025	0.0025	0.0168
45	T	DEGREE	29.000	0.500	0.500	29.1423
46	U	DEGREE	99.000	0.500	0.500	98.8563
47	V	DEGREE	55.000	0.500	0.500	54.7225
48	W	DEGREE	35.000	0.500	0.500	35.0616
49	X	DISTANCE	0.0875	0.003	0.003	0.0864
50	Y	DISTANCE	0.1500	0.0030	0.0030	0.1513
51	Z	I.D.	0.125			.125+

BARBER - R 0000560

	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1																				
2																				
3																				
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11																				
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17																				
18																				
19	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	AVG
20	0.1752	0.1753	0.1753	0.1753	0.1752	0.1753	0.1752	0.1753	0.1752	0.1753	0.1752	0.1751	0.1752	0.1755	0.1757	0.1757	0.1751	0.1752	0.1752	0.1753
21	0.0985	0.0985	0.0981	0.0981	0.0982	0.0983	0.0986	0.0985	0.0989	0.0985	0.0990	0.0989	0.0985	0.0988	0.0987	0.0985	0.0986	0.0990	0.0985	0.0986
22	0.099-	0.099-	0.099-	0.099+	0.0985+	0.099-	0.099-	0.099-	0.099-	0.099-	0.099+	0.0985-	0.099-	0.099-	0.099+	0.099-	0.099-	0.099-	0.099-	0.099-
23	0.0988	0.0988	0.0988	0.0992	0.0987	0.0988	0.0988	0.0988	0.0988	0.0988	0.0992	0.0993	0.0988	0.0988	0.0992	0.0988	0.0988	0.0988	0.0988	0.0989
24	0.0986	0.0984	0.0980	0.0978	0.0986	0.0983	0.0990	0.0980	0.0991	0.0990	0.0991	0.0990	0.0985	0.0991	0.0990	0.0986	0.0988	0.0982	0.0985	0.0987
25	0.099-	0.099-	0.099-	0.099+	0.0985+	0.099-	0.099-	0.099-	0.099-	0.099-	0.099+	0.0985-	0.099-	0.099-	0.099+	0.099-	0.099-	0.099-	0.099-	0.099-
26	0.0988	0.0988	0.0988	0.0992	0.0987	0.0988	0.0988	0.0988	0.0988	0.0988	0.0992	0.0993	0.0988	0.0988	0.0992	0.0988	0.0988	0.0988	0.0988	0.0989
27	0.0003	0.0003	0.0003	0.0007	0.0002	0.0003	0.0003	0.0003	0.0003	0.0003	0.0007	0.0008	0.0003	0.0003	0.0007	0.0003	0.0003	0.0003	0.0003	0.0004
28	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN
29	0.1601	0.1597	0.1599	0.1600	0.1602	0.1599	0.1598	0.1601	0.1598	0.1600	0.1600	0.1599	0.1603	0.1600	0.1597	0.1598	0.1600	0.1599	0.1600	0.1600
30	0.2895	0.2898	0.2893	0.2889	0.2891	0.2894	0.2894	0.2893	0.2895	0.2890	0.2892	0.2889	0.2891	0.2878	0.2892	0.2882	0.2893	0.2889	0.2889	0.2891
31	0.2650	0.2650	0.2650	0.2645	0.2646	0.2649	0.2652	0.2651	0.2647	0.2647	0.2645	0.2645	0.2650	0.2648	0.2647	0.2647	0.2648	0.2647	0.2646	0.2648
32	0.2713	0.2720	0.2721	0.2712	0.2710	0.2717	0.2715	0.2715	0.2716	0.2713	0.2712	0.2712	0.2710	0.2700	0.2712	0.2706	0.2715	0.2710	0.2714	0.2713
33	0.3154	0.3151	0.3153	0.3155	0.3155	0.3151	0.3156	0.3159	0.3153	0.3154	0.3153	0.3150	0.3149	0.3164	0.3156	0.3160	0.3151	0.3153	0.3154	0.3154
34	0.1052	0.1050	0.1050	0.1049	0.1051	0.1052	0.1056	0.1054	0.1053	0.1050	0.1048	0.1054	0.1048	0.1051	0.1056	0.1053	0.1051	0.1051	0.1051	0.1052
35	0.1437	0.1434	0.1433	0.1439	0.1435	0.1440	0.1432	0.1436	0.1433	0.1441	0.1436	0.1435	0.1432	0.1433	0.1430	0.1431	0.1434	0.1431	0.1435	0.1435
36	0.0991	0.1022	0.1023	0.1010	0.1004	0.1002	0.1013	0.1015	0.1010	0.1010	0.1003	0.1009	0.1005	0.0994	0.1003	0.0986	0.1008	0.1016	0.1010	0.1007
37	0.2489	0.2501	0.2500	0.2518	0.2511	0.2503	0.2499	0.2501	0.2498	0.2500	0.2502	0.2502	0.2500	0.2508	0.2505	0.2503	0.2501	0.2500	0.2497	0.2503
38	0.0218	0.0189	0.0244	0.0288	0.0300	0.0300	0.0265	0.0254	0.0272	0.0298	0.0265	0.0308	0.0274	0.0344	0.0375	0.0270	0.0339	0.0313	0.0566	0.0281
39	0.0130	0.0183	0.0092	0.0074	0.0094	0.0133	0.0129	0.0117	0.0095	0.0078	0.0084	0.0100	0.0089	0.0077	0.0090	0.0098	0.0136	0.0086	0.0095	0.0105
40	0.0279	0.0290	0.0295	0.0315	0.0367	0.0320	0.0312	0.0276	0.0332	0.0246	0.0330	0.0321	0.0299	0.0329	0.0318	0.0399	0.0286	0.0306	0.0284	0.0328
41	0.0479	0.0481	0.0483	0.0526	0.0515	0.0518	0.0489	0.0499	0.0481	0.0488	0.0494	0.0520	0.0492	0.0510	0.0506	0.0534	0.0488	0.0490	0.0519	0.0500
42	0.0148	0.0151	0.0137	0.0150	0.0143	0.0140	0.0110	0.0141	0.0124	0.0126	0.0136	0.0143	0.0126	0.0132	0.0150	0.0122	0.0123	0.0133	0.0116	0.0136
43	0.2993	0.2964	0.2990	0.2970	0.2977	0.3002	0.2989	0.3008	0.2999	0.2989	0.2972	0.2962	0.2967	0.3018	0.2964	0.2992	0.2989	0.2982	0.2988	0.2984
44	0.0141	0.0144	0.0158	0.0110	0.0136	0.0181	0.0137	0.0157	0.0150	0.0128	0.0152	0.0131	0.0112	0.0122	0.0145	0.0118	0.0129	0.0126	0.0129	0.0138
45	28.8901	29.0563	28.6495	29.0745	29.2488	28.9240	28.9316	28.8318	29.2690	29.0811	28.9781	29.0496	29.1687	29.1338	29.0692	28.8798	28.7564	28.8852	28.9634	29.0010
46	98.9621	98.9421	98.9488	98.8789	98.9454	98.9909	99.0207	98.9614	98.9669	98.9426	98.9661	98.9523	99.1574	99.0300	98.8643	98.9446	98.8994	98.8933	98.8963	98.9544
47	55.4573	54.3799	54.4692	54.8592	54.9621	55.2813	54.7680	54.7108	54.7809	54.9023	55.0719	54.7920	55.0510	54.9485	54.7854	55.3323	54.8270	54.4827	54.7872	54.8729
48	35.0315	35.0576	35.0352	35.1073	35.1295	34.9982	35.0499	35.0309	35.1042	35.0816	35.0585	35.0724	34.9619	35.0181	35.2200	35.0484	35.0217	35.0218	35.1246	35.0595
49	0.0860	0.0874	0.0849	0.0886	0.0883	0.0863	0.0863	0.0865	0.0865	0.0874	0.0869	0.0873	0.0866	0.0867	0.0869	0.0868	0.0864	0.0867	0.0864	0.0868
50	0.1507	0.1477	0.1513	0.1489	0.1480	0.1519	0.1502	0.1517	0.1505	0.1520	0.1527	0.1513	0.1514	0.1542	0.1470	0.1549	0.1548	0.1538	0.1521	0.1513
51	.125+	.124+	.125+	.125+	.125+	.125+	.125+	.125+	.125+	.125+	.125+	.125+	.125+	.125+	.125+	.125+	.125+	.125+	.125+	.125+

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KINZER V. REMINGTON

BARBER - R 0000560 R 2194062

BARBER - R 0000561

	AA	AB
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19	STDEV	Method
20	0.0002	M/C
21	0.0003	MV
22		PIN
23	0.0002	Calc
24	0.0004	MV
25		PIN
26	0.0002	Calc
27	0.0002	Calc
28		
29	0.0002	MV
30	0.0005	MV
31	0.0002	MV
32	0.0005	MV
33	0.0004	MV
34	0.0002	MV
35	0.0003	MV
36	0.0010	MV
37	0.0005	MV
38	0.0045	MV
39	0.0027	MV
40	0.0083	MV
41	0.0017	MV
42	0.0011	MV
43	0.0018	MV
44	0.0017	MV
45	0.1641	MV
46	0.0690	MV
47	0.2837	MV
48	0.0559	MV
49	0.0008	MV
50	0.0023	MV
51		PIN

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BARBER - R 0000561 R 2194063

BARBER - R 0000562

	A	B	C	D	E	F
52	Z	Diameter	0.125	0.001	0.001	0.1252
53	Z	Bonus				0.0012
54	Z	Position	0.010	0.000	0.010	IN
55	AA	Diameter	0.167	0.007	0.007	0.1628
56	BB	DEPTH	0.342	0.010	0.010	0.3430
57	CC	DEGREE	35.000	0.500	0.500	35.0999
58	DD	DEGREE	60.000			60.4531
59		Csink Depth	0.037			0.0298
60	EE	OVERLAY@20X (profile)				OK
61	Z	Diameter	0.125	0.001	0.001	0.1281
62	AA to Z	Eccentricity				0.0015

BARBER - R 0000563

	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
52	0.1252	0.1242	0.1252	0.1252	0.1252	0.1252	0.1252	0.1252	0.1252	0.1252	0.1252	0.1252	0.1252	0.1252	0.1252	0.1252	0.1252	0.1252	0.1252	0.1251
53	0.0012	0.0002	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0011
54	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	
55	0.1612	0.1627	0.1680	0.1681	0.1628	0.1678	0.1684	0.1688	0.1683	0.1689	0.1673	0.1677	0.1685	0.1697	0.1692	0.1719	0.1698	0.1687	0.1670	0.1674
56	0.3450	0.3420	0.3420	0.3430	0.3430	0.3430	0.3440	0.3440	0.3430	0.3440	0.3410	0.3390	0.3430	0.3420	0.3400	0.3410	0.3410	0.3350	0.3430	0.3420
57	35.2322	35.3005	35.1753	35.1682	35.0035	35.1806	35.3472	35.4848	35.0865	35.1134	35.2828	35.1492	35.0735	34.8956	34.9575	35.0836	35.184	35.0068	35.2352	35.1487
58	61.7914	67.1668	58.7653	72.0423	65.6028	61.1484	55.7141	56.9667	57.3978	56.9341	57.9506	58.8873	56.1514	55.2332	65.6771	54.5576	59.6568	56.2799	58.9485	59.9156
59	0.0291	0.0267	0.0361	0.0273	0.0289	0.0346	0.0396	0.0384	0.0372	0.0383	0.0359	0.0358	0.0368	0.0350	0.0339	0.0348	0.0365	0.0379	0.0350	0.0343
60	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	
61	0.1264	0.1273	0.1274	0.1284	0.1256	0.1268	0.1266	0.1271	0.1275	0.1274	0.1276	0.1273	0.1292	0.1331	0.1254	0.1361	0.1279	0.1281	0.1275	0.1281
62	0.0011	0.0003	0.0024	0.0009	0.0005	0.0042	0.0028	0.0019	0.0034	0.0046	0.0023	0.0033	0.0026	0.0052	0.0027	0.0007	0.0073	0.0017	0.0020	0.0027

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
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BARBER - R 0000563 R 2194065

BARBER - R 0000564

	AA	AB
52	0.0002	Calc
53	0.0002	Calc
54		
55	0.0029	MV
56	0.0023	HG
57	0.1420	MV
58	4.6921	Calc
59	0.0040	MV
60		OVERLAY
61	0.0025	MV
62	0.0018	MV

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BARBER - R 0000564 R 2194066

BARBER - R 0000565

Cell: A30
Comment: Administrator:
For information only - profile tolerance on part periphery governs dimensional acceptability of parts

Cell: A31
Comment: Administrator:
For information only - profile tolerance on part periphery governs dimensional acceptability of parts

Cell: A32
Comment: Administrator:
For information only - profile tolerance on part periphery governs dimensional acceptability of parts

Cell: A33
Comment: Administrator:
For information only - profile tolerance on part periphery governs dimensional acceptability of parts

Cell: A35
Comment: Administrator:
For information only - profile tolerance on part periphery governs dimensional acceptability of parts

Cell: A36
Comment: Administrator:
For information only - profile tolerance on part periphery governs dimensional acceptability of parts

Cell: A37
Comment: Administrator:
For information only - profile tolerance on part periphery governs dimensional acceptability of parts

Cell: A38
Comment: Administrator:
For information only - profile tolerance on part periphery governs dimensional acceptability of parts

Cell: A39
Comment: Administrator:
For information only - profile tolerance on part periphery governs dimensional acceptability of parts

Cell: A40
Comment: Administrator:
For information only - profile tolerance on part periphery governs dimensional acceptability of parts

Cell: A41
Comment: Administrator:
For information only - profile tolerance on part periphery governs dimensional acceptability of parts

Cell: A42
Comment: Administrator:
For information only - profile tolerance on part periphery governs dimensional acceptability of parts

Cell: A43
Comment: Administrator:
For information only - profile tolerance on part periphery governs dimensional acceptability of parts

Cell: A44

Comment: Administrator:
For information only - profile tolerance on part periphery governs dimensional acceptability of parts.

Comment: Administrator:
For information only - profile tolerance on part periphery governs dimensional acceptability of parts

Comment: Administrator:
For information only - profile tolerance on part periphery governs dimensional acceptability of parts

Comment: Administrator:
For information only - profile tolerance on part periphery governs dimensional acceptability of parts.

Comment: Administrator:
For information only - profile tolerance on part periphery governs dimensional acceptability of parts

Comment: Jim Ronkainen:
Countersinks in most parts originally were too small. C'sinks were re-machined to proper size.

Comment: Jim Ronkainen:
Holes in most parts originally were too shallow. Holes were re-drilled to proper depth.

Comment: Jim Ronkainen:
The countersink angle is calculated from the countersink diameter, hole diameter and the difference in height between the two diameters. Actual C'sink tool was checked on the comparator to ensure angle was 60 degrees.

Comment: Jim Ronkainen:
This diameter was difficult to measure accurately on the MicroVu due to the variability in the countersink. The vision tools create a "best-fit" circle for the data points it "sees", which typically includes extraneous data points that affect the calculated size. Use gage pin data for hole size.

Comment: Jim Ronkainen:
Not specified on drawing

BARBER - R 0000567

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**CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON**

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