Title
BIS[BIS(T-BUTYL)CYCLOPENTADIENYL)]URANIUM CHLORIDE

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Publication Date
1988-04-01

LBL-25152
Preprint

Lawrence Berkeley Laboratory
UNIVERSITY OF CALIFORNIA

Materials & Chemical Sciences Division

Submitted to Acta Crystallographica

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April 1988

Prepared for the U.S. Department of Energy under Contract Number DE-AC03-76SF00098.

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Bis[bis(t-butyl)cyclopentadienyl)]uranium chloride

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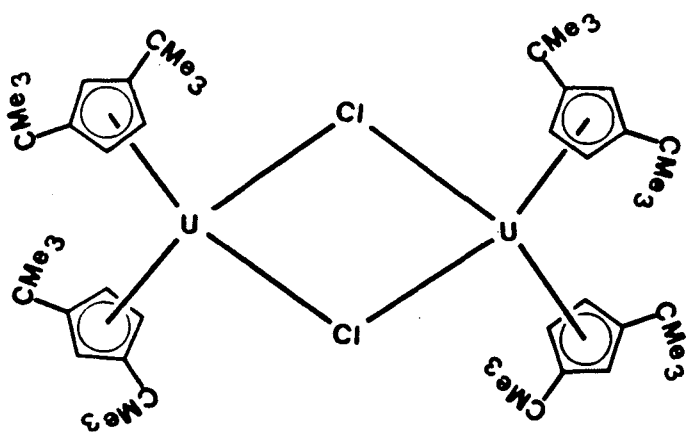
Abstract. $\{[(Me_3C)_2C_5H_3]_2UC\ell\}_2$, M_r = 1256.22, orthorhombic, Pccn, a = 13.040(3), b = 17.086(3), c = 24.587(3) Å, V = 5478 $Å^3$, Z = 4, D_x = 1.523 g/cm^3, λ(MoKα) = 0.71073 Å, μ = 57.24 cm^{-1}, F(000) = 2456, T = 296 K, R = 0.027 [1293 data, $F^2>2\sigma(F^2)$]. Two $[(Me_3C)_2C_5H_3]UC\ell$ groups form a double chlorine-bridged dimer in which the uranium atom is bonded to two cyclopentadienyl rings and to two chlorine atoms with U-Cp and U-Cℓ distances of 2.516 and 2.856(4) Å, respectively.

Introduction. The title compound was prepared as part of a systematic synthetic and X-ray crystallographic study aimed at elucidating the solid state stereochemistry and geometrical alterations in trivalent uranium metallocenes as a function of coordination environment. It has been shown that the tris-cyclopentadienyl compounds of the type $(RC_5H_4)_3(L)$, where R is H or CH_3 and L is a Lewis base such as an ether, amine, thioether, or phosphine, can be isolated (Wasserman, Zozulin, Moody, Ryan & Salazar, 1983), (Zalkin & Brennan, 1985,1987), (Brennan & Zalkin, 1985). When R is a sterically large group, such as Me_3Si, the base-free compound $(Me_3SiC_5H_4)_3U$ is isolated (Brennan, Andersen & Zalkin, 1986). Increasing the number of bulky substituents on the cyclopentadienyl ring by one gives the dimeric molecule $[1,3\text{-}(Me_3Si)_2C_5H_3]_4U_2(\mu\text{-}C\ell)_2$ (Blake, Lappert, Taylor, Atwood, Hunter & Zhang, 1986). The title compound, $[1,3\text{-}(Me_3C)_2C_5H_3]_4U_2(\mu\text{-}C\ell)_2$ is a related member of this series. The latter two compounds are an excellent pair of compounds in which the issue of intra-molecular steric effects in two molecules of identical empirical formulae that differ only in the replacement of the silicon atoms by carbon atoms may be addressed. A structural representation of the complex is shown below.



Experimental. The title compound was prepared from $K[1,3\text{-}(Me_3C)_2C_5H_3]$ and $UC\ell_3$ in tetrahydrofuran followed by crystallization from hexane as bright green crystals. An air-sensitive crystal, 0.1 x 0.1 x 0.25 mm, was sealed inside a quartz capillary in an argon filled dry box. X-ray diffraction intensities (θ-2θ scans) were obtained using a modified Picker FACS-I automatic diffractometer equipped with a graphite monochromator. Cell dimensions from 20 reflections, $22° < 2\theta < 34°$; analytical absorption correction, range 1.72-1.90; max $\sin\theta/\lambda = 0.60$, h 0 to 15, k -20 to 19, ℓ 0 to 14; three standard reflections, 1.4%,1.0%,4.3% variation in standards intensities from average, intensities adjusted isotropically; 5477 data, 2629 unique (with 1293, $F^2 > 2\sigma$), R_{int}=0.072; structure solved by Patterson and Fourier methods; refined on F, 254 parameters; 42 hydrogen atoms in calculated positions and fixed isotropic thermal paramters; anisotropic thermal parameters for non-hydrogen atoms; R = 0.12 for all the data, R = 0.027 for $F^2>2\sigma$ data, wR = 0.021, S = 1.01; $w = 4F^2[\sigma^2(F^2)+(pf^2)^2)^{-1}$; max (shift/$\sigma$) = 0.14; no extinction correction indicated; max. and min of ΔF synthesis 3.3 and -3.7 e $Å^3$; atomic f for neutral U, Cℓ and C, and spherical bonded H from International Tables (1974); local unpublished programs and ORTEP (Johnson, 1965). Atomic parameters are listed in Table I*. A list of selected distances and angles is given in Table II. Figure 1 shows the molecule and its numbering scheme.

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*Lists of anisotropic thermal parameters, calculated hydrogen positions, least-squares planes, distances and angles and additional ORTEP drawings have been deposited with the British Library Lending Division as Supplementary Publication No. XXXXX (pp.). Copies may be obtained through

The Executive Secretary, International Union of Crystallography, 5 Abbey Square, Chester CH1 2HU, England.

Results. The compound is a dimer in which the uranium atom is bonded to two cyclopentadienyl rings in a pentahapto fashion and to two chlorides which bridge the two uranium atoms. The cyclopentadienyl rings are rigorously planar but the tertiary carbon atoms of the t-butyl groups are out of the cyclopentadienyl ring plane and directed away from the uranium atom by an average of 0.27(4) Å. The rings of the bent sandwich molecule are in a staggered configuration with respect to each other about both the U1 and U2 atoms. The averaged U-C distance of 2.79(4) Å and the U-Cp(centroid) distance of 2.51 Å are not significantly different from these values in other trivalent uranium metallocenes. The averaged U-Cℓ distance of 2.856(1) Å is in the range found in other trivalent uranium compounds with bridging chloride ligands which range from 2.78(1) Å in $[(Me_6C_6)_3U_3(\mu\text{-}C\ell)_3(\mu_3\text{-}C\ell)_2(\mu\text{-}C\ell_2A\ell C\ell_2)_3(A\ell C\ell_4)$ (Cotton, Schwotzer & Simpson, 1986), 2.810±0.001 Å in $[1,3\text{-}(Me_3Si)_2C_5H_3]_4U_2(\mu\text{-}C\ell)_2$ (Blake, Lappert, Taylor, Atwood, Hunter & Zhang, 1986), and 2.90±0.01 Å in $[Me_5C_5]_6U(\mu\text{-}C\ell)_3$ (Fagan, Manriquez, Marks, Day, Vollmer & Day, 1982).

A comparison between the geometrical parameters in $[1,3\text{-}(Me_3Si)_2C_5H_3]_4U_2(\mu\text{-}C\ell_2)$ and $[1,3\text{-}(Me_3C)_2C_5H_3]_4U_2(\mu\text{-}C\ell)_2$ is shown in Table III. The U-Cℓ distance in the $(Me_3C)_2C_5H_3$ compound is 0.046 Å longer and the U•••U distance is 0.183 Å longer than the equivalent distances in the $(Me_3Si)_2C_5H_3$ compound. As a consequence the Cℓ-U-Cℓ angle in the $(Me_3C)_2C_5H_3$ compound is closed by 4°, the Cp-U-Cp angle is closed by 11° and the U-Cℓ-U angle is opened by 4° relative to the equivalent angles in the $(Me_3Si)_2C_5H_3$ compound. The geometry changes are small though they may be

rationalized by the fact that Me_3C groups are sterically larger than Me_3Si groups since carbon is 0.4 Å smaller than silicon, and accordingly the $(Me_3C)_2C_5H_3$ ligand is sterically larger than the $(Me_3Si)_2C_5H_3$ ligand. The bulkier $(Me_3C)_2C_5H_3$ groups on a uranium center minimize their intramolecular ligand-ligand repulsions between the $(Me_3C)_2C_5H_3$ groups on the neighboring uranium atom in the dimer. This postulate accounts for the geometry changes listed in Table III.

Acknowledgment. This work was supported by the Director, Office of Energy Research, Office of Basic Energy Sciences, Chemical Sciences Division of the U. S. Department of Energy under Contract No. DE-AC03-76SF00098.

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Table I. Atomic Parameters

$$B_{eq} = 1/3\sum_i\sum_j B_{ij} a_i^* a_j^* a_i \cdot a_j$$

Atom	x	y	z	Beq
U1	1/4	1/4	0.29597(3)	3.38(2)
U2	1/4	1/4	0.11133(2)	3.53(2)
Cℓ	0.34838(28)	0.18173(22)	0.20369(18)	4.2(1)
C1	0.4315(12)	0.3388(10)	0.3085(6)	4.3(6)
C2	0.3501(14)	0.3894(9)	0.3226(7)	4.4(6)
C3	0.3094(10)	0.3609(10)	0.3723(6)	3.1(5)
C4	0.3638(12)	0.2915(9)	0.3847(8)	4.1(5)
C5	0.4378(12)	0.2780(8)	0.3467(6)	3.9(5)
C6	0.3645(16)	0.3900(11)	0.1003(7)	5.2(7)
C7	0.2806(11)	0.3994(11)	0.0632(6)	3.9(6)
C8	0.2990(14)	0.3402(10)	0.0242(8)	5.9(6)
C9	0.3883(14)	0.2977(9)	0.0336(7)	4.8(6)
C10	0.4306(15)	0.3298(12)	0.0829(8)	5.2(7)
C11	0.3325(14)	0.4719(10)	0.2998(11)	3.7(5)
C12	0.3705(15)	0.4785(9)	0.2431(8)	8.2(7)
C13	0.3826(16)	0.5314(10)	0.3345(8)	8.8(8)
C14	0.2148(12)	0.4904(12)	0.2980(12)	5.9(8)
C15	0.5267(12)	0.2195(9)	0.3504(7)	4.8(6)
C16	0.5965(11)	0.2431(19)	0.3961(7)	8.9(7)
C17	0.5917(13)	0.2171(11)	0.2988(8)	9.4(9)
C18	0.4880(13)	0.1375(11)	0.3635(10)	10.2(9)
C19	0.2033(15)	0.4635(11)	0.0624(8)	6.4(8)
C20	0.231(3)	0.5217(10)	0.0216(8)	12.5(10)
C21	0.1933(15)	0.5066(11)	0.1174(10)	9.5(9)
C22	0.0988(15)	0.4313(11)	0.0488(10)	10.7(9)
C23	0.5381(15)	0.3129(15)	0.1019(10)	5.3(8)
C24	0.5530(11)	0.3334(11)	0.1613(7)	7.0(6)
C25	0.6111(14)	0.3700(12)	0.0693(7)	8.7(7)
C26	0.5748(15)	0.2329(22)	0.0929(11)	11.4(19)

Table II. Selected Distances(Å) and Angles(°)[a]

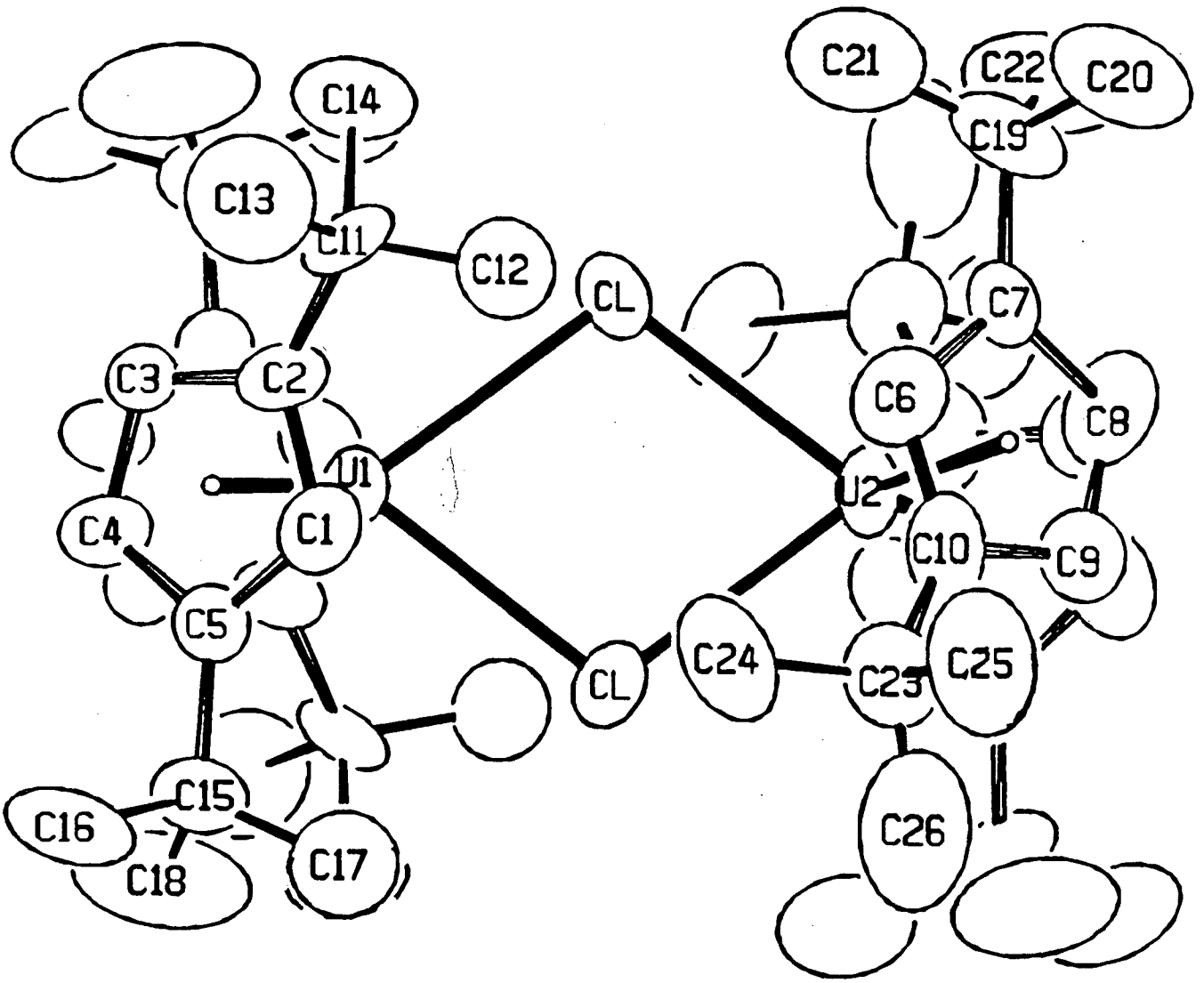
<U1 - C>	2.78(4)
<U2 - C>	2.79(5)
U1 - Cp1	2.516
U2 - Cp2	2.516
U1 - Cℓ	2.856(4)
U2 - Cℓ'	2.857(4)
U1 - U2	4.540(1)
Cℓ - Cℓ	3.468(7)
Cp1 - U1 - Cp1'	120.2
Cp2 - U2 - Cp2'	120.9
Cp1 - U1 - Cℓ	108.9
Cp1 - U1 - Cℓ'	117.9
Cp2 - U2 - Cℓ	115.8
Cp2 - U2 - Cℓ'	110.5
Cℓ - U1 - Cℓ'	74.77(17)
Cℓ - U2 - Cℓ'	74.73(15)
U1 - Cℓ - U2	105.25(11)

[a] Cp1 and Cp2 are the centroids of cyclopentadienyl ring atoms C1 - C5 and C6 - C10 respectively. Cp1',Cp2' and Cℓ' represent the equivalent groups or atoms at 1/2-x, 1/2-y, z.

Table III. Bond Lengths and Angles Comparison

Parameter	$[(Me_3Si)_2C_5H_3]_4U_2(\mu\text{-}C\ell)_2$	$[(Me_3C)_2C_5H_3]_4U_2(\mu\text{-}C\ell)_2$
U-C(ave),Å	2.78(2)	2.78(4)
U-Cp(ave),Å	2.50	2.52
U-Cℓ(ave),Å	2.710(4)	2.856(1)
U•••U,Å	4.357(1)	4.540(1)
Cℓ-U-Cℓ,°	78.5(1)	74.7(2)
Cℓ-U-Cp(ave),°	107	113
Cp-U-Cp(ave),°	131	120
Cℓ-Cℓ-U,°	101.5()	105.3

Fig 1. ORTEP drawing with thermal ellipsoids at 50% probability level.



Supplemental Materials

Bis[bis(t-butyl)cyclopentadienyl]uranium chloride

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Abstract. $([((CH_3)_3C)_2C_5H_3]_2UC\ell)_2$, M_r = 1256.22, orthorhombic, Pccn, a = 13.040(3), b = 17.086(3), c = 24.587(4) Å, V = 5478 $Å^3$, Z = 4, D_x = 1.523 g/cm^3, λ(MoKα) = 0.71073 Å, μ = 57.24 cm^{-1}, F(000) = 2456, T = 296 K, R = 0.027 [1293 data, $F^2>2\sigma(F^2)$]. Two $(Me_3C)_2CpUC\ell$ groups form a double chlorine-bridged dimer in which the uranium atom is bonded to two cyclopentadienyl rings and to two chlorine atoms with U-Cp and U-Cℓ distances of 2.516 and 2.856(4) Å, respectively.

Supplemental Table 1. Anisotropic Thermal Parameters ($Å^2$) with Estimated Standard Deviations for $\{[(Me_3C)_2C_5H_3]_2UC\ell\}_2$

Atom	B11	B22	B33	B12	B13	B23
U1	3.64(4)	3.84(4)	2.67(3)	-0.11(16)	0	0
U2	3.76(4)	4.25(5)	2.58(4)	-1.19(15)	0	0
Cℓ	4.45(20)	4.55(20)	3.53(15)	-0.13(17)	1.16(28)	-0.30(27)
C1	3.5(8)	5.2(9)	4.2(11)	-0.6(8)	-0.1(8)	-1.1(8)
C2	4.4(10)	3.7(10)	5.2(9)	1.1(8)	-0.4(8)	-1.3(8)
C3	2.7(8)	3.6(9)	3.1(7)	0.3(6)	-0.4(6)	-0.6(7)
C4	3.0(7)	4.0(10)	5.3(9)	0.4(7)	1.1(8)	0.4(8)
C5	4.0(8)	3.9(11)	3.6(7)	0.2(7)	0.4(7)	0.5(6)
C6	4.6(11)	5.0(12)	6.0(11)	-1.5(10)	1.6(10)	0.1(9)
C7	2.6(12)	5.7(10)	3.3(8)	-0.3(7)	0.1(6)	1.2(7)
C8	7.4(14)	4.6(9)	5.6(9)	-2.8(9)	-0.6(9)	-2.7(8)
C9	4.4(10)	5.3(10)	4.8(13)	-0.4(8)	-0.2(9)	0.2(8)
C10	5.7(13)	6.2(12)	3.8(10)	-1.9(10)	-0.2(9)	0.0(9)
C11	3.5(11)	2.6(8)	5.1(10)	-0.1(7)	0.9(13)	-2.0(10)
C12	12.1(16)	6.4(11)	6.2(11)	2.4(11)	0.0(13)	0.2(10)
C13	11.2(16)	4.8(10)	10.4(14)	-2.7(10)	-1.4(13)	-0.4(10)
C14	3.9(16)	4.3(9)	9.4(13)	0.0(7)	0.0(13)	0.9(13)
C15	3.1(8)	5.5(12)	5.8(10)	1.0(7)	-1.4(8)	-0.6(8)
C16	6.2(9)	10.3(14)	10.2(11)	4.9(17)	-2.2(9)	0.8(24)
C17	6.1(10)	14.6(24)	7.4(10)	4.3(10)	2.2(12)	1.8(14)
C18	2.8(9)	7.9(13)	19.9(23)	0.0(9)	-1.6(13)	1.6(15)
C19	7.2(14)	3.4(9)	8.6(16)	0.5(9)	-1.2(10)	2.9(10)
C20	15.5(25)	9.5(11)	12.5(15)	5.4(21)	3.6(22)	7.4(11)
C21	10.2(18)	6.2(12)	12.1(18)	1.3(10)	-2.2(14)	-0.9(12)
C22	7.0(12)	7.1(11)	18.0(23)	0.9(10)	-2.5(18)	0.4(16)
C23	1.4(9)	8.3(17)	6.2(13)	-1.5(9)	0.0(9)	0.7(12)
C24	3.2(9)	11.5(14)	6.3(10)	-1.7(9)	-3.6(8)	0.4(10)
C25	6.2(11)	12.2(15)	7.7(11)	-3.9(11)	0.3(9)	1.6(11)
C26	2.4(11)	23.6(53)	8.0(13)	-1.2(22)	-0.7(9)	-1.0(27)

* The anisotropic temperature factor has the form $T = -0.25\exp(\Sigma h_i h_j B_{ij} a_i^* a_j^*)$

Supplemental Table 2. Positional and Thermal Parameters of Fixed Atoms for $\{[(Me_3C)_2C_5H_3]_2UC\ell\}_2$

Atom	x	y	z	B(Å^2)
H1	0.4765	0.3458	0.2770	10.000
H2	0.2549	0.3857	0.3940	10.000
H3	0.3490	0.2577	0.4158	10.000
H4	0.3749	0.4205	0.1335	10.000
H5	0.2532	0.3304	-0.0063	10.000
H6	0.4167	0.2553	0.0114	10.000
H7	0.3346	0.4406	0.2200	10.000
H8	0.4443	0.4673	0.2426	10.000
H9	0.3583	0.5314	0.2296	10.000
H10	0.4563	0.5212	0.3358	10.000
H11	0.3537	0.5289	0.3711	10.000
H12	0.3704	0.5836	0.3190	10.000
H13	0.1876	0.4876	0.3356	10.000
H14	0.1798	0.4518	0.2756	10.000
H15	0.2040	0.5429	0.2837	10.000
H16	0.5578	0.2432	0.4307	10.000
H17	0.6236	0.2956	0.3896	10.000
H18	0.6533	0.2058	0.3992	10.000
H19	0.6204	0.2690	0.2918	10.000
H20	0.5479	0.2017	0.2680	10.000
H21	0.6469	0.1790	0.3031	10.000
H22	0.4417	0.1200	0.3345	10.000
H23	0.4517	0.1378	0.3982	10.000
H24	0.5467	0.1014	0.3657	10.000
H25	0.2324	0.4965	-0.0146	10.000
H26	0.2975	0.5439	0.0296	10.000
H27	0.1785	0.5631	0.0210	10.000
H28	0.2600	0.5294	0.1280	10.000
H29	0.1729	0.4688	0.1462	10.000
H30	0.1421	0.5479	0.1154	10.000
H31	0.0791	0.3926	0.0772	10.000
H32	0.1003	0.4050	0.0137	10.000
H33	0.0485	0.4735	0.0486	10.000
H34	0.5058	0.3018	0.1833	10.000
H35	0.5395	0.3887	0.1667	10.000
H36	0.6240	0.3212	0.1722	10.000
H37	0.5924	0.4236	0.0773	10.000
H38	0.6035	0.3596	0.0301	10.000
H39	0.6826	0.3602	0.0799	10.000
H40	0.5726	0.2206	0.0540	10.000
H41	0.5304	0.1963	0.1127	10.000
H42	0.6454	0.2277	0.1061	10.000

* The isotropic temperature factor has the form: $T = \exp[-B(\sin\theta/\lambda)^2]$.

Supplemental Table 3. Additional Distances in $\{[(Me_3C)_2C_5H_3]_2UC\ell\}_2$

Atoms	d(Å)	Atoms	d(Å)	Atoms	d(Å)
U1 - C1	2.829(16)	C15 - C16	1.501(22)	H19 - C17	0.980
U1 - C2	2.794(16)	C15 - C17	1.525(20)	H20 - C17	0.984
U1 - C3	2.777(14)	C15 - C18	1.525(21)	H21 - C17	0.975
U1 - C4	2.732(17)	C19 - C20	1.456(23)	H22 - C18	0.980
U1 - C5	2.790(15)	C19 - C21	1.546(25)	H23 - C18	0.975
U2 - C6	2.832(17)	C19 - C22	1.507(23)	H24 - C18	0.985
U2 - C7	2.841(17)	C23 - C24	1.515(26)	H25 - C20	0.989
U2 - C8	2.715(18)	C23 - C25	1.581(30)	H26 - C20	0.972
U2 - C9	2.752(15)	C23 - C26	1.465(42)	H27 - C20	0.982
U2 - C10	2.810(18)	H1 - C1	0.980	H28 - C21	0.989
C1 - C2	1.412(18)	H2 - C3	0.984	H29 - C21	0.995
C1 - C5	1.404(17)	H3 - C4	0.978	H30 - C21	0.973
C2 - C3	1.418(19)	H4 - C6	0.978	H31 - C22	0.995
C2 - C11	1.535(23)	H5 - C8	0.973	H32 - C22	0.972
C3 - C4	1.415(16)	H6 - C9	0.979	H33 - C22	0.975
C4 - C5	1.362(18)	H7 - C12	0.979	H34 - C24	0.981
C5 - C15	1.533(16)	H8 - C12	0.982	H35 - C24	0.970
C6 - C7	1.434(20)	H9 - C12	0.977	H36 - C24	0.986
C6 - C10	1.408(21)	H10 - C13	0.976	H37 - C25	0.968
C7 - C8	1.413(19)	H11 - C13	0.977	H38 - C25	0.986
C7 - C19	1.489(19)	H12 - C13	0.983	H39 - C25	0.982
C8 - C9	1.391(19)	H13 - C14	0.990	H40 - C26	0.981
C9 - C10	1.442(21)	H14 - C14	0.974	H41 - C26	0.981
C10 - C23	1.504(24)	H15 - C14	0.974	H42 - C26	0.980
C11 - C12	1.483(30)	H16 - C16	0.991		
C11 - C13	1.480(24)	H17 - C16	0.977		
C11 - C14	1.568(21)	H18 - C16	0.980		

Supplemental Table 4. Additional Angles in $\{[(Me_3Si)_2C_5H_3]_2UC\ell\}_2$

Atoms	Angle(°)	Atoms	Angle(°)
Cℓ - U1 - Cℓ	74.77(17)	C6 - C7 - C19	127.5(18)
Cℓ - U2 - Cℓ	74.73(15)	C8 - C7 - C19	129.2(17)
U1 - Cℓ - U2	105.25(11)	C7 - C8 - C9	113.8(16)
C2 - C1 - C5	109.4(15)	C8 - C9 - C10	105.1(16)
C1 - C2 - C3	106.5(15)	C6 - C10 - C9	107.4(17)
C1 - C2 - C11	125.8(18)	C6 - C10 - C23	128.1(21)
C3 - C2 - C11	125.1(17)	C9 - C10 - C23	123.0(20)
C2 - C3 - C4	106.6(14)	C2 - C11 - C12	111.3(14)
C3 - C4 - C5	110.5(15)	C2 - C11 - C13	110.7(18)
C1 - C5 - C4	107.0(15)	C2 - C11 - C14	110.0(20)
C1 - C5 - C15	124.4(17)	C12 - C11 - C13	110.0(19)
C4 - C5 - C15	127.3(17)	C12 - C11 - C14	106.6(24)
C7 - C6 - C10	110.9(18)	C13 - C11 - C14	108.0(19)
C6 - C7 - C8	102.8(15)		

Supplemental Table 5. Least Squares Planes and Deviations Therefrom $\{[(Me_3C)_2C_5H_3]_2UC\ell\}_2$

Plane #1

8.47624 a + 9.32984 b + 12.99402 c = 10.81250

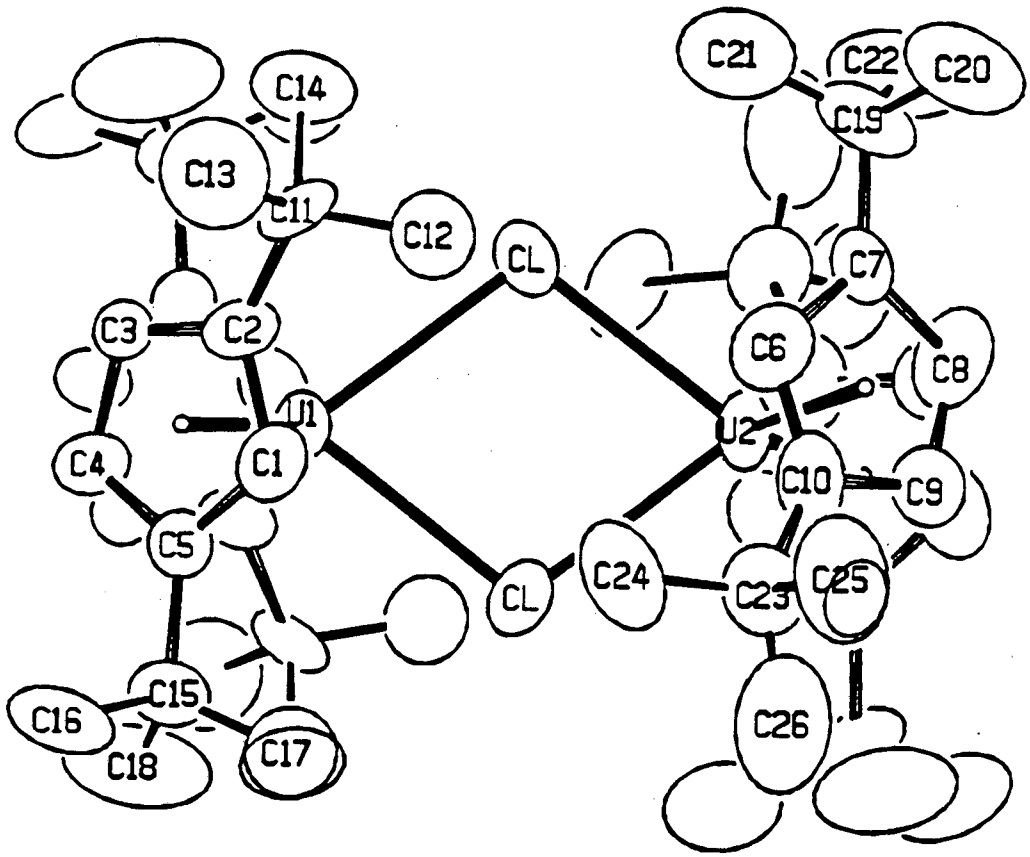
Distance(Å) to the plane			
atoms in the plane		atoms not in plane	
C1	0.015(23)	U1	-2.515(8)
C2	-0.020(22)	C11	0.30(4)
C3	0.015(21)	C15	0.25(3)
C4	-0.010(23)		
C5	-0.003(21)		

Plane #2

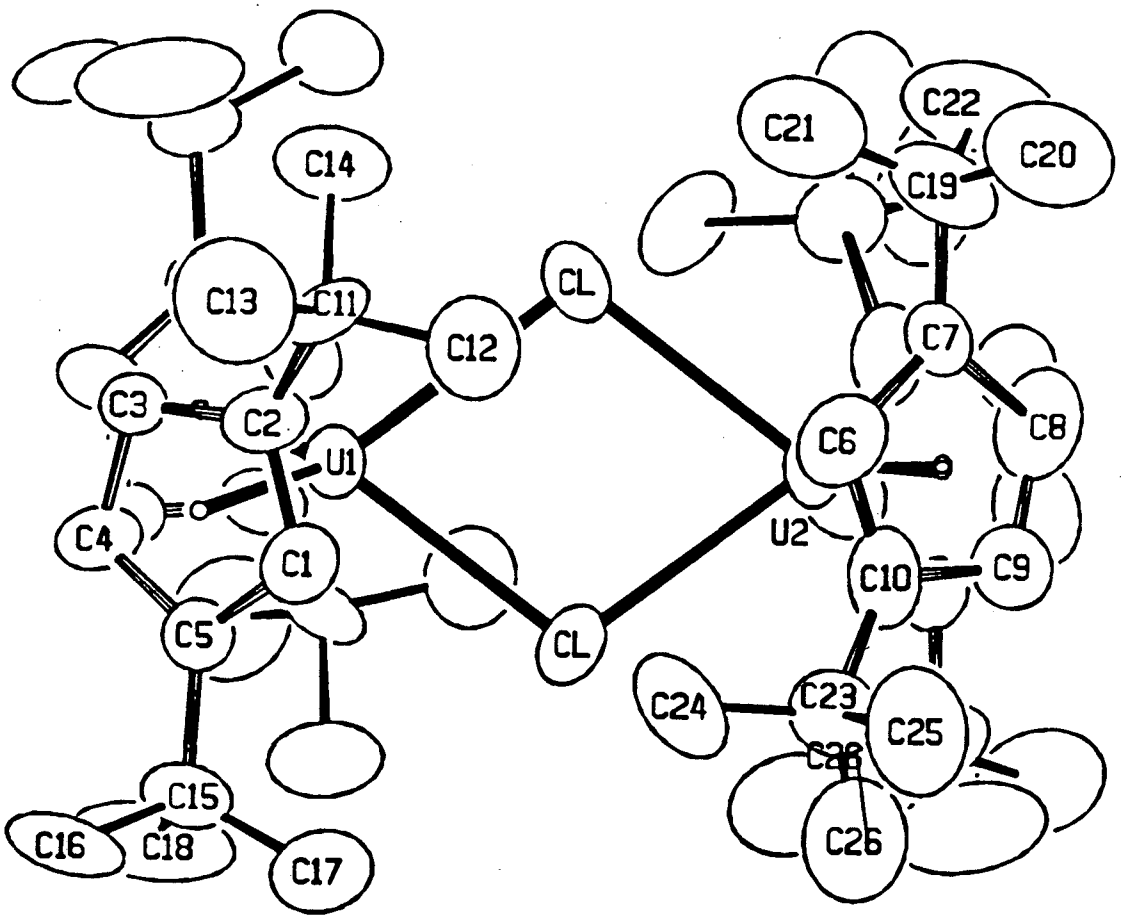
6.88778 a + 11.21458 b - 13.24486 c = 5.56382

Distance(Å) to the plane			
atoms in the plane		atoms not in plane	
C6	-0.008(25)	U2	-2.513(9)
C7	0.011(25)	C19	0.21(4)
C8	-0.010(24)	C23	0.30(4)
C9	0.004(23)		
C10	0.002(25)		

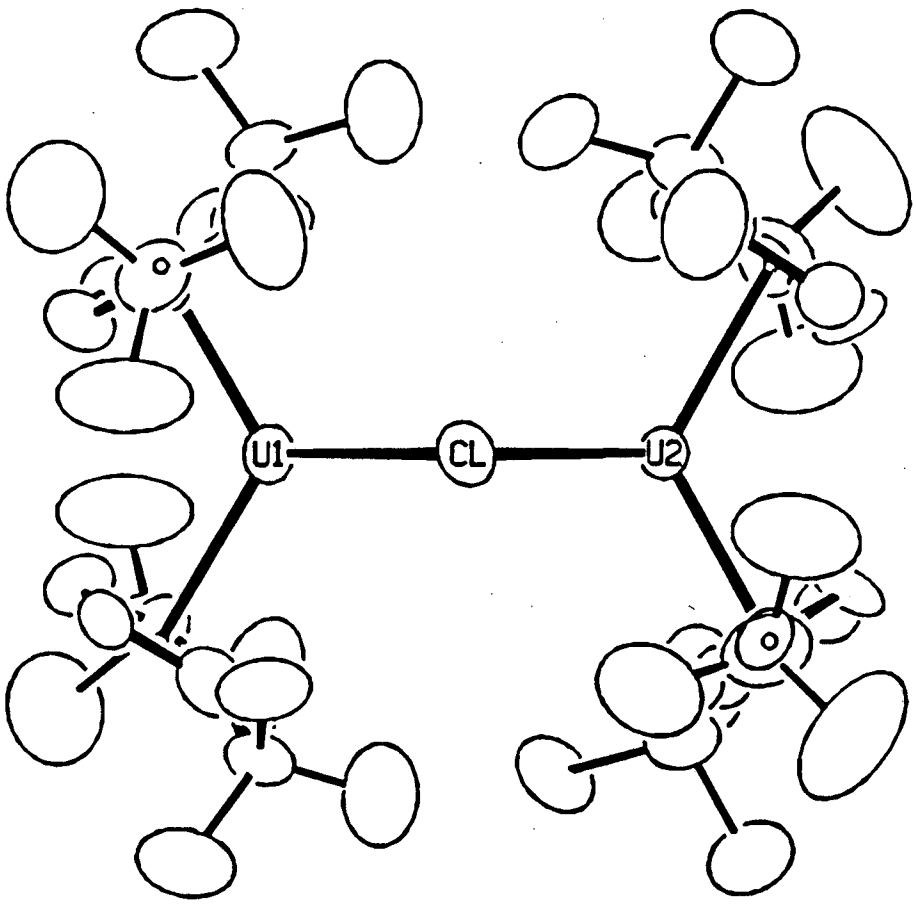
Suplemental Figure 1. ORTEP drawing looking down the line through the centroids of Cp1; 50% probability ellipsoids.



Suplemental Figure 2. ORTEP drawing looking down the line through the centroids of Cp2; 50% probability ellipsoids.



Suplemental Figure 3. ORTEP drawing looking down the line through the Cℓ atoms; 50% probability ellipsoids.



OBSERVED STRUCTURE AMPLITUDES, STANDARD DEVIATIONS, AND DIFFERENCES (ALL X 2.0)
{[(CH3)3C]2C5H3}2UCL-Pccn F(0,0,0) = 4747

SG = Estimated standard deviation of Fob. DEL = /Fob/- /Fca/, where
Fob and Fca are the observed and calculated structure amplitudes.
F000 = 2.0 x (no. of electrons in the unit cell adjusted for dispersion and omitted atoms).
* indicates zero weighted data.

K	FOB	SG	DEL	K	FOB	SG	DEL	K	FOB	SG	DEL	K	FOB	SG	DEL	K	FOB	SG	DEL	K	FOB	SG	DEL	K	FOB	SG	DEL
H,L=	0,	0		14	98	56	17*	0	120	11	8	13	65100		-10*	H,L=	1,	2		3	50	55	6*	11	414	8	-5	7	21	87	-2*
2	1458	19	-29	15	282	10	-6	1	219	6	11	14	154	25	14	0	328	4	-3	4	1040	11	6	12	100	30	-4*	8	560	8	-4
4	1359	14	27	16	73101		13*	2	86	26	-20*	H,L=	0,	22		1	437	5	1	5	256	4	2	13	392	8	2	9	56	90	1*
6	584	7	1	17	235	13	9	3	114	15	-5	0	575	10	7	2	226	3	1	6	881	10	-4	14	104	49	15*	10	448	28	9
8	809	9	-4	18	89	94	43*	4	131	14	2	1	46	87	5*	3	390	4	4	7	57	59	-33*	15	295	10	10	11	65	97	59*
10	583	7	-3	19	177	18	11	5	70	76	-34*	2	479	8	4	4	312	4	6	8	877	10	-12	16	0108		-55*	12	319	10	0
12	514	7	3	H,L=	0,	8		6	108	37	-24*	3	0101		-14*	5	353	4	5	9	91	25	-34	17	210	15	-2	13	66104		51*
14	499	8	13	0	179	6	2	7	137	16	23	4	454	7	14	6	227	4	3	10	581	7	11	18	59107		42*	14	253	12	9
16	272	11	-16	1	77	20	-7	8	110	23	15	5	67	82	30*	7	183	5	6	11	42	91	-10*	19	124	52	-16*	15	0111		-10*
18	245	13	15	2	37	57	2*	9	188	13	-12	6	325	8	2	8	71	26	-5*	12	470	8	-16	H,L=	1,	11		16	212	15	18
20	154	21	11	3	54	57	12*	10	56	97	-8*	7	26	94	-43*	9	282	5	-1	13	86	89	-6*	1	0139		-14*	H,L=	1,	18	
H,L=	0,	2		4	164	6	6	11	88	89	-15*	8	310	8	11	10	80	24	-17*	14	347	9	16	2	0	75	-57*	0	203	16	-12
1	312	4	0	5	130	7	-5	12	0	99	-33*	9	0	97	-46*	11	142	14	-13	15	28	99	-13*	3	0	85	-24*	1	101	46	-15*
2	419	5	11	6	41	61	-24*	13	38	90	-31*	10	268	10	3	12	170	13	6	16	271	11	9	4	47	69	-45*	2	183	13	-1
3	42	48	9*	7	26	64	5*	14	65104		25*	11	56	98	40*	13	224	11	1	17	38106		4*	5	60	78	55*	3	30	97	-106*
4	526	6	8	8	153	8	3	15	86104		71*	12	264	10	16	14	60103		-75*	18	186	17	-5	6	26	81	23*	4	317	7	2
5	89	18	-15	9	101	36	-10*	16	96107		71*	13	64100		44*	15	84103		-59*	19	0112		-33*	H,L=	1,	12		5	163	19	-15
6	118	10	6	10	0	90	-35*	17	53108		12*	H,L=	0,	24		16	92	66	14*	H,L=	1,	7		0	252	5	-2	6	251	9	-2
7	45	55	12*	11	44	94	-20*	H,L=	0,	16		0	0121		-87*	17	130	23	-5	1	54	62	52*	1	764	8	-1	7	184	12	-12
8	239	5	4	12	59	96	47*	0	0104		-18*	1	63101		-13*	18	34	96	4*	2	0109		-22*	2	320	5	0	8	242	9	-5
9	51	62	28*	13	91	69	80*	1	600	8	-3	2	87	89	9*	19	47109		-2*	3	90	24	-16	3	620	7	-1	9	59	91	-49*
10	178	7	-1	14	78100		-27*	2	101	21	23	3	44	85	2*	20	102109		75*	4	96	21	20	4	190	6	-11	10	174	13	-4
11	118	29	-33	15	0101		-28*	3	618	8	-4	4	75	92	16*	H,L=	1,	3		5	64	68	38*	5	487	6	6	11	55	87	-17*
12	203	12	0	16	8	94	4*	4	29	82	5*	5	45	86	32*	1	59	11	-4	6	64	64	-14*	6	118	15	-20	12	132	27	-17
13	182	14	-7	17	0105		-24*	5	689	9	-2	6	13	93	2*	2	202	5	6	7	42	67	39*	7	374	7	4	13	36	90	-9*
14	180	14	-4	18	41106		35*	6	52	84	24*	7	47	98	24*	3	60	46	22*	8	46	56	27*	8	148	15	-7	14	89	58	-7*
15	149	29	-6	19	56111		17*	7	554	8	-11	8	0	91	-25*	4	276	5	0	9	30	84	-47*	9	388	8	11	15	80	98	28*
16	76	92	-53*	H,L=	0,	10		8	86	98	17*	9	61100		47*	5	127	10	1	H,L=	1,	8		10	128	34	-14	H,L=	1,	20	
17	73	88	20*	01067		11	-17	9	539	8	10	10	63	99	21*	6	0	68	-2*	0	32	58	23*	11	347	9	12	0	165	23	1
18	47107		-41*	1	116	8	9	10	99	57	70*	11	48100		17*	7	0	62	-12*	1	37	58	27*	12	95	64	-32*	1	292	9	10
19	87	97	46*	2	983	10	-16	11	359	9	11	H,L=	0,	26		8	83	43	52*	2	24	58	-18*	13	282	10	-3	2	54101		-76*
20	0101		-32*	3	271	5	-6	12	0102		-11*	0	0127		-75*	9	0	79	-20*	3	122	7	6	14	29	92	-37*	3	258	10	5
H,L=	0,	4		4	764	8	-2	13	275	11	-5	1	261	12	24	10	77	34	0*	4	96	15	-18	15	230	13	8	4	86	46	-10*
0	742	8	-6	5	134	8	-1	14	72104		59*	2	128	39	31*	H,L=	1,	4		5	35	59	17*	16	21	96	-62*	5	265	8	16
1	1193	12	3	6	503	6	-5	15	205	15	10	3	234	11	4	01154		12	4	6	66	29	1*	17	183	17	1	6	80	85	-35*
2	654	7	0	7	171	7	7	16	47111		40*	4	71	92	-28*	1	223	4	2	7	127	8	-2	18	67111		25*	7	142	24	-20
3	526	6	16	8	514	7	-2	17	196	17	18	5	256	10	7	2	298	4	3	8	63	45	4*	H,L=	1,	13		8	78	91	-22*
4	215	5	0	9	71	87	24*	H,L=	0,	18		6	51	97	-19*	3	233	4	5	9	66	84	-5*	1	0	98	-91*	9	177	13	6
5	880	7	-1	10	424	7	7	0	93109		5*	7	268	10	19	4	708	15	-6	10	99	54	32*	2	108	16	-20	10	73	87	-9*
6	374	5	3	11	79	98	-54*	1	202	12	4	8	0100		-46*	5	207	5	-1	11	90	91	37*	3	38117		-45*	11	154	16	19
7	689	7	-5	12	469	8	6	2	88	62	-30*	9	209	14	-6	6	608	7	-9	12	77	96	60*	4	78	53	-24*	12	81	97	4*
8	343	5	5	13	73	89	-14*	3	266	9	8	H,L=	0,	28		7	368	5	-8	13	91	99	13*	5	0	85	-32*	13	149	17	-7
9	532	6	0	14	363	9	0	4	159	12	13	0	57130		3*	8	594	7	-10	14	77	96	54*	H,L=	1,	14		14	64	94	-4*
10	147	9	-8	15	83	93	-8*	5	330	7	-8	1	190	16	8	9	188	7	-1	15	80	39	45*	0	141	10	2	H,L=	1,	22	
11	307	8	-5	16	275	11	1	6	211	10	-4	2	61108		-4*	10	408	26	-12	16	0103		-6*	1	54	66	-45*	0	95115		11*
12	68	94	-3*	17	43	94	19*	7	282	8	6	3	217	12	3	11	123	30	-3	17	52103		46*	2	99	22	0	1	506	8	13
13	249	11	-17	18	136	45	-45*	8	145	22	-12	4	88	92	14*	12	301	8	4	18	0109		-25*	3	83	29	-27*	2	72	86	26*
14	105	49	48*	19	64113		48*	9	240	9	-8	5	233	12	12	13	0	99	-54*	19	75112		65*	4	151	12	12	3	446	8	2
15	160	17	-11	H,L=	0,	12		10	0	93	-89*	H,L=	1,	0		14	261	11	-7	H,L=	1,	9		5	85	50	3*	4	51	89	21*
16	70	89	9*	0	761	8	-3	11	163	14	13	3	921	10	23	15	104	68	28*	1	0124		-38*	6	111	34	-5*	5	382	7	-7
17	141	35	21	1	291	5	1	12	51	94	-4*	5	854	9	14	16	144	32	11	2	25	61	-18*	7	118	36	-31*	6	64	85	5*
18	85	92	44*	2	666	7	-8	13	96	51	-17*	7	749	8	-3	17	111	70	59*	3	105	13	-20	8	193	12	-2	7	317	8	9
19	64110		-53*	3	375	5	0	14	59	89	11*	9	682	8	2	18	85	98	-52*	4	65	70	-17*	9	47	86	-22*	8	63	87	-4*
20	47100		7*	4	596	7	-1	15	60	93	6*	11	529	7	-5	19	97108		46*	5	54	74	-5*	10	130	35	-7	9	288	10	3
H,L=	0,	6		5	52	70	-69*	16	69	83	20*	13	513	8	-14	20	68114		-43*	6	122	13	11	11	103	74	48*	10	63	99	33*
0	183	6	9	6	406	5	-1	H,L=	0,	20		15	386	9	7	H,L=	1,	5		7	0	80	-15*	12	53	99	-27*	11	278	10	24
1	625	7	0	7	181	11	0	0	369	11	11	17	257	12	-5	1	187	6	4	8	59	81	35*	13	74	99	61*	12	57	92	39*
2	178	6	2	8	361	7	14	1	180	14	19	19	196	16	4	2	54	64	29*	H,L=	1,	10		14	84	91	56*	13	251	11	15
3	943	10	-7	9	102	41	33*	2	326	9	2	H,L=	1,	1		3	211	6	8	0	350	5	-5	15	89102		58*	H,L=	1,	24	
4	167	5	0	10	329	9	-22	3	104	47	27*	1	0	43	-8*	4	0	70	-7*	1	885	10	-4	16	96	75	72*	0	104	118	15*
5	997	11	-9	11	123	38	-19*	4	301	8	-9	2	114	5	-3	5	20	68	-21*	2	165	6	1	17	0112		-8*	1	91	99	3*
6	250	5	3	12	314	9	4	5	98	36	22*	3	341	4	2	6	55	68	46*	3	744	8	-9	H,L=	1,	16		2	38103		-40*
7	828	9	-13	13	48100		-10*	6	215	10	12	4	78	28	74*	7	71	45	-6*	4	209	5	0	0	589	9	-8	3	66	86	-15*
8	133	8	0	14	242	12	-2	7	65	91	-29*	5	33	69	5*	8	0	78	-42*	5	576	7	-5	1	71	76	7*	4	0	92	-44*
9	738	8	0	15	60104		-20*	8	145	15	-11	6	105	12	5	9	79	47	-10*	6	91	21	-11	2	556	7	-6	5	46	89	10*
10	52	76	-38*	16	214	15	0	9	89	46	-3*	7	59	64	-4*	H,L=	1,	6		7	505	6	-3	3	53	82	36*	6	68	80	38*
11	503	7	-2	17	44111		-17*	10	135	28	-7	8	43	73	5*	0	715	8	4	8	134	14	14	4	647	8	-12	7	15	96	-3*
12	108	56	20*	18	179	18	22	11	89	89	-1*	9	28	72	27*	1	105	14	11	9	489	7	-2	5	0	95	-57*	8	69	80	48*
13	446	8	-4	H,L=	0,	14		12	128	32	-19	10	0	83	-20*	2	733	8	13	10	71	44	-30*	6	611	8	-5	9	79	97	36*

K	FOB	SG	DEL
10	31100		9*
11	0101		-39*
H,L=	1,	26	
0	266	16	13
1	83106		12*
2	234	13	1
3	84	66	-13*
4	252	10	8
5	71	92	-14*
6	254	10	10
7	76	99	22*
8	236	12	8
9	76100		29*
H,L=	1,	28	
0	119136		-75*
1	68	75	5*
2	156	39	-54
3	70	95	-3*
4	232	12	6
5	81	98	2*
H,L=	2,	0	
0	1248	33	32
2	559	6	24
4	1174	12	29
6	826	9	10
8	862	10	4
10	608	7	-12
12	535	7	7
14	446	8	0
16	312	10	3
18	248	13	4
20	144	43	-26*
H,L=	2,	1	
1	188	4	5
2	155	6	-4
3	108	11	25
4	60	60	19*
5	35	59	-1*
6	69	55	23*
7	56	70	26*
8	49	66	30*
9	137	12	4
10	43	84	25*
H,L=	2,	2	
0	264	4	-5
1	311	4	6
2	397	5	5
3	301	4	2
4	429	5	12
5	241	4	-3
6	319	4	-7
7	270	4	-1
8	235	5	-4
9	125	13	-9
10	186	10	5
11	123	17	-5
12	165	15	-22
13	0100		-74*
14	117	43	-34*
15	82	87	17*
16	124	23	-23
17	0104		-17*
18	88106		-2*
19	80	97	47*
20	0114		-51*
H,L=	2,	3	
1	125	8	-8
2	338	5	5
3	372	5	8
4	477	6	2
5	88	14	0
6	109	11	-3
7	89	26	4
8	0	76	-40*
9	0	81	-4*

K	FOB	SG	DEL
H,L=	2,	4	
0	69	27	10*
1	532	6	8
2	151	6	1
3	497	6	7
4	225	4	-8
5	627	7	-14
6	303	4	-2
H,L=	2,	9	
1	28	69	-18*
2	0	70	-26*
3	59	65	-46*
4	104	25	-34
H,L=	2,	16	
5	148	10	-5
6	113	14	9
7	44	80	22*
H,L=	2,	10	
3	599	8	-5
4	0	93	-47*
5	605	8	-7
6	18	87	-25*
7	523	8	-11
8	79	99	42*
9	476	8	2
10	23100		19*
11	363	9	1
12	23102		18*
13	298	11	-4
14	79108		71*
15	233	13	3
16	77112		72*
H,L=	2,	18	
0	145	23	-5
1	213	11	-18
2	103	46	-52*
3	220	11	-4
4	133	30	-6
5	252	9	9
6	173	12	13
7	164	20	-40
8	132	23	8
9	189	11	1
10	39	87	-50*
11	155	22	0
12	82	89	12*
13	159	15	15
14	90	95	37*
15	114	36	19*
H,L=	2,	20	
0	229	16	-1
1	146	30	-2
2	236	11	6
3	66	91	-50*
4	234	10	-9
5	55	90	-72*
6	200	11	-8
7	77	82	-40*
8	190	11	13
9	75	93	-10*
10	154	23	-2
11	43	96	-24*
12	154	25	8
13	91	80	37*
14	78103		-56*
H,L=	2,	22	
0	481	10	8
1	58	99	-43*
2	421	8	1
3	52100		3*
4	410	7	4
5	51	84	14*
6	344	8	0
7	50	94	4*
8	321	8	9
9	98	42	53*
10	281	10	10
11	14	99	-13*

K	FOB	SG	DEL
12	251	11	7
13	96102		79*
H,L=	2,	24	
0	111115		40*
1	81102		-5*
2	98100		20*
3	35	92	-34*
4	85	52	18*
5	85	92	44*
6	41	94	1*
H,L=	3,	4	
0	741	8	13
1	416	5	4
2	622	7	5
3	308	4	6
4	693	8	-6
5	325	4	-6
6	527	6	-6
7	162	6	-2
8	489	6	-4
9	188	7	-1
10	334	7	-3
11	103	58	-33*
12	288	9	-2
13	109	26	-19
14	251	11	1
H,L=	3,	10	
0	0	60	-30*
1	754	8	-4
2	166	6	6
3	820	9	-10
4	178	6	-8
5	775	8	-17
6	99	21	-13
7	609	21	-8
8	102	37	-9*
9	481	24	-14
10	71	48	-51*
11	387	8	-9
12	115	40	18*
13	308	9	16
14	0101		-46*
15	223	13	-7
16	78	95	28*
17	148	39	-56
18	66108		41*
H,L=	3,	11	
1	77	84	-17*
2	79	55	29*
3	0	79	-8*
4	120	14	1
5	64	84	30*
H,L=	3,	12	
0	185	7	-9
1	528	6	-9
2	192	6	-5
3	545	6	-5
4	192	7	-8
5	498	7	0
6	99	40	-12*
7	485	7	-2
8	29	95	-92*
9	406	8	-10
10	125	37	-22
11	318	9	-6
12	98	58	-20*
13	248	11	-8
14	37	90	-30*
15	191	16	0
16	0	96	-54*
17	164	18	21
18	68	99	24*
H,L=	3,	22	
0	93	48	2*
1	413	8	-5
2	0101		-79*
3	371	9	-5

K	FOB	SG	DEL
1	297	5	18
2	290	19	18
3	365	5	7
4	208	6	12
5	142	9	4
6	60	64	-38*
7	0	72	-14*
8	41	76	12*
9	53	81	41*
H,L=	3,	4	
0	741	8	13
1	416	5	4
2	622	7	5
3	308	4	6
4	693	8	-6
5	325	4	-6
6	527	6	-6
7	162	6	-2
8	489	6	-4
9	188	7	-1
10	334	7	-3
11	103	58	-33*
12	288	9	-2
13	109	26	-19
14	251	11	1
15	0100		-89*
16	194	14	1
17	0	94	-82*
18	160	19	13
19	0112		-51*
H,L=	3,	5	
1	37	70	0*
2	51	69	8*
3	58	70	-13*
4	19	69	16*
H,L=	3,	6	
01070		11	4
1	260	4	-2
2	1012	11	4
3	38	4	0
4	27	11	-23
5	219	5	-1
6	715	8	4
7	223	5	-3
8	568	7	-3
H,L=	3,	7	
1	63	68	-19*
2	0	70	-83*
3	72	33	22*
4	61	69	41*
5	97	25	-32
6	58	75	29*
7	69	27	8*
8	59	81	17*
H,L=	3,	8	
0	249	5	0
1	55	47	-6*
2	49	81	-3*
3	60	84	12*
4	64	75	32*

K	FOB	SG	DEL	K	FOB	SG	DEL	K	FOB	SG	DEL	K	FOB	SG	DEL	K	FOB	SG	DEL	K	FOB	SG	DEL	K	FOB	SG	DEL
5	359	8	-4	18	102	66	38*	4	64	40	21*	8	48	87	21*	0	82122		68*	1	198	5	3	1	75	44	14*	10	329	9	4
6	76	92	54*	19	70112		29*	5	83	23	-17	9	38100		-26*	1	104	73	71*	2	689	7	12	2	67	78	38*	11	59	92	31*
7	347	8	2	H,L= 4, 3				6	48	66	13*	10	102	69	6*	2	36105		0*	3	212	5	-3	3	42	79	28*	12	305	11	10
8	0	96	-24*	1	61	70	-19*	7	42	66	-2*	11	121	21	-1	3	65	93	16*	4	481	6	7	4	51	81	39*	13	110	75	79*
9	311	9	12	2	79	31	-7*	8	19	87	6*	12	79	91	-3*	4	64	95	15*	5	218	5	-5	5	57	83	53*	14	240	14	-8
10	0	99	-33*	3	199	6	6	9	0	91	-18*	13	102	53	27*	5	57	97	0*	6	302	5	-2	H,L= 5, 10				15	58110		39*
11	269	10	16	4	0	70	-61*	10	0	94	-37*	14	93104		41*	6	52	98	-20*	7	95	22	-6	0	72	43	-24*	H,L= 5, 18			
12	71	92	42*	5	79	30	0*	11	81	36	29*	15	46	97	-34*	7	61	95	7*	8	308	7	-3	1	508	6	-4	0	341	12	-4
H,L= 3, 24				6	66	72	-17*	12	71100		52*	16	62111		18*	8	35	92	-31*	9	172	12	8	2	166	7	-4	1	153	17	18
0	92	54	34*	7	41	75	7*	13	91	63	23*	17	47113		-15*	9	64101		20*	10	347	8	6	3	603	7	7	2	269	10	-18
1	76101		37*	8	80	42	23*	14	50100		19*	H,L= 4, 16				10	69102		17*	11	100	26	-32	4	185	7	5	3	137	19	12
2	63	71	8*	H,L= 4, 4				15	0104		-60*	0	0110		-37*	H,L= 4, 26				12	339	9	-6	5	564	7	-10	4	165	19	-8
3	84	93	28*	0	306	5	2	16	60105		38*	1	688	9	-4	0	102	50	31*	13	97101		-34*	6	91	48	-34*	5	153	13	4
4	67	95	29*	1	661	7	16	17	95106		77*	2	41	94	6*	1	270	12	12	14	242	11	14	7	551	7	-11	6	160	13	-5
5	59	89	-1*	2	306	4	1	18	61110		53*	3	600	8	-8	2	93107		24*	15	73101		-11*	8	83	84	-35*	7	78	84	-10*
6	31	96	-13*	3	679	7	5	H,L= 4, 9				4	53	96	38*	3	224	12	-2	16	196	15	11	9	497	8	-1	8	115	19	-22
7	0	92	-57*	4	217	5	4	1	70	73	6*	5	480	8	0	4	77	97	15*	17	0110		-64*	10	85	37	-21*	9	42	92	-46*
8	43	94	2*	5	520	6	-4	2	65	67	-17*	6	65	87	31*	5	208	13	10	18	115	53	-2*	11	414	8	7	10	80	89	-30*
9	71	91	14*	6	135	7	-1	3	180	9	-2	7	428	8	-1	6	78	97	24*	19	97109		64*	12	39	88	-20*	11	92	95	37*
10	73	98	30*	7	344	5	-7	4	69	79	-20*	8	0100		-20*	7	168	24	-4	H,L= 5, 5				13	253	11	1	12	107	51	-17*
H,L= 3, 26				8	119	13	0	5	94	18	3	9	372	8	8	H,L= 4, 28				1	91	26	-11	14	70101		50*	13	60	91	-13*
0	278	17	-1	9	353	7	0	6	38	81	25*	10	45100		40*	0	115132		50*	2	44	73	2*	15	210	14	18	14	100	48	-18*
1	58107		4*	10	151	14	12	H,L= 4, 10				11	323	10	-12	1	243	13	13	3	0	73	-11*	16	0109		-30*	H,L= 5, 20			
2	258	12	11	11	331	8	1	0	529	6	1	12	54104		32*	2	119	51	51*	4	29	66	-2*	17	116	86	-49*	0	0119		-96*
3	110	56	43*	12	92	63	-37*	1	85	26	-30*	13	281	12	-7	H,L= 5, 0				5	0	77	-11*	H,L= 5, 11				1	172	15	1
4	208	12	-12	13	307	9	4	2	527	6	-3	14	66107		44*	1	673	17	18	6	57	78	53*	1	52	74	43*	2	79	98	-13*
5	71	98	5*	14	29100		-60*	3	206	6	5	15	249	13	9	3	827	9	10	7	78	50	-4*	2	47	72	20*	3	203	13	1
6	204	13	7	15	225	12	7	4	669	8	-11	16	74110		55*	5	791	18	-19	H,L= 5, 6				H,L= 5, 12				4	136	23	16
7	99101		41*	16	77102		-2*	5	130	13	-25	H,L= 4, 18				7	830	17	-1	0	869	10	-5	0	59	70	-46*	5	219	10	-2
8	154	28	-26	17	118	54	-46*	6	548	19	-14	0	132	30	-48	9	700	9	8	1	137	7	-11	1	407	6	-3	6	88	71	-31*
H,L= 3, 28				18	68	97	11*	7	122	17	-18	1	304	9	-11	11	581	8	-7	2	923	10	-7	2	125	15	0	7	234	10	-3
0	226	20	-8	19	95	40	-17*	8	536	7	-7	2	168	15	16	13	345	9	-3	3	41	60	-22*	3	442	7	1	8	97	41	-9*
1	0112		-65*	H,L= 4, 5				9	73	95	-49*	3	226	12	-8	15	245	12	-7	4	749	8	3	4	214	10	1	9	183	13	-2
2	223	15	-7	1	0	69	-4*	10	430	8	-12	4	123	27	-4	17	208	15	1	5	59	60	8*	5	476	7	1	10	65	91	4*
3	52	92	-16*	2	6	69	-29*	11	103	83	-8*	5	174	19	-19	19	172	19	-2	6	542	6	-2	6	186	12	-1	11	130	19	-4
4	218	13	1	3	51	62	-13*	12	357	9	7	6	114	28	19	H,L= 5, 1				7	79	25	-11*	7	498	8	-5	12	0	93	-43*
H,L= 4, 0				4	78	34	-1*	13	61	96	23*	7	177	12	2	1	50	70	31*	8	461	21	0	8	153	17	-12	13	104	60	24*
0	629	23	23	5	15	72	9*	14	227	13	2	8	52	89	-29*	2	64	71	27*	9	30	82	-50*	9	400	8	0	H,L= 5, 22			
2	661	9	14	6	51	73	18*	15	34104		-4*	9	105	32	-17*	3	43	71	9*	10	445	7	-6	10	92	70	-37*	0	0121		-12*
4	895	10	2	7	57	80	-16*	16	213	14	4	10	76	84	-3*	4	78	34	10*	11	111	57	33*	11	277	10	-14	1	322	10	-4
6	783	19	-16	8	33	80	4*	17	81	97	46*	11	158	14	33	5	80	19	14	12	421	28	5	12	78100		19*	2	89	98	63*
8	801	9	-3	H,L= 4, 6				18	133	46	-28*	12	52	91	-28*	6	0	68	-21*	13	86	33	5*	13	222	12	12	3	343	9	9
10	642	8	4	0	70	31	1*	H,L= 4, 11				13	127	39	-2*	7	65	80	32*	14	318	9	6	14	39105		-15*	4	104	45	47*
12	496	8	5	1	998	11	-5	1	58	78	17*	14	36	93	-37*	8	0	84	-28*	15	67	91	7*	15	162	19	3	5	372	8	10
14	312	9	7	2	103	12	-13	2	0	80	-1*	15	87	96	-24*	H,L= 5, 2				16	278	11	9	16	21107		-12*	6	0	97	-56*
16	269	11	10	3	961	10	8	3	55	80	-10*	H,L= 4, 20				0	77	28	0*	17	0107		-36*	17	108	65	-14*	7	383	8	9
18	212	15	9	4	75	28	-37*	4	52	83	47*	0	192	19	-6	1	191	5	5	18	148	40	-22	H,L= 5, 14				8	95	95	56*
H,L= 4, 1				5	743	8	-3	H,L= 4, 12				1	89101		-37*	2	60	23	-12*	H,L= 5, 7				0	152	20	8	9	289	10	0
1	70	38	15*	6	119	13	-14	0	470	6	-3	2	208	13	-14	3	346	4	1	1	46	74	43*	1	44	89	-38*	10	67	92	35*
2	68	70	11*	7	515	6	-4	1	260	5	4	3	84	90	-34*	4	210	5	-5	2	57	66	28*	2	167	13	-1	11	244	11	23
3	53	69	13*	8	64	80	20*	2	397	5	-5	4	217	10	-8	5	343	5	1	3	64	75	23*	3	105	37	-21*	H,L= 5, 24			
4	59	68	30*	9	460	22	-3	3	230	6	-9	5	100	34	-28*	6	265	5	4	4	52	77	1*	4	109	38	1*	0	0124		-17*
5	295	6	2	10	82	64	10*	4	475	7	-8	6	242	9	6	7	322	5	-4	5	32	79	-6*	5	53	85	-13*	1	82105		64*
6	0	73	-29*	11	458	7	-4	5	182	11	0	7	107	43	-7*	8	194	9	-1	6	17	81	3*	6	91	60	44*	2	0106		-27*
7	25	68	-45*	12	109	60	41*	6	495	7	-3	8	204	11	1	9	249	8	6	H,L= 5, 8				7	0	99	-28*	3	64	96	19*
8	41	78	-9*	13	395	8	14	7	161	14	4	9	95	55	14*	10	100	41	-31*	0	166	7	-1	8	75	86	21*	4	60	81	4*
H,L= 4, 2				14	71	99	-22*	8	502	8	7	10	158	16	6	11	179	13	-6	1	0	64	-51*	9	0101		-59*	5	75	90	7*
0	173	6	2	15	309	10	-5	9	108	69	-48*	11	67	90	16*	12	80	38	42*	2	60	63	10*	10	70100		-15*	6	58	92	-4*
1	151	6	6	16	76102		38*	10	383	8	10	12	97	73	-14*	13	70	89	-16*	3	51	64	-9*	11	62	89	-27*	7	82	89	16*
2	417	5	4	17	265	12	18	11	108	45	-12*	13	0	93	-36*	14	46	98	-4*	4	61	65	46*	12	0104		-108*	8	90	98	43*
3	350	4	7	18	76106		40*	12	252	11	-6	H,L= 4, 22				15	71101		-1*	5	35	63	10*	13	27105		-28*	9	8101		-39*
4	279	4	9	19	123	54	-27*	13	95100		34*	0	353	12	-3	16	79100		61*	6	54	80	47*	14	66108		-11*	H,L= 5, 26			
5	254	4	-2	H,L= 4, 7				14	203	14	-6	1	62101		5*	17	0109		-67*	7	43	76	39*	15	52111		13*	0	277	16	24
6	388	5	-5	1	63	48	51*	15	0107		-48*	2	351	9	-3	18	80	97	35*	8	0	90	-10*	16	0112		-76*	1	115	52	26*
7	213	5	-5	2	43	70	7*	16	146	21	-2	3	77	88	27*	19	89111		26*	9	52	92	48*	H,L= 5, 16				2	242	13	7
8	284	5	1	3	0	73	-58*	17	0110		-42*	4	356	8	-2	H,L= 5, 3				10	58	95	51*	0	583	9	-18	3	81	83	16*
9	114	16	-1	4	115	12	0	H,L= 4, 14				5	78	91	30*	1	52	70	19*	11	14	89	4*	1	0	98	-70*	4	204	13	6
10	204	10	-5	5	0	68	-66*	0	0102		-61*	6	387	8	9	2	0	62	-28*	12	67	97	36*	2	587	8	-9	5	60	93	16*
11	101	60	-13*	6	151	11	15	1	159	12	13	7	0	89	-29*	3	15	72	-17*	13	51	97	19*	3	66	97	40*	6	145	30	-30
12	129	33	-17	7	0	83	-8*	2	94	57	-29*	8	342	9	5	4	35	73	-28*	14	61101		-10*	4	493	8	-8	H,L= 6, 0			
13	51102		-30*	H,L= 4, 8				3	123	31	-29	9	37	91	3*	5	67	75	-14*	15	87	89	36*	5	0100		-5*	0	860	29	33
14	64	88	8*	0	170	6	2	4	80	72	12*	10	266	10	0	6	77	62	19*	16	39	93	-4*	6	423	8	-14	2	901	10	5
15	0103		-53*	1	24	58	3*	5	58	92	-1*	11	84	97	52*	7	0	81	-2*	17	66	94	50*	7	58	98	41*	4	851	10	-1
16	72104		-34*	2	123	8	7	6	51	94	32*	12	239	11	26	H,L= 5, 4				18	0110		-14*	8	368	8	6	6	819	9	7
17	84	43	54*	3	39	61	2*	7	51	97	-28*	H,L= 4, 24				0	775	9	15	H,L= 5, 9				9	42	97	35*	8	648	8	7

K	FOB	SG	DEL	K	FOB	SG	DEL	K	FOB	SG	DEL	K	FOB	SG	DEL	K	FOB	SG	DEL	K	FOB	SG	DEL	K	FOB	SG	DEL
10	530	8	-1	9	437	8	-6	0	116	29	1	H,L=	6,	24		17	0107		-35*	13	193	16	10	9	237	11	15	13	262	12	6
12	444	8	8	10	43	97	-32*	1	190	12	4	0	0130		-19*	H,L=	7,	5		14	98107		28*	H,L=	7,	24		14	43107		14*
14	274	10	1	11	418	8	1	2	115	21	5	1	0	95	-15*	1	76	83	-42*	15	156	20	4	0	101124		74*	15	200	15	-7
16	241	12	18	12	71	99	9*	3	144	29	-23	2	70106		32*	2	0	83	-10*	16	27112		-13*	1	79107		44*	16	79	94	52*
18	164	35	-6	13	308	10	-14	4	104	45	-7*	3	59	67	27*	3	79	49	16*	H,L=	7,	14		2	68107		40*	H,L=	8,	8	
H,L=	6,	1		14	74102		8*	5	0100		-59*	4	74	95	19*	H,L=	7,	6		0	99115		-11*	3	72110		26*	0	0108		-59*
1	87	18	-21	15	269	11	-1	6	60	99	19*	5	59	97	6*	0	663	8	-6	1	107	42	-16*	4	0101		-51*	1	85	59	39*
2	55	75	46*	16	40	94	-11*	7	80	99	36*	6	84	90	23*	1	88	30	-30*	2	73	89	-56*	5	90	91	46*	2	0	91	-28*
3	153	10	7	17	201	15	2	8	0	99	-42*	7	52	98	8*	2	698	8	4	3	0101		-72*	6	73	91	28*	3	101	41	10*
4	55	78	20*	18	65	97	41*	9	33	98	-5*	8	81	92	40*	3	92	51	6*	4	68	99	-32*	7	75100		40*	4	68	93	13*
5	49	81	24*	H,L=	6,	7		10	62	90	-3*	H,L=	6,	26		4	499	7	-5	5	49	97	0*	H,L=	7,	26		5	42	95	-48*
6	0	85	-93*	1	0	79	-35*	11	101	53	8*	0	0138		-82*	5	67	78	-24*	6	99	52	31*	0	199	24	9	6	53	96	40*
H,L=	6,	2		2	104	16	-9	12	22	94	-25*	1	257	13	31	6	481	7	-13	7	0100		-34*	1	73112		19*	7	84	85	38*
0	50	62	-20*	3	59	82	-20*	13	42	98	-36*	2	78	97	9*	7	34	92	-17*	8	110	40	54*	H,L=	8,	0		8	58	97	54*
1	221	5	2	4	103	18	24	14	0112		-36*	3	215	13	9	8	464	7	-5	9	39	99	-6*	0	606	9	-1	9	63	95	52*
2	275	5	4	H,L=	6,	8		15	40112		-34*	4	69	85	26*	9	9	98	-61*	10	84	99	33*	2	625	8	3	10	17	97	5*
3	97	17	12	0	39	71	30*	16	54115		24*	5	188	14	12	10	423	8	-3	11	80	96	58*	4	579	7	0	11	60	96	47*
4	268	5	0	1	126	12	-5	H,L=	6,	16		H,L=	7,	0		11	46101		6*	12	60107		-11*	6	599	8	-10	12	25103		16*
5	134	9	-5	2	34	64	-3*	0	93	45	74*	1	711	8	8	12	327	9	-13	13	67106		36*	8	482	7	4	13	91	66	80*
6	265	5	6	3	53	68	14*	1	552	8	-6	3	746	9	-3	13	43103		-20*	14	55108		-2*	10	363	8	2	14	65107		40*
7	161	11	-17	4	35	71	-30*	2	42	98	36*	5	663	8	0	14	280	11	7	15	82112		60*	12	305	9	9	15	52108		48*
8	246	8	-2	5	36	85	16*	3	504	8	-4	7	598	8	-4	15	95	70	53*	H,L=	7,	16		14	268	12	-8	16	0112		-6*
9	126	18	-33	6	0	88	-9*	4	43100		37*	9	392	8	-3	16	209	15	-14	0	486	10	-25	16	234	14	13	H,L=	8,	10	
10	190	12	-4	7	54	88	35*	5	418	8	-4	11	408	8	-2	17	64108		32*	1	117	22	86	H,L=	8,	2		0	466	9	1
11	94	57	30*	8	68	91	47*	6	28	99	2*	13	305	9	4	H,L=	7,	8		2	501	8	6	0	205	13	-6	1	124	19	-6
12	155	16	9	9	0	86	-12*	7	352	9	-15	15	261	12	18	0	78	95	44*	3	30100		11*	1	124	15	5	2	480	7	-9
13	67	88	27*	10	93	98	85*	8	51	98	32*	17	187	18	-3	1	75	60	-1*	4	402	8	-3	2	213	9	-1	3	82	86	-9*
14	60	87	-6*	11	51	98	29*	9	308	10	-2	H,L=	7,	1		2	74	82	39*	5	90	96	42*	3	101	20	19	4	407	8	-14
15	24102		-5*	12	75	44	66*	10	0104		-9*	1	0	82	-2*	3	0	85	-43*	6	369	9	-3	4	204	10	-6	5	61	97	-19*
16	64103		-5*	13	47100		20*	11	297	11	7	2	72	83	-24*	4	65	76	52*	7	16100		-21*	5	113	33	4*	6	416	8	-10
17	76108		31*	14	32102		-32*	12	67	94	33*	3	69	74	19*	5	0	90	-49*	8	314	10	-8	6	180	12	-1	7	47100		-27*
18	24	97	-24*	15	74106		29*	13	264	12	11	4	158	12	16	6	54	90	32*	9	49	91	33*	7	122	32	-1	8	343	9	-5
H,L=	6,	3		16	33105		11*	14	0109		-15*	H,L=	7,	2		7	80	92	53*	10	280	11	-6	8	161	14	9	9	46	97	-21*
1	65	61	64*	17	80107		1*	15	207	17	-3	0	263	6	4	8	93	86	87*	11	0107		-21*	9	118	21	-6	10	270	10	-16
2	72	53	-13*	H,L=	6,			H,L=	6,	18		1	185	6	6	9	38	98	34*	12	263	12	4	10	134	19	-7	11	108	46	55*
3	59	67	-19*	1	27	81	26*	0	110	37	-33*	2	197	6	-5	10	0	88	-8*	13	34108		4*	11	99	47	31*	12	229	13	-9
4	49	69	40*	2	36	73	16*	1	255	11	-9	3	238	6	4	11	82	85	54*	14	204	17	-5	12	65	88	-64*	13	84105		27*
5	100	30	-18*	H,L=	6,	10		2	107	45	-12*	4	87	31	-11*	12	61	88	51*	H,L=	7,	18		13	84	87	29*	14	190	17	-12
6	33	82	15*	0	513	8	-2	3	191	14	-7	5	193	9	0	13	43103		10*	0	169	22	-13	14	61104		-48*	15	25	76	-19*
H,L=	6,	4		1	103	31	-20*	4	0	91	-118*	6	133	24	-7	14	54	93	47*	1	86	88	-68*	15	64106		26*	H,L=	8,	12	
0	202	6	4	2	592	7	-1	5	164	13	2	7	224	9	-4	15	74105		47*	2	168	15	-23	16	116	70	42*	0	394	10	-12
1	708	8	10	3	169	11	15	6	76	89	-21*	8	103	37	-36*	16	86	94	60*	3	103	50	-1*	17	0110		-39*	1	100	51	-14*
2	266	5	0	4	556	7	-12	7	159	14	-11	9	199	12	-5	17	0110		-3*	4	132	25	-28	H,L=	8,	4		2	438	8	-3
3	567	6	3	5	21	92	-93*	8	43	86	-32*	10	86	97	-41*	H,L=	7,	10		5	70	90	-7*	0	64105		-58*	3	93	59	3*
4	237	5	-5	6	535	7	-11	9	133	25	10	11	163	15	-1	0	178	16	3	6	164	13	4	1	334	7	-6	4	356	8	-6
5	381	5	-5	7	84	86	-28*	10	101	52	35*	12	67	88	-2*	1	466	7	-5	7	53	87	-7*	2	145	13	5	5	92	66	-9*
6	165	8	-12	8	494	8	-9	11	123	31	6	13	110	45	-2*	2	90	51	-35*	8	137	24	-7	3	354	7	2	6	318	9	3
7	330	7	1	9	115	43	11*	12	77	96	19*	14	0102		-54*	3	475	7	-1	9	89	47	23*	4	122	17	-8	7	87	71	-8*
8	76	80	-28*	10	405	8	-2	13	96	70	-8*	15	83103		1*	4	71	84	-43*	10	127	37	3*	5	325	8	-6	8	228	11	-3
9	240	10	-2	11	44102		-34*	H,L=	6,	20		16	18108		-30*	5	435	7	-2	11	80	89	19*	6	131	32	-45	9	61100		-37*
10	132	32	-6	12	278	10	-14	0	209	17	22	17	0110		-56*	6	47	95	-56*	12	97	73	-7*	7	379	8	-8	10	199	14	-22
11	328	9	9	13	79	97	54*	1	71	97	-8*	18	0112		-43*	7	432	8	-7	13	82100		15*	8	100	50	-29*	11	74	91	-5*
12	96	60	-41*	14	152	34	-43	2	198	13	-5	H,L=	7,	3		8	77	89	-26*	H,L=	7,	20		9	266	10	8	12	182	17	-21
13	236	11	4	15	60	94	37*	3	34103		-48*	1	78	46	10*	9	369	8	4	0	0123		-88*	10	43	90	-59*	13	0	96	-65*
14	121	22	1	16	144	22	-32	4	189	12	0	2	0	82	-32*	10	77	44	-5*	1	161	29	-21	11	202	13	-19	14	151	38	-11
15	201	14	13	17	44110		1*	5	92	57	-2*	3	38	81	11*	11	284	10	-14	2	71102		-23*	12	16	98	-57*	15	89111		32*
16	40	96	-21*	H,L=	6,	12		6	218	11	9	4	62	83	-17*	12	65100		30*	3	157	18	-7	13	159	17	-1	H,L=	8,	14	
17	147	21	7	0	343	10	5	7	113	41	19*	H,L=	7,	4		13	225	13	7	4	35	95	-49*	14	52	93	-24*	0	107	37	5*
18	0111		-39*	1	80	88	-16*	8	215	11	17	0	459	6	0	14	106	53	63*	5	127	29	-29	15	163	18	16	1	34	99	-27*
H,L=	6,	5		2	400	7	4	9	37	97	-38*	1	203	6	1	15	197	16	2	6	86	95	5*	16	56	93	13*	2	86	88	27*
1	46	67	-15*	3	168	13	3	10	119	44	-31*	2	502	6	11	16	81109		45*	7	167	15	-5	17	79102		-40*	3	92	66	-17*
2	24	78	-61*	4	420	7	2	11	44	98	-10*	3	203	6	-2	H,L=	7,	12		8	83	90	13*	H,L=	8,	6		4	70	99	-13*
3	38	79	-41*	5	189	13	-17	12	110	37	5*	4	442	6	8	0	188	17	-10	9	164	15	18	0	79102		-41*	5	123	21	-22
4	32	72	-15*	6	463	8	-4	H,L=	6,	22		5	157	12	-2	1	372	8	3	10	68	97	13*	1	504	7	7	6	57	97	-25*
5	28	82	-40*	7	130	20	-24	0	315	14	-3	6	388	7	0	2	171	13	1	11	100	28	-12	2	66	89	-46*	7	89101		-26*
H,L=	6,	6		8	372	9	-4	1	62102		51*	7	0	94	-103*	3	383	8	-9	H,L=	7,	22		3	502	7	2	8	69	88	0*
0	221	6	4	9	149	17	20	2	306	11	-14	8	270	9	-1	4	184	13	17	0	109	41	85*	4	62	80	-3*	9	83	93	27*
1	858	10	-4	10	287	10	-6	3	84103		49*	9	93	53	5*	5	398	8	-1	1	302	11	-2	5	506	7	-4	10	57105		22*
2	162	7	0	11	69	97	-2*	4	312	9	1	10	248	11	-2	6	118	23	-29	2	51106		29*	6	91	93	24*	11	0107		-35*
3	772	8	3	12	202	14	-10	5	59	96	-1*	11	48	99	-47*	7	354	8	-6	3	309	11	11	7	493	8	-8	12	64	96	49*
4	92	22	8	13	75	56	24*	6	343	9	7	12	228	12	-12	8	106	66	-20*	4	70	95	21*	8	0100		-88*	13	54109		20*
5	522	6	6	14	145	41	-22	7	71	98	29*	13	92	64	-11*	9	259	10	-8	5	283	10	3	9	412	8	-7	14	89108		65*
6	139	13	10	15	82106		32*	8	301	9	2	14	183	15	2	10	64	99	-36*	6	105	50	57*	10	0	87	-66*	H,L=	8,	16	
7	458	7	-5	16	146	38	12	9	72	99	40*	15	96104		27*	11	219	13	-8	7	283	10	8	11	338	9	5	0	0115		-23*
8	66	90	-32*	H,L=	6,	14		10	230	12	4	16	174	17	18	12	93	70	39*	8	0100		-36*	12	15	89	-43*	1	390	8	0

K	FOB	SG	DEL	K	FOB	SG	DEL	K	FOB	SG	DEL	K	FOB	SG	DEL	K	FOB	SG	DEL	K	FOB	SG	DEL	K	FOB	SG	DEL
2	85	97	39*	10	93	97	16*	14	74	97	15*	4	85	98	55*	12	102104		91*	4	99100		-13*	12	91105		83*	0	161	22	1
3	374	9	-10	11	121	34	11	15	179	19	8	5	218	12	9	13	43	99	32*	5	77	80	32*	13	63109		61*	1	54	98	-4*
4	56100		8*	12	80	87	15*	H,L= 9, 12				6	29	97	-1*	14	62110		54*	6	32100		-50*	H,L= 11, 10				2	104	52	-25*
5	376	9	7	13	98102		-16*	0	126	30	39	H,L= 10, 0				H,L= 10, 10				H,L= 10, 22				0	88112		5*	3	69	99	-36*
6	60102		23*	14	75	94	28*	1	355	9	-18	0	547	9	3	0	426	11	-5	0	250	20	0	1	356	9	6	4	0101		-93*
7	335	9	-4	15	89	99	-2*	2	85	98	7*	2	553	8	-9	1	103	26	5	1	0111		-29*	2	34	87	-32*	5	79	41	-7*
8	79101		61*	16	71110		27*	3	344	9	-8	4	443	8	0	2	359	9	-12	2	255	14	10	3	277	10	6	6	96	57	13*
9	304	11	9	H,L= 9, 4				4	82	99	-8*	6	362	8	-5	3	94	53	45*	H,L= 11, 0				4	71	99	18*	7	45102		-19*
10	89107		83*	0	236	14	-12	5	270	10	0	8	279	10	1	4	299	9	7	1	471	8	-1	5	236	12	5	8	79103		7*
11	255	13	4	1	131	17	5	6	64	98	-37*	10	260	11	-4	5	87	97	20*	3	425	8	-5	6	83	91	19*	9	93101		54*
12	0110		-21*	2	300	8	0	7	210	12	4	12	270	12	6	6	257	11	-2	5	349	8	-9	7	212	13	26	10	67	94	-3*
13	214	15	9	3	140	16	12	8	78	99	-14*	14	268	12	10	7	40100		-42*	7	300	9	4	8	83	94	23*	11	4	95	-52*
H,L= 8, 18				4	288	9	-15	9	192	14	9	H,L= 10, 2				8	214	13	5	9	281	11	9	9	218	14	20	12	42109		-10*
0	85120		-42*	5	135	31	-20	10	80	91	-6*	0	258	14	-23	9	84	92	3*	11	244	13	-2	10	128	40	79*	H,L= 12, 4			
1	188	13	31	6	370	8	-3	11	195	15	6	1	145	17	-13	10	173	31	-29	13	235	14	0	11	222	13	28	0	92115		25*
2	83	88	-27*	7	150	17	-12	12	33	95	-32*	2	207	12	10	11	35105		-3*	H,L= 11, 2				12	82110		50*	1	196	13	-5
3	120	41	-33*	8	321	9	6	13	193	16	27	3	101	74	-22*	12	182	17	-6	0	110115		43*	H,L= 11, 12				2	68102		-6*
4	41	86	-36*	9	100	76	-7*	14	0113		-63*	4	120	37	-1*	13	85108		39*	1	216	12	-2	0	88121		-15*	3	210	13	8
5	117	30	-17	10	210	12	-1	H,L= 9, 14				5	61	89	23*	H,L= 10, 12				2	95	98	25*	1	255	11	8	4	68	88	-16*
6	55	96	-15*	11	37100		-37*	0	86113		23*	6	117	39	16*	0	251	15	-21	3	149	17	5	2	26102		-76*	5	220	12	20
7	116	35	-28*	12	146	19	-5	1	54	96	3*	7	73	96	24*	1	154	16	28	4	50	97	19*	3	246	12	-6	6	60	93	-23*
8	81	95	12*	13	98103		31*	2	89	56	15*	8	73	95	-4*	2	279	10	-8	5	97	29	-28*	4	55104		-38*	7	161	30	-17
9	96	98	-39*	14	127	44	-9*	3	59	95	14*	9	23	97	-44*	3	91	66	-27*	6	62	96	42*	5	221	13	1	8	70105		-14*
10	70	98	0*	15	21107		-26*	4	115	40	-10*	10	81	99	-21*	4	273	10	1	7	60	87	-16*	6	61105		-7*	9	154	34	-21
11	102	43	-17*	16	120	28	11	5	0100		-96*	11	88	81	3*	5	109	65	-4*	8	72	51	29*	7	168	18	-2	10	81	93	7*
12	95	95	34*	H,L= 9, 6				6	113	47	-19*	12	67106		-28*	6	234	11	18	9	98	56	13*	8	0107		-39*	11	153	19	17
H,L= 8, 20				0	458	9	1	7	82101		-17*	13	0110		-67*	7	93102		6*	10	54	72	-3*	9	178	17	20	12	115	73	56*
0	157	27	-8	1	89	62	-38*	8	52	91	-28*	14	92	96	-8*	8	170	17	-4	11	0104		-74*	10	100107		65*	H,L= 12, 6			
1	0105		-87*	2	454	7	-5	9	60105		-10*	15	0113		-56*	9	88	91	29*	12	86106		23*	11	112114		-38*	0	0119		-35*
2	167	17	10	3	65	85	-55*	10	74	93	38*	H,L= 10, 4				10	189	16	20	13	74	97	-5*	H,L= 11, 14				1	314	9	1
3	78105		-8*	4	426	7	-9	11	62108		53*	0	157	22	18	11	0110		-55*	14	59110		17*	0	39121		9*	2	79	99	17*
4	101	56	-36*	5	82	87	-26*	12	0109		-23*	1	226	11	-4	12	177	18	13	H,L= 11, 4				1	36101		12*	3	316	9	23
5	93	66	13*	6	487	8	-2	13	62109		49*	2	149	17	6	13	84112		27*	0	228	16	-3	2	0	91	-24*	4	83	88	12*
6	130	37	-5	7	71	90	-25*	H,L= 9, 16				3	287	9	1	H,L= 10, 14				1	117	23	7	3	58103		40*	5	296	10	2
7	65	92	-2*	8	412	8	-1	0	304	13	6	4	129	34	-4	0	0119		-52*	2	240	11	-8	4	0104		-61*	6	84101		24*
8	153	23	18	9	39	89	-41*	1	67	98	58*	5	295	9	-5	1	68	89	22*	3	117	38	-3*	5	0107		-39*	7	260	11	9
9	97	61	46*	10	332	9	-9	2	330	9	10	6	138	18	10	2	41	97	17*	4	224	11	3	6	20	95	-57*	8	58	92	8*
10	109	57	-6*	11	45	97	-5*	3	65	99	30*	7	294	9	-7	3	0100		-51*	5	76	99	-49*	7	74	96	22*	9	249	12	12
H,L= 8, 22				12	236	12	-5	4	335	9	-4	8	93	95	19*	4	0	92	-30*	6	236	11	2	8	0110		-61*	10	34	96	-21*
0	281	17	-7	13	0109		-30*	5	25103		-12*	9	209	13	-27	5	71103		-17*	7	82	88	-9*	9	76	97	26*	11	194	16	15
1	80109		52*	14	199	15	10	6	337	10	-1	10	78	87	24*	6	61102		-7*	8	222	12	0	10	0111		-53*	12	0111		-46*
2	298	11	10	15	81108		65*	7	0106		-12*	11	136	37	-30	7	21105		-55*	9	39102		-27*	H,L= 11, 16				H,L= 12, 8			
3	0108		-29*	16	126	47	-16*	8	325	10	21	12	0104		-57*	8	0108		-68*	10	197	14	11	0	264	16	20	0	51121		32*
4	255	11	-6	H,L= 9, 8				9	67107		64*	13	133	22	-4	9	70106		11*	11	50104		-7*	1	83105		56*	1	91	98	84*
5	51	98	14*	0	98108		93*	10	251	13	-4	14	81106		37*	10	83106		53*	12	125	43	-3*	2	258	12	5	2	56	99	45*
6	246	11	6	1	0	96	-4*	11	69112		66*	15	115	57	15*	11	0112		-41*	13	43109		-9*	3	50104		28*	3	0103		-19*
7	93	97	60*	2	15	86	-39*	12	165	37	-33	H,L= 10, 6				12	0113		-10*	14	106109		7*	4	274	12	4	4	91100		83*
8	221	12	11	3	77	83	70*	H,L= 9, 18				0	81114		41*	H,L= 10, 16				H,L= 11, 6				5	41110		37*	5	22102		-10*
H,L= 8, 24				4	75	96	3*	0	86120		-9*	1	416	8	-6	0	80121		63*	0	322	13	-30	6	261	13	8	6	80102		52*
0	0	89	-41*	5	72	98	25*	1	64	94	-27*	2	80	87	8*	1	288	10	7	1	0	99	-32*	7	74	96	67*	7	0106		-26*
1	51109		14*	6	54	98	7*	2	138	36	14	3	353	8	3	2	104	48	94*	2	322	9	3	8	236	14	12	8	46	92	17*
2	52108		4*	7	76	96	63*	3	107	28	25	4	42100		-34*	3	293	11	-4	3	0	98	-44*	9	63110		57*	9	36	95	25*
3	95	37	57*	8	10	96	-22*	4	143	16	5	5	76	8	-8	4	0107		-30*	4	310	9	3	H,L= 11, 18				10	0107		-12*
4	29101		-17*	9	76	94	45*	5	76	94	7*	6	0	99	-54*	5	296	11	-7	5	41	98	18*	0	67127		-43*	11	79108		77*
5	29103		-16*	10	0101		-21*	6	129	38	-11	7	384	8	3	6	0110		-19*	6	330	9	8	1	83	96	41*	H,L= 12, 10			
H,L= 9, 0				11	94	99	80*	7	44	97	-34*	8	0100		-45*	7	285	12	3	7	0102		-40*	2	92110		-28*	0	271	16	-20
1	604	8	-3	12	40	94	36*	8	130	34	-3	9	356	9	8	8	0106		-4*	8	294	10	-2	3	86108		21*	1	80101		18*
3	588	8	7	13	0107		-5*	9	68100		2*	10	90	77	51*	9	257	13	4	9	78103		37*	4	110	39	-9*	2	275	11	7
5	512	7	-1	14	0107		-19*	10	133	40	12*	11	272	11	17	10	39107		32*	10	260	12	-2	5	76	98	7*	3	32106		-12*
7	480	8	-2	15	88	94	80*	H,L= 9, 20				12	94105		55*	H,L= 10, 18				11	89105		27*	6	146	27	35	4	259	12	7
9	336	9	-1	H,L= 9, 10				0	25126		-46*	13	195	15	6	0	83	86	6*	12	198	15	15	7	86	62	10*	5	59	93	10*
11	286	10	6	0	112118		-13*	1	182	16	4	14	88109		71*	1	87	95	-1*	13	0113		-35*	H,L= 11, 20				6	233	13	15
13	286	11	1	1	488	8	-7	2	27108		-50*	H,L= 10, 8				2	94	81	8*	H,L= 11, 8				0	101127		39*	7	124	42	74*
15	246	13	2	2	68100		-6*	3	160	19	19	0	115115		90*	3	93	95	-36*	0	103114		39*	1	126	49	-19*	8	215	14	26
H,L= 9, 2				3	423	8	-5	4	86	96	20*	1	63	99	1*	4	94	46	26*	1	0	98	-42*	2	46111		-18*	9	35107		-15*
0	138	22	16	4	49	89	-4*	5	81	98	-27*	2	0	99	-13*	5	94	79	-42*	2	33	96	-4*	3	132	46	9*	10	188	17	5
1	244	9	2	5	396	8	2	6	50	91	-5*	3	67	96	55*	6	74	90	4*	3	0	99	-30*	H,L= 12, 0				H,L= 12, 12			
2	138	16	-7	6	56	98	-10*	7	126	29	24	4	89	70	31*	7	115	36	-13*	4	66	68	34*	0	329	12	0	0	215	20	-5
3	165	14	-6	7	327	9	-7	8	71	94	28*	5	64	98	47*	8	5	93	-63*	5	76	98	2*	2	362	8	8	1	54107		-16*
4	106	22	2	8	45	98	-27*	9	74	97	-34*	6	0	99	-67*	9	115	38	-1*	6	77	89	19*	4	331	9	-1	2	205	14	3
5	144	16	5	9	244	12	-14	H,L= 9, 22				7	57	97	11*	H,L= 10, 20				7	0	99	-47*	6	307	10	0	3	0	94	-69*
6	76	86	-28*	10	60	89	-12*	0	86130		45*	8	77	85	54*	0	117132		-64*	8	30102		-35*	8	259	12	-2	4	172	18	-16
7	91	62	-1*	11	220	13	-1	1	279	12	6	9	56	99	5*	1	99107		19*	9	87	91	83*	10	266	11	17	5	114	69	47*
8	66	98	-34*	12	82104		36*	2	55111		19*	10	0103		-4*	2	111	66	-42*	10	0111		-40*	12	215	15	18	6	151	35	-10
9	79	95	-23*	13	98113		-97*	3	260	13	5	11	102	55	79*	3	117	48	48*	11	66106		62*	H,L= 12, 2				7	108	57	46*

K	FOB	SG	DEL	K	FOB	SG	DEL	K	FOB	SG	DEL	K	FOB	SG	DEL	K	FOB	SG	DEL	K	FOB	SG	DEL
8	137	24	-8	5	80104		70*	0	184	23	27												
9	58109		10*	6	54105		50*	1	0112		-40*												
H,L= 12, 14				7	0108		-20*	2	148	22	-15												
0	0130		-14*	8	69107		61*	3	70110		21*												
1	0 92		-41*	9	83107		71*	4	185	18	19												
2	0108		-21*	H,L= 13, 10				5	56111		1*												
3	55107		6*	0	45	87	0*	H,L= 14, 12															
4	0107		-36*	1	173	31	-26	0	151	31	19												
5	90106		17*	2	119	63	73*	1	45	99	-27*												
6	107	97	55*	3	210	15	-1	2	149	22	20												
7	67	95	8*	4	0108		-58*	H,L= 15, 0															
8	53111		7*	5	226	13	5	1	164	36	-2												
H,L= 12, 16				6	82	96	21*	3	209	16	-7												
0	116124		92*	7	176	18	-7	5	211	16	4												
1	196	17	-14	8	43	96	3*	H,L= 15, 2															
2	66	98	42*	H,L= 13, 12				0	0129		-14*												
3	226	14	6	0	102125		28*	1	70109		24*												
4	111	79	103*	1	164	18	5	2	47107		24*												
5	249	13	21	2	118	46	55*	3	124	62	71*												
6	0113		-8*	3	138	23	-14	4	42	94	-7*												
H,L= 12, 18				4	79	96	22*	5	70109		-1*												
0	118125		105*	5	176	17	12	H,L= 15, 4															
1	41113		-53*	6	39111		-17*	0	101132		-31*												
2	0112		-37*	7	130	51	-23*	1	68109		16*												
3	100	36	4*	H,L= 13, 14				2	133	45	-21*												
H,L= 13, 0				0	0131		-56*	3	109	55	54*												
1	239	12	-5	1	47	94	6*	4	105	35	-22*												
3	259	12	-4	2	0	97	-47*	H,L= 15, 6															
5	260	12	6	3	70109		30*	0	201	23	11												
7	230	14	8	4	24100		-20*	1	64109		29*												
9	237	13	11	5	0111		-36*	2	192	17	9												
11	161	40	-33	H,L= 14, 0				3	0115		-32*												
H,L= 13, 2				0	131133		-62*																
0	102122		19*	2	226	14	-1																
1	54102		-39*	4	256	12	15																
2	85103		-20*	6	242	13	23																
3	70102		-5*	8	195	17	5																
4	93	74	-14*	H,L= 14, 2																			
5	93	34	8*	0	16	87	-40*																
6	42105		-18*	1	0105		-46*																
7	52107		-33*	2	15	94	-51*																
8	0108		-35*	3	15109		-33*																
9	53111		-28*	4	66109		-14*																
10	35110		-1*	5	58108		26*																
11	87110		33*	6	72	98	-27*																
H,L= 13, 4				7	0112		-26*																
0	146	28	4	8	102107		19*																
1	35102		-25*	H,L= 14, 4																			
2	178	16	7	0	0127		-62*																
3	73104		21*	1	132	42	-18*																
4	187	16	4	2	80105		21*																
5	0108		-41*	3	172	18	5																
6	98	82	-59*	4	94105		43*																
7	72103		24*	5	93113		-43*																
8	115	55	-15*	6	59108		24*																
9	94	97	25*	7	68110		-24*																
10	148	21	14	8	0113		-45*																
H,L= 13, 6				H,L= 14, 6																			
0	270	16	-8	0	34127		4*																
1	0106		-31*	1	227	14	2																
2	280	11	8	2	72107		38*																
3	74107		10*	3	219	14	9																
4	272	11	12	4	73	96	47*																
5	63106		8*	5	184	17	-4																
6	221	14	-4	6	0110		-16*																
7	77107		36*	7	188	16	36																
8	195	15	9	H,L= 14, 8																			
9	0109		-32*	0	20127		-18*																
10	144	24	-23	1	0108		-36*																
H,L= 13, 8				2	69	96	59*																
0	0123		-48*	3	0108		-14*																
1	91103		75*	4	31109		23*																
2	41105		16*	5	51109		37*																
3	85	91	75*	6	0110		-4*																
4	80105		72*	H,L= 14, 10																			

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