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JAPIA LCI Calculation Guidelines Supplement 2

(Consumer Use Phase Environmental Load Calculation Data Sheets)

First Edition

Japan Auto Parts Industries Association

Life-Cycle Assessment Society of Japan

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(Consumer Use Phase Environmental Load Calculation Data Sheets)

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JAPIA Japan Auto Parts Industries Association

Environmental Consciousness Committee, LCA Subcommittee

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1. Automobile use conditions for calculation of environmental load in the consumer use phase

∗ For practical application of the listed conditions, remember to give consideration to the anticipated actual use conditions.

Item		Value	Approaches for calculation
Annual operating time		500 [h]	• Assume that the vehicle under study is used for two (2) hours every day, five (5) days a week,50 weeks in a year (for going to and from work in a local city taking one hour in the daytime and one hour after sunset).
Years of use		10 [years]	• Select the period of time two (2) times longer than five (5) years or typical extended warranty period of automobiles as a representative value.
Lifetime operating time		5,000 [h]	• The product of the annual operating time and the years of use.
Driving pattern		JC08 mode driving	• Adopt this mode to reflect a model of commuting use. • In accordance with Attachment 42 to the Public Notice of Specifying Details of Safety Regulations for Road Transport Vehicles.
Lifetime travel distance		122,158 [km]	• Assume that the vehicle under study repeats the JC08 mode driving throughout the lifetime operating time. • Lifetime operating time ÷ Duration of JC08 mode driving × Travel distance in the JC08 mode driving Suppose the duration of JC08 mode driving = 1,204 [s] and travel distance in the JC08 mode driving = 8.171 [km].
Number of repetitions of JC08 driving pattern throughout the lifetime		14,950 [times]	• Lifetime operating time ÷ Duration of JC08 mode driving Suppose the duration of JC08 mode driving = 1,204 [s].
Fuel consumption	Gasoline engine and diesel engine	17.6 [km/L] (5.68 [L/100 km])	• Select the median value of reference values for the “gasoline-powered passenger cars, diesel-powered passenger cars, and LP gas-powered passenger cars (passenger capacity not more than 10) and small buses (passenger capacity of 11 or more and vehicle total weight not more than 3.5 tons)” set for completion in FY 2020 in the Standards for Judgment of Manufacturing Business Operators of Energy Consuming Equipment with respect to Improvement of Energy Consumption Performance of Passenger Cars (Notification No. 2 of METI and MLIT dated March 1, 2013) as a representative value.
Mass of automobile		1,476 [kg]	• Select the median value for the vehicle weight class “1,421 to 1,530 (kg)” corresponding to the fuel consumption representative value selected above from the reference values as a representative value.
Internal combustion engine energy efficiency	Gasoline engine	Ratio of effective work (Thermal efficiency): 30 [%] Theoretical thermal efficiency: 46 [%]	• Assume that the representative value of the ratio of effective work in the heat balance is 30%. • Formula for calculation of theoretical thermal efficiency of the Otto cycle: $\eta=1-\varepsilon^{1-\kappa}$ where, ε= compression ratio and κ= specific-heat ratio. Letting ε=10 and κ=1.27, suppose η=0.46.
	Diesel engine	Ratio of effective work (Thermal efficiency): 40 [%] Theoretical thermal efficiency: 56 [%]	• Assume that the representative value of the ratio of effective work in the heat balance is 40%. • Formula for calculation of theoretical thermal efficiency of the diesel cycle: $\eta=1-\varepsilon^{1-\kappa}\cdot(\sigma^{\kappa}-1)/\kappa(\sigma-1)$ where, ε= compression ratio, κ= specific-heat ratio, and σ= isobaric expansion ratio (cut-off ratio). Letting ε=16, κ=1.32, and σ=1.5, suppose η=0.56.
Workload of linear acceleration per 1 kg in the JC08 mode driving		1,442 [J]	• See Annex 1.

<table>
<tr><td rowspan="4">Conditions for calculation of angular velocity and engine rpm. in the JC08 mode driving</td><td>Gearbox (Transmission)</td><td><table><tr><td>Gear shift position</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr><tr><td>Gear ratio</td><td>3.6</td><td>2.16</td><td>1.52</td><td>1.2</td><td>1</td><td>0.76</td></tr><tr><td>Final reduction ratio</td><td colspan="6">4.1</td></tr></table></td><td>• Assume as representative values.</td></tr>
<tr><td>Idling engine rpm.</td><td>800 [rpm]</td><td>・Assume as representative values.</td></tr>
<tr><td>Tire diameter</td><td>0.6 [m]</td><td>↑</td></tr>
<tr><td>Average engine rpm.</td><td>1,500 [rpm]</td><td>・See Annex 1.</td></tr>
<tr><td colspan="2">Workload of roll acceleration per 1 kg-m^2 in the JC08 mode driving</td><td>16,021 [J]</td><td>↑</td></tr>
</table>

2. Coefficients for environmental load calculation based on the PE allocation

2.1 Allocation according to mass

Environmental load intensity per 1 kg of auto part:

Type of automobile	Acceleration (JC08) workload per 1 kg [J]①	Thermodynamic theoretical thermal energy loss in the generation of the energy listed in the left column [J]②=①÷[Ratio of effective work] × (1-[Theoretical thermal efficiency])	Energy generated per unit fuel [MJ/**]③	Fuel (electric power) consumption per 1 kg (JC08) ④=(①+②)÷③	Lifetime fuel (electric power) consumption per 1 kg [**/kg]⑤=④×14,950	Remarks
Gasoline engine vehicle	1,442	2,596	34.6 [MJ/L] (Gasoline)	117×10^{-6} [L/kg]	1.75 [L/kg]	・JAPIA Product Environmental Indicator Guidelines ・Including vehicles equipped with the regenerative function.
Gasoline engine HEV (hybrid electric vehicle)	663	1,193	↑	52.1 x 10^{-6} [L/kg]	0.802 [L/kg]	Assume that 60% of kinetic energy is converted into electric power energy during deceleration and that the electric power energy is converted into kinetic energy at a conversion efficiency of 90%.
Gasoline engine PHEV (Plug-in hybrid electric vehicle)	663 (In the hybrid mode driving)	1,193	↑	52.1×10^{-6} [L/kg]	-	Since the inputs of external energy resources to PHEV are gasoline and commercial electric power, specify the base unit for each. In practice, however, the driving methods vary greatly with vehicle user and type and therefore, the lifetime fuel (electric power) consumption is left unspecified.
	663 (In the EV mode driving)	0	3.6 [MJ/kWh] (Electric power)	184×10^{-6} [kWh/kg]	-	
Diesel engine vehicle	1,442	1,586	38.2 [MJ/L] (Light oil)	79.3×10^{-6} [L/kg]	1.19 [L/kg]	・JAPIA Product Environmental Indicator Guidelines ・Including vehicles equipped with the regenerative function.
Diesel engine HEV (hybrid electric vehicle)	663	729	↑	36.4×10^{-6} [L/kg]	0.545 [L/kg]	Assume that 60% of kinetic energy is converted into electric power energy during deceleration and that the electric power energy is converted into kinetic energy at a conversion efficiency of 90%.

EV (electric vehicle)	↑	0	3.6 [MJ/kWh] (Electric power)	184×10^{-6} [kWh/kg]	2.75 [kWh/kg]	Equipped with the regenerative function.
Fuel cell-powered vehicle	↑	282 (Theoretical thermal efficiency: 83%, PEFC (polymer electrolyte fuel cell) generation efficiency: 40%)	12.8 [MJ/Nm^3] (Hydrogen)	73.8×10^{-6} [Nm^3/kg]	1.10 [Nm^3/kg]	・Equipped with the regenerative function. ・Ota, *Principle of Fuel Cells for Application*, GS Yuasa Technical Report, Vol. 2, No. 1 (2005)

Approaches for calculation:

1) For determination of the emissions of substances of environmental concern in the manufacturing of fuel (electric power) and the emissions of substances of environmental concern in the combustion of gasoline and diesel fuel, multiply their own emission factors and amounts of consumption.

		CO_2 (g)	CH_4 (g)	N_2O (g)	NO_x (g)	SO_x (g)	PM (g)	HC (g)	HCl (g)	BOD (g)	COD (g)	Sources & References
Gasoline 1 (L)	During manufacture	280	-	-	0.389	0.322	0.0	0.0	-	0.0	0.0	JAPIA LCI Calculation Tools (Not open to the public)
	During combustion	2,321	-	-	#	#	#	#	-	-	-	↑
Light oil 1 (L)	During manufacture	93	-	-	0.244	0.141	0.0	0.0	-	0.0	0.0	↑
	During combustion	2,610	-	-	#	#	#	#	-	-	-	↑
Electric power 1 (kWh)	During manufacture	536	-	-	0.198	0.057	0.0	-	-	0.0	0.0	JPIA LCI Calculation Guidelines Supplement 1 (Not open to the public)
Hydrogen 1 (Nm^3)	During manufacture	950 (City gas) 1,080 (LPG) 1,130 (Naphtha)	-	-	Under investigation	Under investigation	Under investigation	Under investigation	-	Under investigation	Under investigation	April 14, 2014 Agency for Natural Resources and Energy, Hydrogen and Fuel Cell Promotion Office

#: Dependent on the exhaust gas treatment performance of individual motor vehicles.

2) Acceleration workload per 1 kg: In the JC08 mode driving (see the diagram shown below), determine the total acceleration workload based on the speed at the start of acceleration (speed increasing) and the speed at the end of acceleration. The formula for calculation is shown below.

$$W_a[J] = \Sigma\{1/2\times1[kg]\times(v_f[m/s]^2 - v_s[m/s]^2)\}$$
$$= 1,442\ [J]$$

where, W_a: acceleration workload per 1 kg in the JC08 mode [J]

v_f: speed at the first end of acceleration after start of acceleration in the JC08 mode [m/s]

v_s: speed at the start of acceleration in the JC08 mode [m/s]
At all times, $v_f > v_s$. The integration range is from the time of start of JC08 mode to the time of end of the mode.

[Where there is no regenerative function incorporated or the regenerative energy is not applied for driving of the vehicle:]

W_{a0}[J]= W_a=1,442 [J]

where, W_{a0}: acceleration workload per 1 kg [J] when compensation by the regenerative energy is left out of consideration in the JC08 mode

[Where the regenerative energy is applied for driving of the vehicle:]

$W_{a1}[J]=\Sigma\{1/2\times 1[kg]\times(v_f[m/s]^2-v_s[m/s]^2)\}-W_{regen}$

$W_{regen}=W_a\times A_{regen}\times A_{motor}$

where, W_{a1}: acceleration workload per 1 kg [J] when compensation by the regenerative energy is taken into consideration in the JC08 mode

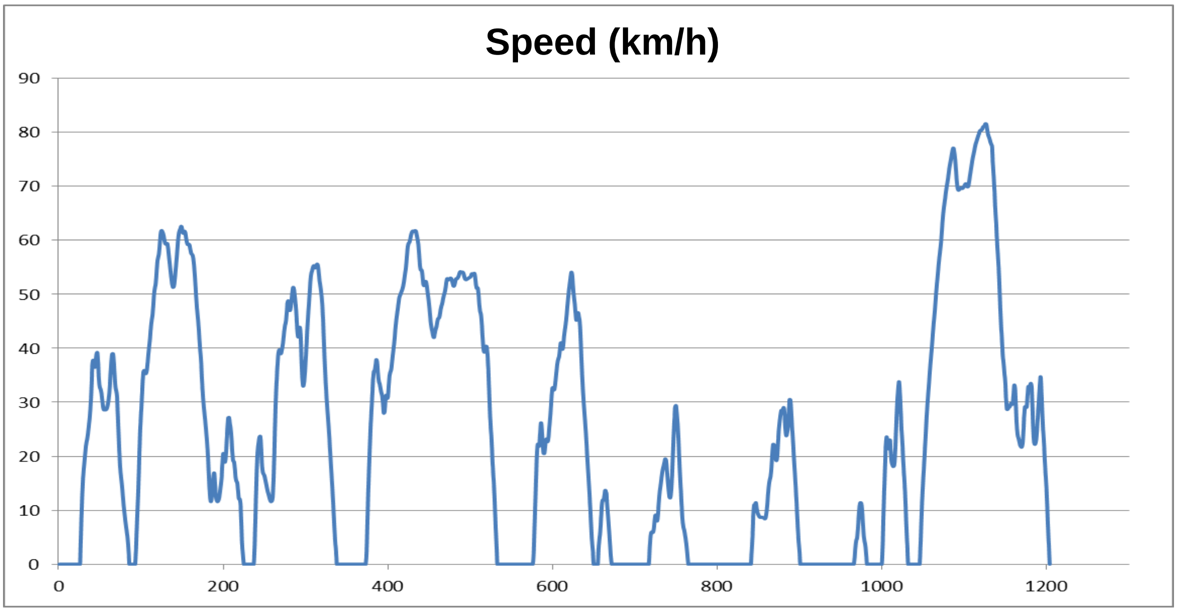
A_{regen}: regeneration efficiency

A_{motor}: electric motor efficiency

Example)

Supposing the regeneration efficiency = 60% and the electric motor efficiency = 90%, W_{a1} is found as

W_{a1}[J]=1,442-1,442×0.6×0.9=663 [J].



3) Energy generated per unit fuel: Refers to the amount of energy generated at the time of combustion for gasoline and light oil, the converted value in Joules for electric power, or the amount of electric power energy extracted from fuel cells for hydrogen. In the case of hydrogen, the formula for calculation is as shown below.

Energy produced in the water generation reaction ΔH: 286 [kJ/mol]

Energy available from the water generation reaction ΔG: 237 [kJ/mol]

Theoretical thermal efficiency: 83%

Volume of hydrogen (gas) of 1 mol (at 0°C under 1 atm): 22.4 [L]
Energy produced per 1 m^3 (standard temperature and pressure) in the water generation reaction: 286÷22.4=12.8 [MJ/ m^3]

4) Fuel (electric power) consumption per 1 kg: Fuel (electric power) consumed per mass of 1 kg in one cycle of JC08 mode driving. The formula for calculation is as shown below.

Fuel (electric power) consumption per 1 kg [**] =1,442 [J]÷Energy generated per unit fuel [MJ/**]

where, [**]: unit for individual fuel (electric power)
1,442 [J]: acceleration workload per 1 kg in the JC08 mode driving

5) Lifetime fuel (electric power) consumption per 1 kg: Fuel (electric power) used per mass of 1 kg throughout the lifetime of motor vehicle. The formula for calculation is as shown below.

Lifetime fuel (electric power) consumption per 1 kg [**] =Fuel (electric power) consumption per 1 kg [**]×The number of repetitions of JC08 in the lifetime use of motor vehicle

where, [**]: unit for individual fuel (electric power)
The number of repetitions of JC08: 14,950 [times]=Lifetime operating time 5,000 [h]×3,600 [s]÷Duration of JC08 mode driving 1,204 [s]

6) In the case of PHEV (plug-in hybrid electric vehicle)
For example, in the driving consisting of hybrid mode (driving by gasoline, including regenerative control) at 60% and EV mode (driving with charging of commercial electric power) at 40%, the number of repetitions of JC08 throughout the lifetime is 14,950 times and therefore, the hybrid and EV modes will be repeated 8,970 and 5,980 times, respectively. As a result, the lifetime fuel (electric power) consumption per 1 kg is as shown below.

Lifetime gasoline fuel consumption per 1 kg [L/kg]: $52.1\times10^{-6}\times8{,}970=0.467$ [L/kg]
Lifetime electric power fuel consumption per 1 kg [kWh/kg]: $184\times10^{-6}\times5{,}980=1.10$ [kWh/kg]

2.2 Allocation according to electric power consumption

Environmental load intensity of auto parts per second per ampere:

Voltage [V]	Workload per second per ampere [J]①	Thermodynamic theoretical thermal energy loss in the generation of the energy listed in the left column [J] ②=①÷[Ratio of effective work]×(1-[Theoretical thermal efficiency])		Energy generated per unit amount of fuel [MJ/**] ③	Fuel (electric power) consumption per second per ampere I_{bu} [**/A/s] ④=(①+②)÷③	Sources & References
12	12	Gasoline	21.6	34.6 [MJ/L]	0.971×10^{-6} [L/A/s]	-
		Light oil	13.2	38.2 [MJ/L]	0.660×10^{-6} [L/A/s]	
		Electric power	0	3.6 [MJ/kWh]	3.33×10^{-6} [kWh/A/s]	
		Hydrogen	5.1 (Theoretical thermal	12.8 [MJ/Nm^3]	1.34×10^{-6} [Nm^3/A/s]	

			efficiency: 83%、PEFC generation efficiency: 40%)			
24	24	Gasoline	43.2	34.6 [MJ/L]	1.94×10^{-6} [L/A/s]	-
		Light oil	26.4	38.2 [MJ/L]	1.32×10^{-6} [L/A/s]	
		Electric power	0	3.6 [MJ/kWh]	6.67×10^{-6} [kWh/A/s]	
		Hydrogen	10.2 (Theoretical thermal efficiency: 83%、PEFC generation efficiency: 40%)	12.8 [MJ/Nm^3]	2.67×10^{-6} [Nm^3/A/s]	
650	650	Gasoline	1,170	34.6 [MJ/L]	52.6×10^{-6} [L/A/s]	-
		Light oil	715	38.2 [MJ/L]	35.7×10^{-6} [L/A/s]	
		Electric power	0	3.6 [MJ/kWh]	181×10^{-6} [kWh/A/s]	
		Hydrogen	276 (Theoretical thermal efficiency: 83%、PEFC generation efficiency: 40%)	12.8 [MJ/Nm^3]	72.3×10^{-6} [Nm^3/A/s]	

Approaches for calculation:

1) For determination of the emissions of substances of environmental concern in the manufacturing of fuel (electric power) and the emissions of substances of environmental concern in the combustion of gasoline and diesel, multiply their own emission factors and amounts of consumption.

		CO_2 (g)	CH_4 (g)	N_2O (g)	NO_x (g)	SO_x (g)	PM (g)	HC (g)	HCl (g)	BOD (g)	COD (g)	Sources・References
Gasoline 1 (L)	During manufacture	280	-	-	0.389	0.322	0.0	0.0	-	0.0	0.0	JAPIA LCI Calculation Tools (Not open to the public)
	During combustion	2,321	-	-	#	#	#	#	-	-	-	↑
Light oil 1 (L)	During manufacture	93	-	-	0.244	0.141	0.0	0.0	-	0.0	0.0	↑
	During combustion	2,610	-	-	#	#	#	#	-	-	-	↑
Electric power 1 (kWh)	During manufacture	536	-	-	0.198	0.057	0.0	-	-	0.0	0.0	JPIA LCI Calculation Guidelines Supplement 1 (Not open to the public)
Hydrogen 1 (Nm^3)	During manufacture	950 (City gas) 1,080 (LPG) 1,130 (Naphtha)	-	-	Under investigation	Under investigation	Under investigation	Under investigation	-	Under investigation	Under investigation	April 14, 2014 Agency for Natural Resources and Energy, Hydrogen and Fuel Cell Promotion Office

#: Dependent on the exhaust gas treatment performance of individual motor vehicles.

2) For determination of environmental load during lifetime, multiply the electric current (electric power) consumed by the auto part under study, the lifetime operating time, and the fuel (electric power) consumption per second per ampere. Where electric current consumption and lifetime operating time cannot be identified, use the following formula and the tables shown below (on pages 10 through 14) for calculation.

Formula for calculation

L_{total}[**] = I_{bu}[A]×T_{life}[s]×L_{bu}[**/A/s]

where, L_{total}: environmental load during lifetime [**]: unit of individual fuel (electric power)
I_{bu}: amperage per second (bu: basic unit) T_{life}: lifetime operating time
L_{bu}: fuel (electric power) consumption per second per ampere

Otherwise,
L_{total}[**] = P_{bu}[W]×T_{life}[s]×(1/U_{bu}[MJ/**])

where, L_{total}: environmental load during lifetime [**]: unit of individual fuel (electric power)
P_{bu}: workload per second (rate at which work is done) T_{life}: lifetime operating time
U_{bu}: the amount of energy generated per unit of fuel

2.3 Allocation according to power (shaft output) used

Environmental load of auto part per second per wattage:

Workload per second per wattage [J]①	Thermodynamic theoretical thermal energy loss during the generation of the energy listed in the left column [J]②=①÷[Ratio of effective work]×(1-[Theoretical thermal efficiency])		Energy generated per unit fuel [MJ/**]③	Fuel (electric power) consumption per second per wattage L_{bu} [**/W/s]④=(①+②)÷③	Sources & References
1	Gasoline	1.8	34.6 [MJ/L]	0.0809×10^{-6} [L/W/s]	-
	Light oil	1.1	38.2 [MJ/L]	0.0550×10^{-6} [L/W/s]	
	Electric power	0	3.6 [MJ/kWh]	0.278×10^{-6} [kWh/W/s]	
	Hydrogen	0.43 (Theoretical thermal efficiency: 83%, PEFC generation efficiency: 40%)	12.8 [MJ/Nm^3]	0.112×10^{-6} [Nm^3/W/s]	

Approaches for calculation:

1) For determination of the emissions of substances of environmental concern in the manufacturing of fuel (electric power) and the emissions of substances of environmental concern in the combustion of gasoline and diesel, multiply their own emission factors and amounts of consumption.

2) For determination of environmental load during lifetime, multiply the power consumed or lost by the auto part under study, the lifetime operating time, and the fuel (electric power) consumption per second per wattage. Where the power consumption and the lifetime operating time cannot be identified, use the following formula and the tables shown below (on pages 17 through 20) for calculation.

Formula for calculation

L_{total} [**] = P_{bu}[W]×T_{life}[s]×L_{bu}[**/W/s]

where, L_{total}: environmental load during lifetime [**]: unit of individual fuel (electric power)
P_{bu}: workload per second (rate at which work is done) T_{life}: lifetime operating time
L_{bu}: fuel (electric power) consumption per second per wattage

		CO_2 (g)	CH_4 (g)	N_2O (g)	NO_x (g)	SO_x (g)	PM (g)	HC (g)	HCl (g)	BOD (g)	COD (g)	Sources・& References
Gasoline 1 (L)	During manufacture	280	-	-	0.389	0.322	0.0	0.0	-	0.0	0.0	JAPIA LCI Calculation Tools (Not open to the public)
	During combustion	2,321	-	-	#	#	#	#	-	-	-	↑
Light oil 1 (L)	During manufacture	93	-	-	0.244	0.141	0.0	0.0	-	0.0	0.0	↑
	During combustion	2,610	-	-	#	#	#	#	-	-	-	↑
Electric power 1 (kWh)	During manufacture	536	-	-	0.198	0.057	0.0	-	-	0.0	0.0	JPIA LCI Calculation Guidelines Supplement 1 (Not open to the public)
Hydrogen 1 (Nm^3)	During manufacture	950 (City gas) 1,080 (LPG) 1,130 (Naphtha)	-	-	Under investigation	Under investigation	Under investigation	Under investigation	-	Under investigation	Under investigation	April 14, 2014 Agency for Natural Resources and Energy, Hydrogen and Fuel Cell Promotion Office

#: Dependent on the exhaust gas treatment performance of individual motor vehicles.

3) For determination of the power consumed (or lost) by the auto part under study, which has the capability of transmitting power, calculate as shown below, using the input or output of power (workload) to/from the auto part under study and the rate of consumption (rate of loss) of the auto part.

・When the input power is used:

Formula for calculation

$$L_{total}[**] = \underbrace{W_{eng}[J] \times R_{f1}[\%]/100 \times \cdots \times R_{fn}[\%]/100}_{\text{Lifetime input workload to the auto part under study}} \times R_{loss}[\%]/100 \times L_{bu}[**/W/s]$$

where, L_{total}: environmental load during lifetime [**]: unit of individual fuel (electric power)
W_{eng}: lifetime workload generated in the prime mover
$R_{f1 \cdots n}$: power consumption rate (rate of loss) of the power transmitting parts in the front stage between the part under study and the prime mover
R_{loss}: power consumption rate (rate of loss)
L_{bu}: fuel (electric power) consumption per second per wattage

In case where the prime mover refers to the internal combustion engine, consider the lifetime workload generated in the prime mover W_{eng} as follows. The workload to be generated in the prime mover greatly varies with the displacement and characteristics of the prime mover. Then, select the fuel consumption of 17.6 km/L specified in "1. Automobile use conditions for calculation of environmental load in the consumer use phase" as a representative value. This value is premised on the adherence to the measurement conditions for JC08 mode test cycle, and the measurement in the JC08 mode is conducted with the vehicle under test while only the equipment necessary for driving is activated. By calculating the drive energy for vehicle running from the entire chemical energy possessed by the consumed fuel, the lifetime workload generated in the prime mover W_{eng} can be determined.

・When the output power is used:

Formula for calculation

$$L_{total}[**] = W_{use}[J] \times\{100/(100-R_{b1}[\%])\times\cdots\times100/(100-R_{bn}[\%])\}$$

Lifetime output workload from the auto part under study

$$\times R_{loss}[\%]/(100-R_{loss}[\%])/(E_f[MJ/**]\times10^6)$$

where, L_{total}: environmental load during lifetime [**]: unit of individual fuel (electric power)
W_{use}: lifetime workload of the part expressing the intended functions (the final part intended for transmission of power)
$R_{b1\ldots n}$: power consumption rate (rate of loss) of the power transmitting parts in the rear stage between the part under study and the part expressing the intended functions
R_{loss}: power consumption rate (rate of loss)
E_f: energy generated per unit fuel

2.4 Allocation in direct connection with the loss during the generation of power by the prime mover (e.g., engine, motor)

Environmental load of auto parts related to prime mover (Part 1):

Auto part name	Conventional gasoline engine				Conventional diesel engine			
	Natural aspiration		Supercharged		Natural aspiration		Supercharged	
	Allocation ratio	Fuel (L)	Allocation ratio	Fuel (L)	Allocation ratio	Fuel (L)	Allocation ratio	Fuel (L)
Cylinder block	25.5%	283	23.7%	263	21.5%	239	20.3%	225
Piston	1.1%	12	1.0%	11	0.9%	10	0.9%	10
Piston ring	0.6%	6	0.5%	6	0.5%	5	0.5%	5
Cylinder liner	0.5%	6	0.5%	6	0.5%	5	0.4%	5
Engine gaskets & packings	0.7%	8	0.6%	7	0.6%	6	0.6%	6
Engine valve	0.7%	8	0.6%	7	0.6%	6	0.6%	6
Valve rocker arm & shaft	0.5%	6	0.5%	5	0.4%	5	0.4%	5
Valve drive part and camshaft	1.0%	12	1.0%	11	0.9%	10	0.8%	9
Bearing metal	0.6%	6	0.5%	6	0.5%	5	0.5%	5
Fuel pump	1.2%	13	1.1%	12	1.0%	11	0.9%	10
Diesel fuel injection system (Electronic)	-	-	-	-	14.0%	155	13.2%	146
Diesel fuel injection nozzle	-	-	-	-	3.5%	39	3.3%	37
Gasoline fuel injection nozzle (Injector)	2.7%	30	2.6%	28	-	-	-	-
Fuel filter	0.8%	9	0.8%	9	0.7%	8	0.7%	7

Air cleaner	1.4%	16	1.3%	15	1.2%	14	1.1%	13
Air cleaner element	0.01%	0	0.01%	0	0.01%	0	0.01%	0
Manifold								
(Intake)	1.7%	19	1.6%	18	1.5%	16	1.4%	15
(Exhaust)	1.7%	19	1.6%	18	1.5%	16	1.4%	15
Supercharger (Turbo charger & supercharger)	-	-	7.0%	78	78	-	6.0%	66
Oil pump	1.4%	16	1.3%	15	15	51	1.1%	13
Oil filter	0.4%	5	0.4%	4	4	15	0.3%	4
Water pump	0.6%	7	0.6%	7	7	22	0.5%	6
Radiator	3.0%	33	2.7%	30	30	104	2.3%	26
Thermostat	0.3%	3	0.2%	3	3	9	0.2%	2
Oil cooler	0.8%	8	0.7%	8	8	26	0.6%	7
Fan & fan clutch	0.4%	4	0.4%	4	4	14	0.3%	4
Catalytic converter	4.0%	44	3.7%	41	41	140	3.2%	35
Other exhaust emission control devices	3.4%	38	3.2%	35	35	120	2.7%	30
Hoses	2.6%	29	2.4%	27	27	92	2.1%	23
Exhaust pipe & muffler								
(Exhaust pipe)	3.9%	43	3.6%	40	3.3%	37	3.1%	34
(Muffler)	2.9%	32	2.7%	30	2.4%	27	2.3%	25
Other engine parts								
Valve spring	0.7%	7	0.6%	7	0.6%	6	0.5%	6
Timing chain & belt	0.5%	5	0.4%	5	0.4%	4	0.4%	4
Canister	1.4%	16	1.3%	15	1.2%	14	1.1%	13
Flywheel	1.9%	21	1.8%	20	1.6%	18	1.5%	17
Crankshaft	7.7%	86	7.2%	80	6.5%	72	6.1%	68
Connecting rod	3.9%	43	3.6%	40	3.3%	36	3.1%	34
Timing gear cylinder head & bolt	12.5%	139	11.7%	129	10.6%	117	10.0%	110
Rotary engine exclusive part, etc.	-	-	-	-	-	-	-	-
Electrical equipment & Electronic components								
Ignition coil	1.9%	21	1.7%	19	1.6%	17	1.5%	16
Spark plug	0.3%	4	0.3%	4	-	-	-	-
Glow plug	-	-	-	-	0.7%	29	0.7%	28
Engine control system	4.5%	50	4.2%	46	3.8%	42	3.6%	39
Total	100.0%	1109	100.0%	1109	100.0%	1109	100.0%	1109

Environmental load of auto parts related to prime mover (Part 2):

Auto part name	Gasoline engine HEV/PHEV				Diesel engine HEV				EV
	Natural aspiration		Supercharged		Natural aspiration		Supercharged		
	Allocation ratio	Fuel (L)	Allocation ratio	Fuel (L)	Allocation ratio	Fuel (L)	Allocation ratio	Fuel (L)	-
Cylinder block	25.5%	226	23.7%	210	21.6%	191	20.3%	180	-
Piston	1.1%	10	1.0%	9	0.9%	8	0.9%	8	-
Piston ring	0.6%	5	0.5%	5	0.5%	4	0.5%	4	-
Cylinder liner	0.5%	5	0.5%	5	0.5%	4	0.4%	4	-
Engine gaskets & packings	0.7%	6	0.6%	6	0.6%	5	0.6%	5	-
Engine valve	0.7%	6	0.6%	6	0.6%	5	0.6%	5	-
Valve rocker arm & shaft	0.5%	5	0.5%	4	0.4%	4	0.4%	4	-
Valve drive part and camshaft	1.0%	9	1.0%	9	0.9%	8	0.8%	7	-
Bearing metal	0.6%	5	0.5%	5	0.5%	4	0.5%	4	-
Fuel pump	1.2%	10	1.1%	10	1.0%	9	0.9%	8	-
Diesel fuel injection system (Electronic)	-	-	-	-	14.0%	124	13.2%	117	-
Diesel fuel injection nozzle	-	-	-	-	3.5%	31	3.3%	29	-
Gasoline fuel injection nozzle (Injector)	2.7%	24	2.6%	23	-	-	-	-	-
Fuel filter	0.8%	7	0.8%	7	0.7%	6	0.7%	6	-
Air cleaner	1.4%	13	1.3%	12	1.2%	11	1.1%	10	-
Air cleaner element	0.01%	0	0.01%	0	0.01%	0	0.01%	0	-
Manifold									
(Intake)	1.7%	15	1.6%	14	1.5%	13	1.4%	12	-
(Exhaust)	1.7%	15	1.6%	14	1.5%	13	1.4%	12	-

Supercharger (Turbo charger & supercharger)	-	-	7.0%	62	-	-	6.0%	53	-
Oil pump	1.4%	13	1.3%	12	1.2%	11	1.1%	10	-
Oil filter	0.4%	4	0.4%	4	0.4%	3	0.3%	3	-
Water pump	0.6%	6	0.6%	5	0.5%	5	0.5%	4	-
Radiator	3.0%	26	2.7%	24	2.5%	22	2.3%	21	-
Thermostat	0.3%	2	0.2%	2	0.2%	2	0.2%	2	-
Oil cooler	0.8%	7	0.7%	6	0.6%	6	0.6%	5	-
Fan & fan clutch	0.4%	4	0.4%	3	0.3%	3	0.3%	3	-
Catalytic converter	4.0%	35	3.7%	33	3.4%	30	3.2%	28	-
Other exhaust emission control devices	3.4%	30	3.2%	28	2.9%	26	2.7%	24	-
Hoses	2.6%	23	2.4%	22	2.2%	20	2.1%	19	-
Exhaust pipe & muffler									
(Exhaust pipe)	3.9%	35	3.6%	32	3.3%	29	3.1%	27	-
(Muffler)	2.9%	26	2.7%	24	2.4%	22	2.3%	20	-
Other engine parts									
Valve spring	0.7%	6	0.6%	5	0.6%	5	0.5%	5	-
Timing chain & belt	0.5%	4	0.4%	4	0.4%	3	0.4%	3	-
Canister	1.4%	13	1.3%	12	1.2%	11	1.1%	10	-
Flywheel	1.9%	17	1.8%	16	1.6%	14	1.5%	14	-
Crankshaft	7.7%	68	7.2%	64	6.5%	58	6.1%	54	-
Connecting rod	3.8%	34	3.6%	32	3.2%	29	3.1%	27	-
Timing gear cylinder head & bolt	12.5%	111	11.7%	103	10.6%	94	9.9%	88	-
Rotary engine exclusive part, etc.	-	-	-	-	-	-	-	-	-
Electrical equipment & Electronic components									-
Ignition coil	1.9%	16	1.7%	15	1.6%	14	1.5%	13	-
Spark plug	0.3%	3	0.3%	3	-	-	-	-	-
Glow plug	-	-	-	-	0.7%	6	0.7%	6	-
Engine control system	4.5%	40	4.2%	37	3.8%	34	3.6%	32	-
Total	100.0%	887	100.0%	887	100.0%	887	100.0%	887	0.0%

Approaches for calculation:

1) For determination of the emissions of substances of environmental concern in the manufacturing of fuels and the emissions of substances of environmental concern in the combustion of gasoline and diesel, multiply their own emission factors and amounts of consumption.

2) Allocation ratios have been determined based on the selling prices of individual auto parts estimated from the FY 2012 Automotive Part Shipment Values by Product and Shipment Destination and Statistics on Passenger Car Shipments released by Japan Auto Parts Industries Association (see Annex 2).

		CO_2 (g)	CH_4 (g)	N_2O (g)	NO_x (g)	SO_x (g)	PM (g)	HC (g)	HCl (g)	BOD (g)	COD (g)	Sources & References
Gasoline 1 (L)	During manufacture	280	-	-	0.389	0.322	0.0	0.0	-	0.0	0.0	JAPIA LCI Calculation Tools (Not open to the public)
	During combustion	2,321	-	-	#	#	#	#	-	-	-	↑
Light oil 1 (L)	During manufacture	93	-	-	0.244	0.141	0.0	0.0	-	0.0	0.0	↑
	During combustion	2,610	-	-	#	#	#	#	-	-	-	↑

Electric power 1 (kWh)	During manufacture	536	-	-	0.198	0.057	0.0	-	-	0.0	0.0	JPIA LCI Calculation Guidelines Supplement 1 (Not open to the public)
Hydrogen 1 (Nm^3)	During manufacture	950 (City gas) 1,080 (LPG) 1,130 (Naphtha)	-	-	Under investigation	Under investigation	Under investigation	Under investigation	-	Under investigation	Under investigation	April 14, 2014 Agency for Natural Resources and Energy, Hydrogen and Fuel Cell Promotion Office

#: Dependent on the exhaust gas treatment performance of individual motor vehicles.

3) For determination of environmental load during lifetime, multiply the future improvable loss in the internal combustion engine on which the auto parts under study are mounted (the fraction expected to possibly be extracted in the future as kinetic energy due to improved conversion efficiency by the involved auto parts) and the allocation ratios determined in the preceding 2).

(Fuel consumption) =17.6 [km/L]
(Vehicle lifetime travel distance) =122,000 [km]
(Lifetime fuel consumption) =122,000/17.6=6,930 [L]
(Lifetime heat loss expected to be improved in the future) =6,930× (Theoretical efficiency of individual engines - Assumed effective work ratio in individual engines) [L]

	Conventional gasoline engine	Conventional diesel engine
Assumed effective work ratio (%)	30	40
Theoretical engine efficiency (%)	46	56
Future improvable thermal loss ratio (%)	16	16
Lifetime fuel loss (L)	1,109	1,109

4) In the case of HEV (hybrid electric vehicle), assuming that the energy for acceleration (the energy for acceleration of mass of the entire vehicle) will be partially recovered and defining 80% of the fuel consumption of gasoline/diesel engine per unit distance (5.68 L/100 km [17.6 km/L]) specified in 3) as the fuel consumption performance (4.55 L/100 km [22.0 km/L]), multiply the loss of the internal combustion engine and the allocation ratio determined in 2) for calculation.

(Fuel consumption) =22.0 [km/L]
(Vehicle lifetime travel distance) =122,000 [km]
(Lifetime fuel consumption) =122,000/22.0=5,545 [L]
(Lifetime heat loss expected improved in the future) =5,545× (Theoretical efficiency of individual engines - Assumed effective work ratio in individual engines) [L]

	Gasoline engine HEV (incl. PHEV)	Diesel engine HEV
Assumed effective work ratio (%)	30	40
Theoretical engine efficiency (%)	46	56
Future improvable thermal loss ratio (%)	16	16
Lifetime fuel loss (L)	887	887

Annex 1 JC08 mode matrix 戻る Alt + ←

JC08 mode matrix in accordance with Attachment 42 to Public Notice of Specifying Details of Safety Regulations for Road Transport Vehicles

Parameters calculated based on the mode matrix

Assumptions for calculation of angular velocity and engine rpm

Transmission	Gear shift position	1	2	3	4	5	6
	Gear ratio	3.6	2.16	1.52	1.2	1	0.76
	Final reduction ratio	4.1					
Engine idling rpm	At idle 0km/h(rpm)	800					
Tire	O.D. (m)	0.6					

Elapsed time	Speed	Standard gear shift position A	Standard gear shift position B	Standard gear shift position C	Speed	$(Speed)^2$	(Speed at start of acceleration $v)^2$	(Speed at end of acceleration $v')^2$	Angular velocity	$(Angular velocity)^2$	(Angular velocity at start of acceleration $\omega)^2$	(Angular velocity at end of acceleration $\omega')^2$	Engine rpm	Variable for workload in terms of air resistance
[sec.]	[km/h]				[m/s]	$[m/s]^2$			[rad/s]	$[rad/s]^2$			[round/s]	(speed $v)^2$×Distance L
1	0	N	N	N	0.0	0.0	0.0	-	0.0	0.0	0.0	-	13	0.0
2	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
3	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
4	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
5	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
6	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
7	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
8	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
9	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
10	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
11	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
12	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
13	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
14	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
15	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
16	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
17	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
18	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
19	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
20	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
21	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
22	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
23	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
24	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
25	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
26	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
27	4.9	1	1	1	1.4	1.9	-	-	4.5	20.6	-	-	11	2.5
28	9.8	1	1	1	2.7	7.4	-	-	9.1	82.3	-	-	21	20.2
29	13.8	1	1	1	3.8	14.7	-	-	12.8	163.3	-	-	30	56.3
30	16.6	1	2	1	4.6	21.3	-	-	15.4	236.2	-	-	36	98.0
31	18.4	1	2	1	5.1	26.1	-	-	17.0	290.3	-	-	40	133.5
32	20.1	2	2	1	5.6	31.2	-	-	18.6	346.4	-	-	26	174.1
33	21.7	2	2	1	6.0	36.3	-	-	20.1	403.7	-	-	28	219.0
34	22.7	2	2	2	6.3	39.8	-	-	21.0	441.8	-	-	30	250.7
35	23.5	2	2	2	6.5	42.6	-	-	21.8	473.5	-	-	31	278.2
36	24.7	2	2	2	6.9	47.1	-	-	22.9	523.1	-	-	32	323.0

37	26.1	2	2	2	7.3	52.6	-	-	24.2	584.0	-	-	34	381.1
38	27.6	2	2	2	7.7	58.8	-	-	25.6	653.1	-	-	36	450.6
39	29.9	2	3	2	8.3	69.0	-	-	27.7	766.5	-	-	39	572.9
40	32.8	2	3	2	9.1	83.0	-	-	30.4	922.4	-	-	43	756.3
41	37.1	3	3	2	10.3	106.2	-	-	34.4	1180.0	-	-	34	1094.5
42	37.8	3	3	3	10.5	110.3	-	110.3	35.0	1225.0	-	1225.0	35	1157.6
43	36.6	3	3	3	10.2	103.4	-	-	33.9	1148.5	-	-	34	1050.8
44	36.5	3	3	3	10.1	102.8	102.8	-	33.8	1142.2	1142.2	-	34	1042.2
45	37.7	3	3	3	10.5	109.7	-	-	34.9	1218.5	-	-	35	1148.5
46	38.9	3	3	3	10.8	116.8	-	-	36.0	1297.3	-	-	36	1261.7
47	39.2	3	3	3	10.9	118.6	-	118.6	36.3	1317.4	-	1317.4	36	1291.1
48	37.3	3	3	3	10.4	107.4	-	-	34.5	1192.8	-	-	34	1112.3
49	34.1	3	3	3	9.5	89.7	-	-	31.6	996.9	-	-	31	849.9
50	32.8	3	3	3	9.1	83.0	-	-	30.4	922.4	-	-	30	756.3
51	32.4	3	3	3	9.0	81.0	-	-	30.0	900.0	-	-	30	729.0
52	31.7	3	3	3	8.8	77.5	-	-	29.4	861.5	-	-	29	682.8
53	30.4	3	3	3	8.4	71.3	-	-	28.1	792.3	-	-	28	602.2
54	29.1	3	3	3	8.1	65.3	-	-	26.9	726.0	-	-	27	528.2
55	28.6	3	3	3	7.9	63.1	63.1	-	26.5	701.3	701.3	-	26	501.4
56	28.6	3	3	3	7.9	63.1	-	-	26.5	701.3	-	-	26	501.4
57	28.6	3	3	3	7.9	63.1	-	-	26.5	701.3	-	-	26	501.4
58	28.7	3	3	3	8.0	63.6	-	-	26.6	706.2	-	-	26	506.7
59	29.1	3	3	3	8.1	65.3	-	-	26.9	726.0	-	-	27	528.2
60	29.8	3	3	3	8.3	68.5	-	-	27.6	761.4	-	-	27	567.2
61	30.9	3	3	3	8.6	73.7	-	-	28.6	818.6	-	-	28	632.4
62	32.5	3	3	3	9.0	81.5	-	-	30.1	905.6	-	-	30	735.8
63	35.1	3	3	3	9.8	95.1	-	-	32.5	1056.3	-	-	32	926.9
64	37.5	3	3	3	10.4	108.5	-	-	34.7	1205.6	-	-	34	1130.3
65	38.9	3	3	3	10.8	116.8	-	-	36.0	1297.3	-	-	36	1261.7
66	39	3	3	3	10.8	117.4	-	117.4	36.1	1304.0	-	1304.0	36	1271.4
67	37.7	3	3	3	10.5	109.7	-	-	34.9	1218.5	-	-	35	1148.5
68	35.1	3	3	3	9.8	95.1	-	-	32.5	1056.3	-	-	32	926.9
69	32.9	3	3	3	9.1	83.5	-	-	30.5	928.0	-	-	30	763.3
70	32.1	3	3	3	8.9	79.5	-	-	29.7	883.4	-	-	29	708.9
71	31	3	3	3	8.6	74.2	-	-	28.7	823.9	-	-	28	638.5
72	27.4	3	3	3	7.6	57.9	-	-	25.4	643.7	-	-	25	440.9
73	23.7	3	3	N	6.6	43.3	-	-	21.9	481.6	-	-	22	285.3
74	20.2	3	3	N	5.6	31.5	-	-	18.7	349.8	-	-	19	176.7
75	17.5	N	3	N	4.9	23.6	-	-	16.2	262.6	-	-	13	114.9
76	15.9	N	N	N	4.4	19.5	-	-	14.7	216.7	-	-	13	86.2
77	14.5	N	N	N	4.0	16.2	-	-	13.4	180.3	-	-	13	65.3
78	12.7	N	N	N	3.5	12.4	-	-	11.8	138.3	-	-	13	43.9
79	10.9	N	N	N	3.0	9.2	-	-	10.1	101.9	-	-	13	27.8
80	9.5	N	N	N	2.6	7.0	-	-	8.8	77.4	-	-	13	18.4
81	8.1	N	N	N	2.3	5.1	-	-	7.5	56.3	-	-	13	11.4
82	6.9	N	N	N	1.9	3.7	-	-	6.4	40.8	-	-	13	7.0
83	5.8	N	N	N	1.6	2.6	-	-	5.4	28.8	-	-	13	4.2
84	4.5	N	N	N	1.3	1.6	-	-	4.2	17.4	-	-	13	2.0
85	2.5	N	N	N	0.7	0.5	-	-	2.3	5.4	-	-	13	0.3

86	0	N	N	N	0.0	0.0	0.0	-	0.0	0.0	0.0	-	13	0.0
87	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
88	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
89	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
90	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
91	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
92	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
93	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
94	2.6	1	1	1	0.7	0.5	-	-	2.4	5.8	-	-	6	0.4
95	6.7	1	1	1	1.9	3.5	-	-	6.2	38.5	-	-	15	6.4
96	10.6	1	1	1	2.9	8.7	-	-	9.8	96.3	-	-	23	25.5
97	14.6	1	1	1	4.1	16.4	-	-	13.5	182.8	-	-	32	66.7
98	19.7	1	2	1	5.5	29.9	-	-	18.2	332.7	-	-	43	163.9
99	24.4	1	2	1	6.8	45.9	-	-	22.6	510.4	-	-	53	311.4
100	27.5	2	2	2	7.6	58.4	-	-	25.5	648.4	-	-	36	445.7
101	30.2	2	2	2	8.4	70.4	-	-	28.0	781.9	-	-	39	590.4
102	33.4	2	3	2	9.3	86.1	-	-	30.9	956.4	-	-	44	798.6
103	35.6	3	3	2	9.9	97.8	-	-	33.0	1086.6	-	-	33	967.0
104	35.9	3	3	3	10.0	99.4	-	99.4	33.2	1104.9	-	1104.9	33	991.7
105	35.4	3	3	3	9.8	96.7	-	-	32.8	1074.4	-	-	33	950.8
106	35.3	3	3	3	9.8	96.1	96.1	-	32.7	1068.3	1068.3	-	32	942.8
107	35.8	3	3	3	9.9	98.9	-	-	33.1	1098.8	-	-	33	983.4
108	37.1	3	3	3	10.3	106.2	-	-	34.4	1180.0	-	-	34	1094.5
109	38.8	3	3	3	10.8	116.2	-	-	35.9	1290.7	-	-	36	1252.0
110	40.3	3	3	3	11.2	125.3	-	-	37.3	1392.4	-	-	37	1402.8
111	41.8	3	3	3	11.6	134.8	-	-	38.7	1498.0	-	-	38	1565.4
112	43.7	3	4	3	12.1	147.4	-	-	40.5	1637.3	-	-	40	1788.7
113	45.1	3	4	3	12.5	156.9	-	-	41.8	1743.8	-	-	41	1966.2
114	46.1	3	4	3	12.8	164.0	-	-	42.7	1822.0	-	-	42	2099.9
115	47.9	3	4	3	13.3	177.0	-	-	44.4	1967.1	-	-	44	2355.6
116	50.1	3	4	3	13.9	193.7	-	-	46.4	2151.9	-	-	46	2695.3
117	51.2	4	4	3	14.2	202.3	-	-	47.4	2247.5	-	-	37	2876.8
118	52.1	4	4	3	14.5	209.4	-	-	48.2	2327.2	-	-	38	3031.1
119	54.1	4	4	3	15.0	225.8	-	-	50.1	2509.3	-	-	39	3393.8
120	56.1	4	4	OD	15.6	242.8	-	-	51.9	2698.2	-	-	41	3784.3
121	56.9	4	5	OD	15.8	249.8	-	-	52.7	2775.7	-	-	41	3948.5
122	57.7	4	5	OD	16.0	256.9	-	-	53.4	2854.3	-	-	42	4117.4
123	59.5	4	5	OD	16.5	273.2	-	-	55.1	3035.2	-	-	43	4514.9
124	61.3	4	5	OD	17.0	289.9	-	-	56.8	3221.6	-	-	44	4937.1
125	61.8	5	5	OD	17.2	294.7	-	294.7	57.2	3274.4	-	3274.4	37	5058.9
126	61.6	5	5	OD	17.1	292.8	-	-	57.0	3253.2	-	-	37	5010.0
127	61.2	5	5	OD	17.0	289.0	-	-	56.7	3211.1	-	-	37	4913.0
128	60.5	5	5	OD	16.8	282.4	-	-	56.0	3138.1	-	-	37	4746.3
129	59.7	5	5	OD	16.6	275.0	-	-	55.3	3055.6	-	-	36	4560.5
130	59.3	5	5	OD	16.5	271.3	271.3	-	54.9	3014.8	3014.8	-	36	4469.5
131	59.4	5	5	OD	16.5	272.3	-	-	55.0	3025.0	-	-	36	4492.1
132	59.4	5	5	OD	16.5	272.3	-	272.3	55.0	3025.0	-	3025.0	36	4492.1
133	58.5	5	5	OD	16.3	264.1	-	-	54.2	2934.0	-	-	35	4291.0
134	57	5	5	OD	15.8	250.7	-	-	52.8	2785.5	-	-	34	3969.3

135	55.6	5	5	OD	15.4	238.5	-	-	51.5	2650.3	-	-	34	3684.0
136	54.2	5	5	OD	15.1	226.7	-	-	50.2	2518.6	-	-	33	3412.6
137	52.9	5	5	OD	14.7	215.9	-	-	49.0	2399.2	-	-	32	3172.9
138	51.8	5	5	OD	14.4	207.0	-	-	48.0	2300.4	-	-	31	2979.1
139	51.3	5	5	OD	14.3	203.1	203.1	-	47.5	2256.3	2256.3	-	31	2893.6
140	51.5	5	5	OD	14.3	204.6	-	-	47.7	2273.9	-	-	31	2927.6
141	52.6	5	5	OD	14.6	213.5	-	-	48.7	2372.1	-	-	32	3119.2
142	54.3	5	5	OD	15.1	227.5	-	-	50.3	2527.9	-	-	33	3431.6
143	56	5	5	OD	15.6	242.0	-	-	51.9	2688.6	-	-	34	3764.1
144	57.9	5	5	OD	16.1	258.7	-	-	53.6	2874.2	-	-	35	4160.3
145	59.9	5	5	OD	16.6	276.9	-	-	55.5	3076.1	-	-	36	4606.5
146	61.2	5	5	OD	17.0	289.0	-	-	56.7	3211.1	-	-	37	4913.0
147	61.8	5	5	OD	17.2	294.7	-	-	57.2	3274.4	-	-	37	5058.9
148	62.2	5	5	OD	17.3	298.5	-	-	57.6	3316.9	-	-	38	5157.8
149	62.6	5	5	OD	17.4	302.4	-	302.4	58.0	3359.7	-	3359.7	38	5257.9
150	62.1	5	5	OD	17.3	297.6	-	-	57.5	3306.3	-	-	38	5133.0
151	61.4	5	5	OD	17.1	290.9	-	-	56.9	3232.1	-	-	37	4961.3
152	61.3	5	5	OD	17.0	289.9	289.9	-	56.8	3221.6	3221.6	-	37	4937.1
153	61.7	5	5	OD	17.1	293.7	-	293.7	57.1	3263.8	-	3263.8	37	5034.4
154	61.3	5	5	OD	17.0	289.9	-	-	56.8	3221.6	-	-	37	4937.1
155	60.3	5	5	OD	16.8	280.6	-	-	55.8	3117.4	-	-	36	4699.4
156	59.5	5	5	OD	16.5	273.2	-	-	55.1	3035.2	-	-	36	4514.9
157	59.2	5	5	OD	16.4	270.4	270.4	-	54.8	3004.7	3004.7	-	36	4446.9
158	59.3	5	5	OD	16.5	271.3	-	271.3	54.9	3014.8	-	3014.8	36	4469.5
159	59.1	5	5	OD	16.4	269.5	-	-	54.7	2994.5	-	-	36	4424.4
160	58.3	5	5	OD	16.2	262.3	-	-	54.0	2914.0	-	-	35	4247.2
161	57.6	5	5	OD	16.0	256.0	-	-	53.3	2844.4	-	-	35	4096.0
162	57.4	5	5	OD	15.9	254.2	-	-	53.1	2824.7	-	-	35	4053.5
163	57.1	5	5	OD	15.9	251.6	-	-	52.9	2795.3	-	-	34	3990.3
164	56.1	5	5	OD	15.6	242.8	-	-	51.9	2698.2	-	-	34	3784.3
165	54.4	5	5	OD	15.1	228.3	-	-	50.4	2537.2	-	-	33	3450.6
166	52.2	5	5	OD	14.5	210.3	-	-	48.3	2336.1	-	-	32	3048.6
167	49.7	5	5	OD	13.8	190.6	-	-	46.0	2117.7	-	-	30	2631.2
168	47.5	5	5	OD	13.2	174.1	-	-	44.0	1934.4	-	-	29	2297.1
169	45.9	5	5	OD	12.8	162.6	-	-	42.5	1806.3	-	-	28	2072.7
170	44.1	5	5	OD	12.3	150.1	-	-	40.8	1667.4	-	-	27	1838.3
171	41.8	5	5	OD	11.6	134.8	-	-	38.7	1498.0	-	-	25	1565.4
172	39.6	5	5	OD	11.0	121.0	-	-	36.7	1344.4	-	-	24	1331.0
173	37.8	5	5	OD	10.5	110.3	-	-	35.0	1225.0	-	-	23	1157.6
174	34.7	5	5	OD	9.6	92.9	-	-	32.1	1032.3	-	-	21	895.5
175	31.9	5	5	OD	8.9	78.5	-	-	29.5	872.4	-	-	19	695.8
176	29.8	5	5	OD	8.3	68.5	-	-	27.6	761.4	-	-	18	567.2
177	28.2	5	5	OD	7.8	61.4	-	-	26.1	681.8	-	-	17	480.7
178	26.7	5	5	OD	7.4	55.0	-	-	24.7	611.2	-	-	16	408.0
179	25	5	5	OD	6.9	48.2	-	-	23.1	535.8	-	-	15	334.9
180	23.2	5	5	OD	6.4	41.5	-	-	21.5	461.5	-	-	14	267.6
181	21.1	5	5	OD	5.9	34.4	-	-	19.5	381.7	-	-	13	201.3
182	18.2	5	5	OD	5.1	25.6	-	-	16.9	284.0	-	-	11	129.2
183	14.9	5	5	OD	4.1	17.1	-	-	13.8	190.3	-	-	9	70.9

184	12.4	5	5	OD	3.4	11.9	-	-	11.5	131.8	-	-	7	40.9
185	11.6	2	2	2	3.2	10.4	10.4	-	10.7	115.4	115.4	-	15	33.5
186	12.4	2	2	2	3.4	11.9	-	-	11.5	131.8	-	-	16	40.9
187	13.7	2	2	2	3.8	14.5	-	-	12.7	160.9	-	-	18	55.1
188	16.2	2	2	2	4.5	20.3	-	-	15.0	225.0	-	-	21	91.1
189	16.9	2	2	2	4.7	22.0	-	22.0	15.6	244.9	-	244.9	22	103.5
190	15	2	2	2	4.2	17.4	-	-	13.9	192.9	-	-	20	72.3
191	12.6	2	2	2	3.5	12.3	-	-	11.7	136.1	-	-	16	42.9
192	11.9	2	2	2	3.3	10.9	-	-	11.0	121.4	-	-	16	36.1
193	11.6	2	2	2	3.2	10.4	10.4	-	10.7	115.4	115.4	-	15	33.5
194	11.8	2	2	2	3.3	10.7	-	-	10.9	119.4	-	-	15	35.2
195	12.3	2	2	2	3.4	11.7	-	-	11.4	129.7	-	-	16	39.9
196	13.4	2	2	2	3.7	13.9	-	-	12.4	153.9	-	-	17	51.6
197	14.6	2	2	2	4.1	16.4	-	-	13.5	182.8	-	-	19	66.7
198	16	2	2	2	4.4	19.8	-	-	14.8	219.5	-	-	21	87.8
199	18.8	2	2	2	5.2	27.3	-	-	17.4	303.0	-	-	25	142.4
200	20.5	2	2	2	5.7	32.4	-	32.4	19.0	360.3	-	360.3	27	184.7
201	19.8	2	2	2	5.5	30.3	-	-	18.3	336.1	-	-	26	166.4
202	18.9	2	2	2	5.3	27.6	27.6	-	17.5	306.3	306.3	-	25	144.7
203	19.8	2	2	2	5.5	30.3	-	-	18.3	336.1	-	-	26	166.4
204	22.2	2	2	2	6.2	38.0	-	-	20.6	422.5	-	-	29	234.5
205	25.1	2	2	2	7.0	48.6	-	-	23.2	540.1	-	-	33	338.9
206	27.1	2	3	2	7.5	56.7	-	-	25.1	629.6	-	-	35	426.6
207	27.2	2	3	2	7.6	57.1	-	57.1	25.2	634.3	-	634.3	35	431.3
208	26.1	2	3	2	7.3	52.6	-	-	24.2	584.0	-	-	34	381.1
209	25.1	2	3	2	7.0	48.6	-	-	23.2	540.1	-	-	33	338.9
210	23.4	2	3	2	6.5	42.3	-	-	21.7	469.4	-	-	31	274.6
211	20.8	2	3	2	5.8	33.4	-	-	19.3	370.9	-	-	27	192.9
212	19.2	2	3	2	5.3	28.4	-	-	17.8	316.0	-	-	25	151.7
213	19	2	3	2	5.3	27.9	-	-	17.6	309.5	-	-	25	147.0
214	17.9	2	3	2	5.0	24.7	-	-	16.6	274.7	-	-	23	122.9
215	16.1	2	3	2	4.5	20.0	-	-	14.9	222.2	-	-	21	89.4
216	15.4	2	N	2	4.3	18.3	-	-	14.3	203.3	-	-	20	78.3
217	15.1	2	N	2	4.2	17.6	-	-	14.0	195.5	-	-	20	73.8
218	13.6	2	N	N	3.8	14.3	-	-	12.6	158.6	-	-	18	53.9
219	12.1	2	N	N	3.4	11.3	11.3	-	11.2	125.5	125.5	-	16	38.0
220	12.1	N	N	N	3.4	11.3	-	11.3	11.2	125.5	-	125.5	13	38.0
221	11.1	N	N	N	3.1	9.5	-	-	10.3	105.6	-	-	13	29.3
222	7.5	N	N	N	2.1	4.3	-	-	6.9	48.2	-	-	13	9.0
223	3.5	N	N	N	1.0	0.9	-	-	3.2	10.5	-	-	13	0.9
224	1.6	N	N	N	0.4	0.2	-	-	1.5	2.2	-	-	13	0.1
225	0	N	N	N	0.0	0.0	0.0	-	0.0	0.0	0.0	-	13	0.0
226	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
227	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
228	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
229	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
230	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
231	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
232	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0

233	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
234	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
235	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
236	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
237	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
238	2.6	1	1	1	0.7	0.5	-	-	2.4	5.8	-	-	6	0.4
239	7.9	1	1	1	2.2	4.8	-	-	7.3	53.5	-	-	17	10.6
240	13.6	1	1	1	3.8	14.3	-	-	12.6	158.6	-	-	30	53.9
241	18.4	1	2	1	5.1	26.1	-	-	17.0	290.3	-	-	40	133.5
242	21.3	2	2	1	5.9	35.0	-	-	19.7	389.0	-	-	28	207.1
243	22.6	2	2	2	6.3	39.4	-	-	20.9	437.9	-	-	29	247.4
244	23.5	2	2	2	6.5	42.6	-	-	21.8	473.5	-	-	31	278.2
245	23.7	2	3	2	6.6	43.3	-	43.3	21.9	481.6	-	481.6	31	285.3
246	21.7	2	3	2	6.0	36.3	-	-	20.1	403.7	-	-	28	219.0
247	18.6	2	3	2	5.2	26.7	-	-	17.2	296.6	-	-	24	137.9
248	17.1	2	3	2	4.8	22.6	-	-	15.8	250.7	-	-	22	107.2
249	16.7	2	3	2	4.6	21.5	-	-	15.5	239.1	-	-	22	99.8
250	16.4	2	3	2	4.6	20.8	-	-	15.2	230.6	-	-	21	94.5
251	15.7	2	3	2	4.4	19.0	-	-	14.5	211.3	-	-	20	82.9
252	15	2	3	2	4.2	17.4	-	-	13.9	192.9	-	-	20	72.3
253	14.2	2	3	2	3.9	15.6	-	-	13.1	172.9	-	-	19	61.4
254	13.5	2	3	2	3.8	14.1	-	-	12.5	156.3	-	-	18	52.7
255	13	2	3	2	3.6	13.0	-	-	12.0	144.9	-	-	17	47.1
256	12.4	2	3	2	3.4	11.9	-	-	11.5	131.8	-	-	16	40.9
257	11.9	2	3	2	3.3	10.9	-	-	11.0	121.4	-	-	16	36.1
258	11.6	2	2	2	3.2	10.4	10.4	-	10.7	115.4	115.4	-	15	33.5
259	11.7	2	2	2	3.3	10.6	-	-	10.8	117.4	-	-	15	34.3
260	12.4	2	2	2	3.4	11.9	-	-	11.5	131.8	-	-	16	40.9
261	15.3	2	2	2	4.3	18.1	-	-	14.2	200.7	-	-	20	76.8
262	20.1	2	2	2	5.6	31.2	-	-	18.6	346.4	-	-	26	174.1
263	26.2	2	2	2	7.3	53.0	-	-	24.3	588.5	-	-	34	385.5
264	31	2	2	2	8.6	74.2	-	-	28.7	823.9	-	-	40	638.5
265	34.3	2	3	2	9.5	90.8	-	-	31.8	1008.7	-	-	45	864.9
266	37.1	3	3	2	10.3	106.2	-	-	34.4	1180.0	-	-	34	1094.5
267	39.1	3	3	3	10.9	118.0	-	-	36.2	1310.7	-	-	36	1281.2
268	39.7	3	3	3	11.0	121.6	-	121.6	36.8	1351.2	-	1351.2	36	1341.1
269	39.2	3	3	3	10.9	118.6	-	-	36.3	1317.4	-	-	36	1291.1
270	39	3	3	3	10.8	117.4	117.4	-	36.1	1304.0	1304.0	-	36	1271.4
271	39.6	3	3	3	11.0	121.0	-	-	36.7	1344.4	-	-	36	1331.0
272	40.4	3	3	3	11.2	125.9	-	-	37.4	1399.3	-	-	37	1413.3
273	41.6	3	3	3	11.6	133.5	-	-	38.5	1483.7	-	-	38	1543.0
274	43.1	3	4	3	12.0	143.3	-	-	39.9	1592.6	-	-	40	1716.0
275	44.2	3	4	3	12.3	150.7	-	-	40.9	1674.9	-	-	41	1850.8
276	44.9	3	4	3	12.5	155.6	-	-	41.6	1728.4	-	-	41	1940.1
277	46.4	3	4	3	12.9	166.1	-	-	43.0	1845.8	-	-	43	2141.1
278	48.4	3	4	3	13.4	180.8	-	-	44.8	2008.4	-	-	44	2430.1
279	48.8	3	4	3	13.6	183.8	-	183.8	45.2	2041.7	-	2041.7	45	2490.9
280	47.6	3	4	3	13.2	174.8	-	-	44.1	1942.5	-	-	44	2311.6
281	47	3	4	3	13.1	170.4	170.4	-	43.5	1893.9	1893.9	-	43	2225.3

282	47.7	3	4	3	13.3	175.6	-	-	44.2	1950.7	-	-	44	2326.2
283	49	3	4	3	13.6	185.3	-	-	45.4	2058.5	-	-	45	2521.6
284	50.5	4	4	3	14.0	196.8	-	-	46.8	2186.4	-	-	37	2760.4
285	51.3	4	4	OD	14.3	203.1	-	203.1	47.5	2256.3	-	2256.3	37	2893.6
286	50.8	4	4	OD	14.1	199.1	-	-	47.0	2212.5	-	-	37	2809.9
287	49.5	4	4	OD	13.8	189.1	-	-	45.8	2100.7	-	-	36	2599.6
288	48	4	4	OD	13.3	177.8	-	-	44.4	1975.3	-	-	35	2370.4
289	45.8	4	4	OD	12.7	161.9	-	-	42.4	1798.4	-	-	33	2059.2
290	43.2	4	4	OD	12.0	144.0	-	-	40.0	1600.0	-	-	31	1728.0
291	42.1	4	4	OD	11.7	136.8	136.8	-	39.0	1519.6	1519.6	-	31	1599.3
292	43	4	4	OD	11.9	142.7	-	-	39.8	1585.2	-	-	31	1704.1
293	43.9	4	4	OD	12.2	148.7	-	148.7	40.6	1652.3	-	1652.3	32	1813.4
294	42.5	4	4	OD	11.8	139.4	-	-	39.4	1548.6	-	-	31	1645.4
295	38.2	4	4	OD	10.6	112.6	-	-	35.4	1251.1	-	-	28	1194.8
296	34.6	4	4	OD	9.6	92.4	-	-	32.0	1026.4	-	-	25	887.8
297	33	3	4	OD	9.2	84.0	84.0	-	30.6	933.6	933.6	-	30	770.3
298	33.5	3	4	3	9.3	86.6	-	-	31.0	962.1	-	-	31	805.8
299	35	3	4	3	9.7	94.5	-	-	32.4	1050.2	-	-	32	919.0
300	37.4	3	4	3	10.4	107.9	-	-	34.6	1199.2	-	-	34	1121.3
301	40.1	3	4	3	11.1	124.1	-	-	37.1	1378.6	-	-	37	1382.1
302	43.2	3	4	3	12.0	144.0	-	-	40.0	1600.0	-	-	40	1728.0
303	45.9	3	4	3	12.8	162.6	-	-	42.5	1806.3	-	-	42	2072.7
304	48.1	3	4	3	13.4	178.5	-	-	44.5	1983.5	-	-	44	2385.2
305	50.4	3	4	3	14.0	196.0	-	-	46.7	2177.8	-	-	46	2744.0
306	52.7	4	4	3	14.6	214.3	-	-	48.8	2381.1	-	-	38	3137.1
307	53.9	4	4	OD	15.0	224.2	-	-	49.9	2490.7	-	-	39	3356.3
308	54.4	4	4	OD	15.1	228.3	-	-	50.4	2537.2	-	-	39	3450.6
309	55	4	5	OD	15.3	233.4	-	-	50.9	2593.4	-	-	40	3566.0
310	55.3	4	5	OD	15.4	236.0	-	236.0	51.2	2621.8	-	2621.8	40	3624.7
311	55.2	4	5	OD	15.3	235.1	-	-	51.1	2612.3	-	-	40	3605.0
312	54.9	4	5	OD	15.3	232.6	232.6	-	50.8	2584.0	2584.0	-	40	3546.6
313	55.2	4	5	OD	15.3	235.1	-	-	51.1	2612.3	-	-	40	3605.0
314	55.6	4	5	OD	15.4	238.5	-	238.5	51.5	2650.3	-	2650.3	40	3684.0
315	55.3	4	5	OD	15.4	236.0	-	-	51.2	2621.8	-	-	40	3624.7
316	54	4	5	OD	15.0	225.0	-	-	50.0	2500.0	-	-	39	3375.0
317	52.5	4	5	OD	14.6	212.7	-	-	48.6	2363.0	-	-	38	3101.5
318	51.5	4	5	OD	14.3	204.6	-	-	47.7	2273.9	-	-	37	2927.6
319	50.3	4	5	OD	14.0	195.2	-	-	46.6	2169.1	-	-	36	2727.7
320	48.7	4	5	OD	13.5	183.0	-	-	45.1	2033.3	-	-	35	2475.6
321	46.2	4	5	OD	12.8	164.7	-	-	42.8	1829.9	-	-	33	2113.6
322	42.5	4	5	OD	11.8	139.4	-	-	39.4	1548.6	-	-	31	1645.4
323	38.6	4	5	OD	10.7	115.0	-	-	35.7	1277.4	-	-	28	1232.7
324	35.1	4	5	OD	9.8	95.1	-	-	32.5	1056.3	-	-	25	926.9
325	32.2	4	5	OD	8.9	80.0	-	-	29.8	888.9	-	-	23	715.6
326	29.7	4	5	N	8.3	68.1	-	-	27.5	756.3	-	-	22	561.5
327	27.6	4	N	N	7.7	58.8	-	-	25.6	653.1	-	-	20	450.6
328	25.5	4	N	N	7.1	50.2	-	-	23.6	557.5	-	-	18	355.4
329	23.2	N	N	N	6.4	41.5	-	-	21.5	461.5	-	-	13	267.6
330	20.5	N	N	N	5.7	32.4	-	-	19.0	360.3	-	-	13	184.7

331	17.9	N	N	N	5.0	24.7	-	-	16.6	274.7	-	-	13	122.9
332	15.4	N	N	N	4.3	18.3	-	-	14.3	203.3	-	-	13	78.3
333	12.8	N	N	N	3.6	12.6	-	-	11.9	140.5	-	-	13	44.9
334	9.9	N	N	N	2.8	7.6	-	-	9.2	84.0	-	-	13	20.8
335	6.9	N	N	N	1.9	3.7	-	-	6.4	40.8	-	-	13	7.0
336	4.2	N	N	N	1.2	1.4	-	-	3.9	15.1	-	-	13	1.6
337	2.5	N	N	N	0.7	0.5	-	-	2.3	5.4	-	-	13	0.3
338	0	N	N	N	0.0	0.0	0.0	-	0.0	0.0	0.0	-	13	0.0
339	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
340	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
341	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
342	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
343	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
344	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
345	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
346	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
347	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
348	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
349	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
350	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
351	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
352	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
353	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
354	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
355	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
356	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
357	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
358	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
359	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
360	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
361	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
362	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
363	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
364	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
365	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
366	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
367	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
368	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
369	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
370	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
371	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
372	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
373	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
374	1.8	1	1	1	0.5	0.3	-	-	1.7	2.8	-	-	4	0.1
375	6.9	1	1	1	1.9	3.7	-	-	6.4	40.8	-	-	15	7.0
376	12.5	1	1	1	3.5	12.1	-	-	11.6	134.0	-	-	27	41.9
377	17.2	1	1	1	4.8	22.8	-	-	15.9	253.6	-	-	37	109.1
378	21.4	1	2	1	5.9	35.3	-	-	19.8	392.6	-	-	47	210.1
379	25.3	2	2	1	7.0	49.4	-	-	23.4	548.8	-	-	33	347.1

380	28.3	2	2	2	7.9	61.8	-	-	26.2	686.6	-	-	37	485.8
381	31.2	2	3	2	8.7	75.1	-	-	28.9	834.6	-	-	41	651.0
382	34.2	2	3	2	9.5	90.3	-	-	31.7	1002.8	-	-	45	857.4
383	35.7	3	3	2	9.9	98.3	-	-	33.1	1092.7	-	-	33	975.2
384	35.9	3	3	3	10.0	99.4	-	-	33.2	1104.9	-	-	33	991.7
385	36.8	3	3	3	10.2	104.5	-	-	34.1	1161.0	-	-	34	1068.2
386	37.9	3	3	3	10.5	110.8	-	110.8	35.1	1231.5	-	1231.5	35	1166.8
387	37.3	3	3	3	10.4	107.4	-	-	34.5	1192.8	-	-	34	1112.3
388	35.2	3	3	3	9.8	95.6	-	-	32.6	1062.3	-	-	32	934.8
389	33.9	3	3	3	9.4	88.7	-	-	31.4	985.3	-	-	31	835.0
390	33.4	3	3	3	9.3	86.1	-	-	30.9	956.4	-	-	31	798.6
391	32.6	3	3	3	9.1	82.0	-	-	30.2	911.1	-	-	30	742.6
392	31.8	3	3	3	8.8	78.0	-	-	29.4	867.0	-	-	29	689.2
393	31.2	3	3	3	8.7	75.1	-	-	28.9	834.6	-	-	29	651.0
394	29.8	3	3	3	8.3	68.5	-	-	27.6	761.4	-	-	27	567.2
395	28	3	3	3	7.8	60.5	60.5	-	25.9	672.2	672.2	-	26	470.5
396	28.3	3	3	3	7.9	61.8	-	-	26.2	686.6	-	-	26	485.8
397	30.3	3	3	3	8.4	70.8	-	-	28.1	787.1	-	-	28	596.2
398	31.3	3	3	3	8.7	75.6	-	75.6	29.0	839.9	-	839.9	29	657.2
399	30.7	3	3	3	8.5	72.7	72.7	-	28.4	808.0	808.0	-	28	620.2
400	31	3	3	3	8.6	74.2	-	-	28.7	823.9	-	-	28	638.5
401	33.1	3	3	3	9.2	84.5	-	-	30.6	939.3	-	-	30	777.3
402	34.9	3	3	3	9.7	94.0	-	-	32.3	1044.2	-	-	32	911.1
403	35.6	3	3	3	9.9	97.8	-	-	33.0	1086.6	-	-	33	967.0
404	36.1	3	3	3	10.0	100.6	-	-	33.4	1117.3	-	-	33	1008.4
405	37.4	3	3	3	10.4	107.9	-	-	34.6	1199.2	-	-	34	1121.3
406	38.8	3	3	3	10.8	116.2	-	-	35.9	1290.7	-	-	36	1252.0
407	40.1	3	3	3	11.1	124.1	-	-	37.1	1378.6	-	-	37	1382.1
408	41.5	3	3	3	11.5	132.9	-	-	38.4	1476.6	-	-	38	1531.9
409	43.4	3	4	3	12.1	145.3	-	-	40.2	1614.8	-	-	40	1752.1
410	45	3	4	3	12.5	156.3	-	-	41.7	1736.1	-	-	41	1953.1
411	46.2	3	4	3	12.8	164.7	-	-	42.8	1829.9	-	-	42	2113.6
412	47.3	3	4	3	13.1	172.6	-	-	43.8	1918.1	-	-	43	2268.2
413	48.5	3	4	3	13.5	181.5	-	-	44.9	2016.7	-	-	45	2445.2
414	49.5	4	4	3	13.8	189.1	-	-	45.8	2100.7	-	-	36	2599.6
415	49.9	4	4	3	13.9	192.1	-	-	46.2	2134.8	-	-	36	2663.1
416	50.3	4	4	3	14.0	195.2	-	-	46.6	2169.1	-	-	36	2727.7
417	50.7	4	4	3	14.1	198.3	-	-	46.9	2203.8	-	-	37	2793.3
418	51.2	4	4	3	14.2	202.3	-	-	47.4	2247.5	-	-	37	2876.8
419	51.9	4	4	3	14.4	207.8	-	-	48.1	2309.3	-	-	38	2996.4
420	52.9	4	4	3	14.7	215.9	-	-	49.0	2399.2	-	-	38	3172.9
421	54	4	4	OD	15.0	225.0	-	-	50.0	2500.0	-	-	39	3375.0
422	55.1	4	4	OD	15.3	234.3	-	-	51.0	2602.9	-	-	40	3585.5
423	56.9	4	4	OD	15.8	249.8	-	-	52.7	2775.7	-	-	41	3948.5
424	58.6	4	5	OD	16.3	265.0	-	-	54.3	2944.1	-	-	42	4313.1
425	59.4	4	5	OD	16.5	272.3	-	-	55.0	3025.0	-	-	43	4492.1
426	59.6	4	5	OD	16.6	274.1	-	-	55.2	3045.4	-	-	43	4537.7
427	60.1	4	5	OD	16.7	278.7	-	-	55.6	3096.7	-	-	44	4652.8
428	60.9	4	5	OD	16.9	286.2	-	-	56.4	3179.7	-	-	44	4841.1

429	61.4	4	5	OD	17.1	290.9	-	-	56.9	3232.1	-	-	45	4961.3
430	61.7	5	5	OD	17.1	293.7	-	-	57.1	3263.8	-	-	37	5034.4
431	61.7	5	5	OD	17.1	293.7	-	293.7	57.1	3263.8	-	3263.8	37	5034.4
432	61.6	5	5	OD	17.1	292.8	292.8	-	57.0	3253.2	3253.2	-	37	5010.0
433	61.8	5	5	OD	17.2	294.7	-	294.7	57.2	3274.4	-	3274.4	37	5058.9
434	61.7	5	5	OD	17.1	293.7	-	-	57.1	3263.8	-	-	37	5034.4
435	61	5	5	OD	16.9	287.1	-	-	56.5	3190.2	-	-	37	4865.0
436	60.2	5	5	OD	16.7	279.6	-	-	55.7	3107.0	-	-	36	4676.1
437	59.2	5	5	OD	16.4	270.4	-	-	54.8	3004.7	-	-	36	4446.9
438	57.3	5	5	OD	15.9	253.3	-	-	53.1	2814.9	-	-	35	4032.3
439	55.2	5	5	OD	15.3	235.1	-	-	51.1	2612.3	-	-	33	3605.0
440	54.5	5	5	OD	15.1	229.2	229.2	-	50.5	2546.5	2546.5	-	33	3469.6
441	54.5	5	5	OD	15.1	229.2	-	229.2	50.5	2546.5	-	2546.5	33	3469.6
442	53.5	5	5	OD	14.9	220.9	-	-	49.5	2453.9	-	-	32	3282.1
443	51.9	5	5	OD	14.4	207.8	-	-	48.1	2309.3	-	-	31	2996.4
444	51.6	5	5	OD	14.3	205.4	205.4	-	47.8	2282.7	2282.7	-	31	2944.7
445	52.2	5	5	OD	14.5	210.3	-	-	48.3	2336.1	-	-	32	3048.6
446	52.4	5	5	OD	14.6	211.9	-	211.9	48.5	2354.0	-	2354.0	32	3083.8
447	51.8	5	5	OD	14.4	207.0	-	-	48.0	2300.4	-	-	31	2979.1
448	50.7	5	5	OD	14.1	198.3	-	-	46.9	2203.8	-	-	31	2793.3
449	49.5	5	5	OD	13.8	189.1	-	-	45.8	2100.7	-	-	30	2599.6
450	48.2	5	5	OD	13.4	179.3	-	-	44.6	1991.8	-	-	29	2400.1
451	46.6	5	5	OD	12.9	167.6	-	-	43.1	1861.8	-	-	28	2169.0
452	44.9	5	5	OD	12.5	155.6	-	-	41.6	1728.4	-	-	27	1940.1
453	43.8	5	5	OD	12.2	148.0	-	-	40.6	1644.8	-	-	26	1801.0
454	43.1	5	5	OD	12.0	143.3	-	-	39.9	1592.6	-	-	26	1716.0
455	42.3	5	5	OD	11.8	138.1	-	-	39.2	1534.0	-	-	26	1622.2
456	42	4	5	OD	11.7	136.1	136.1	-	38.9	1512.3	1512.3	-	30	1588.0
457	42.8	4	5	OD	11.9	141.3	-	-	39.6	1570.5	-	-	31	1680.4
458	43.5	4	5	OD	12.1	146.0	-	-	40.3	1622.3	-	-	32	1764.3
459	44	4	5	OD	12.2	149.4	-	-	40.7	1659.8	-	-	32	1825.8
460	44.9	4	5	OD	12.5	155.6	-	-	41.6	1728.4	-	-	33	1940.1
461	45.5	4	5	OD	12.6	159.7	-	-	42.1	1774.9	-	-	33	2019.0
462	45.6	4	5	OD	12.7	160.4	-	-	42.2	1782.7	-	-	33	2032.3
463	46.1	4	5	OD	12.8	164.0	-	-	42.7	1822.0	-	-	33	2099.9
464	47.1	4	5	OD	13.1	171.2	-	-	43.6	1901.9	-	-	34	2239.5
465	47.8	4	5	OD	13.3	176.3	-	-	44.3	1958.9	-	-	35	2340.9
466	48.3	4	5	OD	13.4	180.0	-	-	44.7	2000.1	-	-	35	2415.1
467	49.1	4	5	OD	13.6	186.0	-	-	45.5	2066.9	-	-	36	2537.1
468	49.8	4	5	OD	13.8	191.4	-	-	46.1	2126.2	-	-	36	2647.2
469	50.3	4	5	OD	14.0	195.2	-	-	46.6	2169.1	-	-	36	2727.7
470	51.1	4	5	OD	14.2	201.5	-	-	47.3	2238.7	-	-	37	2859.9
471	52.2	4	5	OD	14.5	210.3	-	-	48.3	2336.1	-	-	38	3048.6
472	52.9	4	5	OD	14.7	215.9	-	215.9	49.0	2399.2	-	2399.2	38	3172.9
473	52.8	4	5	OD	14.7	215.1	-	-	48.9	2390.1	-	-	38	3155.0
474	52.7	4	5	OD	14.6	214.3	214.3	-	48.8	2381.1	2381.1	-	38	3137.1
475	52.8	4	5	OD	14.7	215.1	-	-	48.9	2390.1	-	-	38	3155.0
476	53	4	5	OD	14.7	216.7	-	216.7	49.1	2408.3	-	2408.3	38	3191.0
477	52.9	4	5	OD	14.7	215.9	-	-	49.0	2399.2	-	-	38	3172.9

478	52.5	4	5	OD	14.6	212.7	-	-	48.6	2363.0	-	-	38	3101.5
479	51.9	4	5	OD	14.4	207.8	-	-	48.1	2309.3	-	-	38	2996.4
480	51.5	4	5	OD	14.3	204.6	204.6	-	47.7	2273.9	2273.9	-	37	2927.6
481	51.8	4	5	OD	14.4	207.0	-	-	48.0	2300.4	-	-	38	2979.1
482	52.5	4	5	OD	14.6	212.7	-	-	48.6	2363.0	-	-	38	3101.5
483	52.9	4	5	OD	14.7	215.9	-	-	49.0	2399.2	-	-	38	3172.9
484	52.9	4	5	OD	14.7	215.9	-	-	49.0	2399.2	-	-	38	3172.9
485	53.1	4	5	OD	14.8	217.6	-	-	49.2	2417.4	-	-	38	3209.0
486	53.4	4	5	OD	14.8	220.0	-	-	49.4	2444.8	-	-	39	3263.7
487	53.9	4	5	OD	15.0	224.2	-	-	49.9	2490.7	-	-	39	3356.3
488	54.2	4	5	OD	15.1	226.7	-	226.7	50.2	2518.6	-	2518.6	39	3412.6
489	54.1	4	5	OD	15.0	225.8	225.8	-	50.1	2509.3	2509.3	-	39	3393.8
490	54.1	4	5	OD	15.0	225.8	-	-	50.1	2509.3	-	-	39	3393.8
491	54.1	4	5	OD	15.0	225.8	-	225.8	50.1	2509.3	-	2509.3	39	3393.8
492	53.8	4	5	OD	14.9	223.3	-	-	49.8	2481.5	-	-	39	3337.6
493	53.2	4	5	OD	14.8	218.4	-	-	49.3	2426.5	-	-	39	3227.2
494	52.8	4	5	OD	14.7	215.1	-	-	48.9	2390.1	-	-	38	3155.0
495	52.7	4	5	OD	14.6	214.3	214.3	-	48.8	2381.1	2381.1	-	38	3137.1
496	52.8	4	5	OD	14.7	215.1	-	-	48.9	2390.1	-	-	38	3155.0
497	52.9	4	5	OD	14.7	215.9	-	-	49.0	2399.2	-	-	38	3172.9
498	53	4	5	OD	14.7	216.7	-	-	49.1	2408.3	-	-	38	3191.0
499	53.1	4	5	OD	14.8	217.6	-	-	49.2	2417.4	-	-	38	3209.0
500	53.2	4	5	OD	14.8	218.4	-	-	49.3	2426.5	-	-	39	3227.2
501	53.4	4	5	OD	14.8	220.0	-	-	49.4	2444.8	-	-	39	3263.7
502	53.8	4	5	OD	14.9	223.3	-	223.3	49.8	2481.5	-	2481.5	39	3337.6
503	53.7	4	5	OD	14.9	222.5	222.5	-	49.7	2472.3	2472.3	-	39	3319.1
504	53.7	4	5	OD	14.9	222.5	-	-	49.7	2472.3	-	-	39	3319.1
505	53.9	4	5	OD	15.0	224.2	-	224.2	49.9	2490.7	-	2490.7	39	3356.3
506	53.2	4	5	OD	14.8	218.4	-	-	49.3	2426.5	-	-	39	3227.2
507	51.8	4	5	OD	14.4	207.0	-	-	48.0	2300.4	-	-	38	2979.1
508	51.1	4	5	OD	14.2	201.5	201.5	-	47.3	2238.7	2238.7	-	37	2859.9
509	51.2	4	5	OD	14.2	202.3	-	202.3	47.4	2247.5	-	2247.5	37	2876.8
510	50.2	4	5	OD	13.9	194.4	-	-	46.5	2160.5	-	-	36	2711.5
511	48.2	4	5	OD	13.4	179.3	-	-	44.6	1991.8	-	-	35	2400.1
512	46.9	4	5	OD	13.0	169.7	-	-	43.4	1885.8	-	-	34	2211.1
513	46.3	4	5	OD	12.9	165.4	-	-	42.9	1837.9	-	-	34	2127.3
514	44.7	4	5	OD	12.4	154.2	-	-	41.4	1713.0	-	-	32	1914.3
515	42.2	4	5	OD	11.7	137.4	-	-	39.1	1526.8	-	-	31	1610.8
516	40.1	4	5	OD	11.1	124.1	-	-	37.1	1378.6	-	-	29	1382.1
517	39.3	4	4	OD	10.9	119.2	119.2	-	36.4	1324.2	1324.2	-	28	1301.0
518	39.6	4	4	OD	11.0	121.0	-	-	36.7	1344.4	-	-	29	1331.0
519	40.4	4	4	OD	11.2	125.9	-	125.9	37.4	1399.3	-	1399.3	29	1413.3
520	40.3	4	4	OD	11.2	125.3	-	-	37.3	1392.4	-	-	29	1402.8
521	38.9	4	4	OD	10.8	116.8	-	-	36.0	1297.3	-	-	28	1261.7
522	36.2	4	4	OD	10.1	101.1	-	-	33.5	1123.5	-	-	26	1016.8
523	32.2	4	4	OD	8.9	80.0	-	-	29.8	888.9	-	-	23	715.6
524	28.1	4	4	N	7.8	60.9	-	-	26.0	677.0	-	-	20	475.6
525	25.2	4	4	N	7.0	49.0	-	-	23.3	544.4	-	-	18	343.0
526	22.9	N	N	N	6.4	40.5	-	-	21.2	449.6	-	-	13	257.4

527	19.4	N	N	N	5.4	29.0	-	-	18.0	322.7	-	-	13	156.5
528	16.7	N	N	N	4.6	21.5	-	-	15.5	239.1	-	-	13	99.8
529	14.2	N	N	N	3.9	15.6	-	-	13.1	172.9	-	-	13	61.4
530	10.7	N	N	N	3.0	8.8	-	-	9.9	98.2	-	-	13	26.3
531	6.7	N	N	N	1.9	3.5	-	-	6.2	38.5	-	-	13	6.4
532	3.5	N	N	N	1.0	0.9	-	-	3.2	10.5	-	-	13	0.9
533	0	N	N	N	0.0	0.0	0.0	-	0.0	0.0	0.0	-	13	0.0
534	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
535	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
536	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
537	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
538	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
539	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
540	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
541	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
542	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
543	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
544	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
545	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
546	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
547	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
548	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
549	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
550	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
551	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
552	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
553	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
554	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
555	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
556	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
557	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
558	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
559	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
560	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
561	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
562	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
563	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
564	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
565	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
566	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
567	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
568	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
569	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
570	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
571	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
572	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
573	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
574	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
575	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0

576	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
577	1.6	1	1	1	0.4	0.2	-	-	1.5	2.2	-	-	3	0.1
578	6	1	1	1	1.7	2.8	-	-	5.6	30.9	-	-	13	4.6
579	10.7	1	1	1	3.0	8.8	-	-	9.9	98.2	-	-	23	26.3
580	15.5	1	1	1	4.3	18.5	-	-	14.4	206.0	-	-	34	79.8
581	20.1	1	2	1	5.6	31.2	-	-	18.6	346.4	-	-	44	174.1
582	22.2	2	2	2	6.2	38.0	-	38.0	20.6	422.5	-	422.5	29	234.5
583	21.8	2	2	2	6.1	36.7	36.7	-	20.2	407.4	407.4	-	28	222.1
584	22	2	2	2	6.1	37.3	-	-	20.4	415.0	-	-	29	228.2
585	24.4	2	2	2	6.8	45.9	-	-	22.6	510.4	-	-	32	311.4
586	26.2	2	3	2	7.3	53.0	-	53.0	24.3	588.5	-	588.5	34	385.5
587	25	2	3	2	6.9	48.2	-	-	23.1	535.8	-	-	33	334.9
588	22.4	2	3	2	6.2	38.7	-	-	20.7	430.2	-	-	29	240.9
589	20.6	2	3	2	5.7	32.7	-	-	19.1	363.8	-	-	27	187.4
590	20.5	2	3	2	5.7	32.4	32.4	-	19.0	360.3	360.3	-	27	184.7
591	21.7	2	3	2	6.0	36.3	-	-	20.1	403.7	-	-	28	219.0
592	23.1	2	3	2	6.4	41.2	-	-	21.4	457.5	-	-	30	264.2
593	23.2	2	3	2	6.4	41.5	-	41.5	21.5	461.5	-	461.5	30	267.6
594	22.7	2	3	2	6.3	39.8	39.8	-	21.0	441.8	441.8	-	30	250.7
595	23.4	2	3	2	6.5	42.3	-	-	21.7	469.4	-	-	31	274.6
596	25.2	2	3	2	7.0	49.0	-	-	23.3	544.4	-	-	33	343.0
597	26.9	2	3	2	7.5	55.8	-	-	24.9	620.4	-	-	35	417.2
598	28.9	2	3	2	8.0	64.4	-	-	26.8	716.1	-	-	38	517.4
599	31.3	2	3	2	8.7	75.6	-	-	29.0	839.9	-	-	41	657.2
600	32.7	2	3	2	9.1	82.5	-	82.5	30.3	916.7	-	916.7	43	749.4
601	32.5	2	3	2	9.0	81.5	-	-	30.1	905.6	-	-	42	735.8
602	32.3	2	3	2	9.0	80.5	80.5	-	29.9	894.5	894.5	-	42	722.3
603	33.1	2	3	2	9.2	84.5	-	-	30.6	939.3	-	-	43	777.3
604	34.5	2	3	2	9.6	91.8	-	-	31.9	1020.4	-	-	45	880.1
605	36	3	3	2	10.0	100.0	-	-	33.3	1111.1	-	-	33	1000.0
606	37.3	3	3	3	10.4	107.4	-	-	34.5	1192.8	-	-	34	1112.3
607	38	3	3	3	10.6	111.4	-	-	35.2	1238.0	-	-	35	1176.1
608	38.5	3	3	3	10.7	114.4	-	-	35.6	1270.8	-	-	35	1223.1
609	39.8	3	3	3	11.1	122.2	-	-	36.9	1358.1	-	-	37	1351.3
610	41	3	3	3	11.4	129.7	-	129.7	38.0	1441.2	-	1441.2	38	1477.2
611	40.6	3	3	3	11.3	127.2	-	-	37.6	1413.2	-	-	37	1434.4
612	39.8	3	3	3	11.1	122.2	122.2	-	36.9	1358.1	1358.1	-	37	1351.3
613	40.5	3	3	3	11.3	126.6	-	-	37.5	1406.3	-	-	37	1423.8
614	42.2	3	3	3	11.7	137.4	-	-	39.1	1526.8	-	-	39	1610.8
615	43.4	3	4	3	12.1	145.3	-	-	40.2	1614.8	-	-	40	1752.1
616	44.5	3	4	3	12.4	152.8	-	-	41.2	1697.7	-	-	41	1888.7
617	45.9	3	4	3	12.8	162.6	-	-	42.5	1806.3	-	-	42	2072.7
618	47.7	3	4	3	13.3	175.6	-	-	44.2	1950.7	-	-	44	2326.2
619	49.3	3	4	3	13.7	187.5	-	-	45.6	2083.8	-	-	45	2568.2
620	50.8	4	4	3	14.1	199.1	-	-	47.0	2212.5	-	-	37	2809.9
621	52	4	4	3	14.4	208.6	-	-	48.1	2318.2	-	-	38	3013.7
622	53.2	4	4	OD	14.8	218.4	-	-	49.3	2426.5	-	-	39	3227.2
623	54.1	4	4	OD	15.0	225.8	-	225.8	50.1	2509.3	-	2509.3	39	3393.8
624	53.4	4	4	OD	14.8	220.0	-	-	49.4	2444.8	-	-	39	3263.7

625	51.3	4	4	OD	14.3	203.1	-	-	47.5	2256.3	-	-	37	2893.6
626	49.6	4	4	OD	13.8	189.8	-	-	45.9	2109.2	-	-	36	2615.4
627	48.3	4	4	OD	13.4	180.0	-	-	44.7	2000.1	-	-	35	2415.1
628	46.5	4	4	OD	12.9	166.8	-	-	43.1	1853.8	-	-	34	2155.0
629	45.2	4	4	OD	12.6	157.6	157.6	-	41.9	1751.6	1751.6	-	33	1979.3
630	45.7	4	4	OD	12.7	161.1	-	-	42.3	1790.5	-	-	33	2045.7
631	46.6	4	4	OD	12.9	167.6	-	167.6	43.1	1861.8	-	1861.8	34	2169.0
632	45.9	4	4	OD	12.8	162.6	-	-	42.5	1806.3	-	-	33	2072.7
633	45	4	4	OD	12.5	156.3	-	-	41.7	1736.1	-	-	33	1953.1
634	42.5	4	4	OD	11.8	139.4	-	-	39.4	1548.6	-	-	31	1645.4
635	38.6	4	4	OD	10.7	115.0	-	-	35.7	1277.4	-	-	28	1232.7
636	35.1	4	4	OD	9.8	95.1	-	-	32.5	1056.3	-	-	25	926.9
637	32.2	4	4	OD	8.9	80.0	-	-	29.8	888.9	-	-	23	715.6
638	29.7	4	4	N	8.3	68.1	-	-	27.5	756.3	-	-	22	561.5
639	27.6	4	4	N	7.7	58.8	-	-	25.6	653.1	-	-	20	450.6
640	25.5	4	4	N	7.1	50.2	-	-	23.6	557.5	-	-	18	355.4
641	23.2	N	N	N	6.4	41.5	-	-	21.5	461.5	-	-	13	267.6
642	20.5	N	N	N	5.7	32.4	-	-	19.0	360.3	-	-	13	184.7
643	17.9	N	N	N	5.0	24.7	-	-	16.6	274.7	-	-	13	122.9
644	15.4	N	N	N	4.3	18.3	-	-	14.3	203.3	-	-	13	78.3
645	12.8	N	N	N	3.6	12.6	-	-	11.9	140.5	-	-	13	44.9
646	9.9	N	N	N	2.8	7.6	-	-	9.2	84.0	-	-	13	20.8
647	6.9	N	N	N	1.9	3.7	-	-	6.4	40.8	-	-	13	7.0
648	4.2	N	N	N	1.2	1.4	-	-	3.9	15.1	-	-	13	1.6
649	2.5	N	N	N	0.7	0.5	-	-	2.3	5.4	-	-	13	0.3
650	0	1	1	1	0.0	0.0	0.0	-	0.0	0.0	0.0	-	13	0.0
651	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
652	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
653	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
654	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
655	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
656	3	1	1	1	0.8	0.7	-	-	2.8	7.7	-	-	7	0.6
657	4.7	1	1	1	1.3	1.7	-	-	4.4	18.9	-	-	10	2.2
658	6.1	1	1	1	1.7	2.9	-	-	5.6	31.9	-	-	13	4.9
659	8.6	1	1	1	2.4	5.7	-	-	8.0	63.4	-	-	19	13.6
660	11.1	1	1	1	3.1	9.5	-	-	10.3	105.6	-	-	24	29.3
661	11.9	1	2	1	3.3	10.9	-	-	11.0	121.4	-	-	26	36.1
662	11.9	1	2	1	3.3	10.9	-	-	11.0	121.4	-	-	26	36.1
663	12.7	1	2	1	3.5	12.4	-	-	11.8	138.3	-	-	28	43.9
664	13.7	1	2	1	3.8	14.5	-	14.5	12.7	160.9	-	160.9	30	55.1
665	13.3	1	2	1	3.7	13.6	-	-	12.3	151.7	-	-	29	50.4
666	11.7	1	2	1	3.3	10.6	-	-	10.8	117.4	-	-	25	34.3
667	9.7	1	N	1	2.7	7.3	-	-	9.0	80.7	-	-	21	19.6
668	7.7	N	N	N	2.1	4.6	-	-	7.1	50.8	-	-	13	9.8
669	5.6	N	N	N	1.6	2.4	-	-	5.2	26.9	-	-	13	3.8
670	3.3	N	N	N	0.9	0.8	-	-	3.1	9.3	-	-	13	0.8
671	1.2	N	N	N	0.3	0.1	-	-	1.1	1.2	-	-	13	0.0
672	0	N	N	N	0.0	0.0	0.0	-	0.0	0.0	0.0	-	13	0.0
673	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0

674	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
675	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
676	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
677	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
678	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
679	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
680	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
681	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
682	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
683	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
684	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
685	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
686	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
687	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
688	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
689	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
690	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
691	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
692	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
693	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
694	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
695	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
696	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
697	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
698	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
699	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
700	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
701	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
702	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
703	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
704	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
705	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
706	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
707	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
708	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
709	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
710	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
711	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
712	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
713	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
714	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
715	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
716	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
717	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
718	2.7	1	1	1	0.8	0.6	-	-	2.5	6.3	-	-	6	0.4
719	5	1	1	1	1.4	1.9	-	-	4.6	21.4	-	-	11	2.7
720	5.9	1	1	1	1.6	2.7	-	-	5.5	29.8	-	-	13	4.4
721	6	1	1	1	1.7	2.8	-	2.8	5.6	30.9	-	30.9	13	4.6
722	5.9	1	1	1	1.6	2.7	2.7	-	5.5	29.8	29.8	-	13	4.4

723	6.5	1	1	1	1.8	3.3	-	-	6.0	36.2	-	-	14	5.9
724	8	1	1	1	2.2	4.9	-	-	7.4	54.9	-	-	17	11.0
725	9.1	1	1	1	2.5	6.4	-	6.4	8.4	71.0	-	71.0	20	16.2
726	8.8	1	1	1	2.4	6.0	-	-	8.1	66.4	-	-	19	14.6
727	8	1	1	1	2.2	4.9	4.9	-	7.4	54.9	54.9	-	17	11.0
728	8.9	1	1	1	2.5	6.1	-	-	8.2	67.9	-	-	19	15.1
729	11.2	1	1	1	3.1	9.7	-	-	10.4	107.5	-	-	24	30.1
730	13.1	1	2	1	3.6	13.2	-	-	12.1	147.1	-	-	28	48.2
731	14.3	1	2	1	4.0	15.8	-	-	13.2	175.3	-	-	31	62.7
732	15.5	1	2	1	4.3	18.5	-	-	14.4	206.0	-	-	34	79.8
733	16.7	1	2	1	4.6	21.5	-	-	15.5	239.1	-	-	36	99.8
734	17.6	1	2	1	4.9	23.9	-	-	16.3	265.6	-	-	38	116.9
735	18.2	2	2	1	5.1	25.6	-	-	16.9	284.0	-	-	24	129.2
736	18.9	2	2	1	5.3	27.6	-	-	17.5	306.3	-	-	25	144.7
737	19.5	2	2	1	5.4	29.3	-	29.3	18.1	326.0	-	326.0	25	158.9
738	19.2	2	2	2	5.3	28.4	-	-	17.8	316.0	-	-	25	151.7
739	17.4	2	2	2	4.8	23.4	-	-	16.1	259.6	-	-	23	112.9
740	15.5	2	2	2	4.3	18.5	-	-	14.4	206.0	-	-	20	79.8
741	13.8	2	2	2	3.8	14.7	-	-	12.8	163.3	-	-	18	56.3
742	12.5	2	2	2	3.5	12.1	-	-	11.6	134.0	-	-	16	41.9
743	12.3	2	2	2	3.4	11.7	11.7	-	11.4	129.7	129.7	-	16	39.9
744	13.3	2	2	2	3.7	13.6	-	-	12.3	151.7	-	-	17	50.4
745	15.6	2	2	2	4.3	18.8	-	-	14.4	208.6	-	-	20	81.4
746	19.2	2	2	2	5.3	28.4	-	-	17.8	316.0	-	-	25	151.7
747	23	2	2	2	6.4	40.8	-	-	21.3	453.5	-	-	30	260.8
748	26.4	2	2	2	7.3	53.8	-	-	24.4	597.5	-	-	34	394.4
749	29.1	2	3	2	8.1	65.3	-	-	26.9	726.0	-	-	38	528.2
750	29.4	2	3	2	8.2	66.7	-	66.7	27.2	741.0	-	741.0	38	544.7
751	27.9	2	3	2	7.8	60.1	-	-	25.8	667.4	-	-	36	465.5
752	26	2	3	2	7.2	52.2	-	-	24.1	579.6	-	-	34	376.7
753	23.2	2	3	2	6.4	41.5	-	-	21.5	461.5	-	-	30	267.6
754	19.6	2	3	2	5.4	29.6	-	-	18.1	329.4	-	-	26	161.4
755	16.3	2	N	2	4.5	20.5	-	-	15.1	227.8	-	-	21	92.8
756	13.6	N	N	N	3.8	14.3	-	-	12.6	158.6	-	-	13	53.9
757	10.6	N	N	N	2.9	8.7	-	-	9.8	96.3	-	-	13	25.5
758	8.1	N	N	N	2.3	5.1	-	-	7.5	56.3	-	-	13	11.4
759	6.9	N	N	N	1.9	3.7	-	-	6.4	40.8	-	-	13	7.0
760	6.3	N	N	N	1.8	3.1	-	-	5.8	34.0	-	-	13	5.4
761	5.4	N	N	N	1.5	2.3	-	-	5.0	25.0	-	-	13	3.4
762	4.4	N	N	N	1.2	1.5	-	-	4.1	16.6	-	-	13	1.8
763	3.1	N	N	N	0.9	0.7	-	-	2.9	8.2	-	-	13	0.6
764	1.5	N	N	N	0.4	0.2	-	-	1.4	1.9	-	-	13	0.1
765	0	N	N	N	0.0	0.0	0.0	-	0.0	0.0	0.0	-	13	0.0
766	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
767	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
768	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
769	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
770	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
771	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0

772	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
773	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
774	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
775	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
776	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
777	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
778	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
779	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
780	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
781	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
782	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
783	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
784	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
785	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
786	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
787	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
788	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
789	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
790	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
791	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
792	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
793	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
794	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
795	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
796	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
797	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
798	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
799	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
800	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
801	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
802	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
803	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
804	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
805	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
806	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
807	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
808	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
809	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
810	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
811	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
812	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
813	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
814	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
815	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
816	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
817	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
818	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
819	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
820	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0

821	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
822	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
823	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
824	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
825	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
826	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
827	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
828	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
829	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
830	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
831	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
832	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
833	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
834	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
835	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
836	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
837	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
838	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
839	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
840	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
841	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
842	2.5	1	1	1	0.7	0.5	-	-	2.3	5.4	-	-	5	0.3
843	5.1	1	1	1	1.4	2.0	-	-	4.7	22.3	-	-	11	2.8
844	9.4	1	1	1	2.6	6.8	-	-	8.7	75.8	-	-	20	17.8
845	11	2	1	1	3.1	9.3	-	-	10.2	103.7	-	-	14	28.5
846	11	7	1	1	3.1	9.3	-	-	10.2	103.7	-	-	5	28.5
847	11.4	1	1	1	3.2	10.0	-	10.0	10.6	111.4	-	111.4	25	31.8
848	10.4	1	1	1	2.9	8.3	-	-	9.6	92.7	-	-	23	24.1
849	9.6	1	1	1	2.7	7.1	-	-	8.9	79.0	-	-	21	19.0
850	9.2	1	1	1	2.6	6.5	-	-	8.5	72.6	-	-	20	16.7
851	8.9	1	1	1	2.5	6.1	-	-	8.2	67.9	-	-	19	15.1
852	8.7	1	1	1	2.4	5.8	5.8	-	8.1	64.9	64.9	-	19	14.1
853	8.7	1	1	1	2.4	5.8	-	-	8.1	64.9	-	-	19	14.1
854	8.7	1	1	1	2.4	5.8	-	-	8.1	64.9	-	-	19	14.1
855	8.7	1	1	1	2.4	5.8	-	5.8	8.1	64.9	-	64.9	19	14.1
856	8.6	1	1	1	2.4	5.7	5.7	-	8.0	63.4	63.4	-	19	13.6
857	8.6	1	1	1	2.4	5.7	-	5.7	8.0	63.4	-	63.4	19	13.6
858	8.4	1	1	1	2.3	5.4	5.4	-	7.8	60.5	60.5	-	18	12.7
859	8.7	1	1	1	2.4	5.8	-	-	8.1	64.9	-	-	19	14.1
860	9.7	1	1	1	2.7	7.3	-	-	9.0	80.7	-	-	21	19.6
861	11.2	1	1	1	3.1	9.7	-	-	10.4	107.5	-	-	24	30.1
862	13.3	1	2	1	3.7	13.6	-	-	12.3	151.7	-	-	29	50.4
863	14.8	1	2	1	4.1	16.9	-	-	13.7	187.8	-	-	32	69.5
864	15.7	1	2	1	4.4	19.0	-	-	14.5	211.3	-	-	34	82.9
865	16.4	1	2	1	4.6	20.8	-	-	15.2	230.6	-	-	36	94.5
866	18	1	2	1	5.0	25.0	-	-	16.7	277.8	-	-	39	125.0
867	20.5	1	2	1	5.7	32.4	-	-	19.0	360.3	-	-	45	184.7
868	22.2	2	2	2	6.2	38.0	-	38.0	20.6	422.5	-	422.5	29	234.5
869	22.1	2	2	2	6.1	37.7	-	-	20.5	418.7	-	-	29	231.3

870	21	2	2	2	5.8	34.0	-	-	19.4	378.1	-	-	27	198.5
871	19.9	2	2	2	5.5	30.6	-	-	18.4	339.5	-	-	26	168.9
872	19.2	2	2	2	5.3	28.4	28.4	-	17.8	316.0	316.0	-	25	151.7
873	20	2	2	2	5.6	30.9	-	-	18.5	342.9	-	-	26	171.5
874	22.5	2	2	2	6.3	39.1	-	-	20.8	434.0	-	-	29	244.1
875	25	2	2	2	6.9	48.2	-	-	23.1	535.8	-	-	33	334.9
876	26.5	2	2	2	7.4	54.2	-	-	24.5	602.1	-	-	35	398.9
877	27.7	2	3	2	7.7	59.2	-	-	25.6	657.8	-	-	36	455.5
878	28.5	2	3	2	7.9	62.7	-	-	26.4	696.4	-	-	37	496.2
879	28.5	2	3	2	7.9	62.7	-	-	26.4	696.4	-	-	37	496.2
880	28.7	2	3	2	8.0	63.6	-	-	26.6	706.2	-	-	37	506.7
881	29	2	3	2	8.1	64.9	-	64.9	26.9	721.0	-	721.0	38	522.7
882	27.6	2	3	2	7.7	58.8	-	-	25.6	653.1	-	-	36	450.6
883	24.9	2	3	2	6.9	47.8	-	-	23.1	531.6	-	-	32	330.9
884	23.8	2	3	2	6.6	43.7	43.7	-	22.0	485.6	485.6	-	31	289.0
885	24.4	2	3	2	6.8	45.9	-	-	22.6	510.4	-	-	32	311.4
886	25.5	2	3	2	7.1	50.2	-	-	23.6	557.5	-	-	33	355.4
887	28	2	3	2	7.8	60.5	-	-	25.9	672.2	-	-	37	470.5
888	30.5	2	3	2	8.5	71.8	-	71.8	28.2	797.5	-	797.5	40	608.1
889	30.4	2	3	2	8.4	71.3	-	-	28.1	792.3	-	-	40	602.2
890	28.3	2	3	2	7.9	61.8	-	-	26.2	686.6	-	-	37	485.8
891	25.5	2	3	2	7.1	50.2	-	-	23.6	557.5	-	-	33	355.4
892	23.2	2	3	2	6.4	41.5	-	-	21.5	461.5	-	-	30	267.6
893	20.5	2	3	2	5.7	32.4	-	-	19.0	360.3	-	-	27	184.7
894	17.9	2	3	2	5.0	24.7	-	-	16.6	274.7	-	-	23	122.9
895	15.4	2	N	N	4.3	18.3	-	-	14.3	203.3	-	-	20	78.3
896	12.8	N	N	N	3.6	12.6	-	-	11.9	140.5	-	-	13	44.9
897	9.9	N	N	N	2.8	7.6	-	-	9.2	84.0	-	-	13	20.8
898	6.9	N	N	N	1.9	3.7	-	-	6.4	40.8	-	-	13	7.0
899	4.2	N	N	N	1.2	1.4	-	-	3.9	15.1	-	-	13	1.6
900	2.5	N	N	N	0.7	0.5	-	-	2.3	5.4	-	-	13	0.3
901	0	N	N	N	0.0	0.0	0.0	-	0.0	0.0	0.0	-	13	0.0
902	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
903	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
904	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
905	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
906	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
907	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
908	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
909	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
910	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
911	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
912	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
913	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
914	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
915	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
916	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
917	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
918	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0

919	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
920	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
921	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
922	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
923	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
924	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
925	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
926	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
927	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
928	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
929	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
930	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
931	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
932	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
933	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
934	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
935	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
936	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
937	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
938	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
939	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
940	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
941	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
942	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
943	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
944	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
945	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
946	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
947	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
948	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
949	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
950	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
951	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
952	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
953	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
954	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
955	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
956	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
957	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
958	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
959	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
960	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
961	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
962	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
963	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
964	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
965	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
966	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
967	1.2	1	1	1	0.3	0.1	-	-	1.1	1.2	-	-	3	0.0

968	3.2	1	1	1	0.9	0.8	-	-	3.0	8.8	-	-	7	0.7
969	4.4	1	1	1	1.2	1.5	-	-	4.1	16.6	-	-	10	1.8
970	4.9	1	1	1	1.4	1.9	-	-	4.5	20.6	-	-	11	2.5
971	6.5	1	1	1	1.8	3.3	-	-	6.0	36.2	-	-	14	5.9
972	9	1	1	1	2.5	6.3	-	-	8.3	69.4	-	-	20	15.6
973	10.8	1	1	1	3.0	9.0	-	-	10.0	100.0	-	-	23	27.0
974	11.4	1	1	1	3.2	10.0	-	10.0	10.6	111.4	-	111.4	25	31.8
975	11.3	1	1	1	3.1	9.9	-	-	10.5	109.5	-	-	25	30.9
976	10.2	1	1	1	2.8	8.0	-	-	9.4	89.2	-	-	22	22.7
977	7.8	N	1	N	2.2	4.7	-	-	7.2	52.2	-	-	13	10.2
978	5.5	N	N	N	1.5	2.3	-	-	5.1	25.9	-	-	13	3.6
979	4.3	N	N	N	1.2	1.4	-	-	4.0	15.9	-	-	13	1.7
980	3.5	N	N	N	1.0	0.9	-	-	3.2	10.5	-	-	13	0.9
981	1.9	N	N	N	0.5	0.3	-	-	1.8	3.1	-	-	13	0.1
982	0	N	N	N	0.0	0.0	0.0	-	0.0	0.0	0.0	-	13	0.0
983	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
984	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
985	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
986	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
987	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
988	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
989	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
990	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
991	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
992	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
993	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
994	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
995	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
996	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
997	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
998	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
999	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
1000	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
1001	2.9	1	1	1	0.8	0.6	-	-	2.7	7.2	-	-	6	0.5
1002	8.6	1	1	1	2.4	5.7	-	-	8.0	63.4	-	-	19	13.6
1003	13.6	1	1	1	3.8	14.3	-	-	12.6	158.6	-	-	30	53.9
1004	17.9	1	2	1	5.0	24.7	-	-	16.6	274.7	-	-	39	122.9
1005	22.2	1	2	1	6.2	38.0	-	-	20.6	422.5	-	-	48	234.5
1006	23.6	2	2	2	6.6	43.0	-	43.0	21.9	477.5	-	477.5	31	281.7
1007	21.9	2	2	2	6.1	37.0	-	-	20.3	411.2	-	-	29	225.1
1008	21.4	2	2	2	5.9	35.3	35.3	-	19.8	392.6	392.6	-	28	210.1
1009	23	2	2	2	6.4	40.8	-	-	21.3	453.5	-	-	30	260.8
1010	23	2	2	2	6.4	40.8	-	40.8	21.3	453.5	-	453.5	30	260.8
1011	20.6	2	2	2	5.7	32.7	-	-	19.1	363.8	-	-	27	187.4
1012	18.9	2	2	2	5.3	27.6	-	-	17.5	306.3	-	-	25	144.7
1013	18.4	2	2	2	5.1	26.1	-	-	17.0	290.3	-	-	24	133.5
1014	18.1	2	2	2	5.0	25.3	25.3	-	16.8	280.9	280.9	-	24	127.1
1015	18.3	2	2	2	5.1	25.8	-	-	16.9	287.1	-	-	24	131.4
1016	20	2	2	2	5.6	30.9	-	-	18.5	342.9	-	-	26	171.5

1017	23.4	2	2	2	6.5	42.3	-	-	21.7	469.4	-	-	31	274.6
1018	27.3	2	2	2	7.6	57.5	-	-	25.3	639.0	-	-	36	436.1
1019	30.5	2	3	2	8.5	71.8	-	-	28.2	797.5	-	-	40	608.1
1020	32.6	2	3	2	9.1	82.0	-	-	30.2	911.1	-	-	43	742.6
1021	33.8	3	3	3	9.4	88.2	-	88.2	31.3	979.5	-	979.5	31	827.6
1022	31.8	3	3	3	8.8	78.0	-	-	29.4	867.0	-	-	29	689.2
1023	28.6	3	3	3	7.9	63.1	-	-	26.5	701.3	-	-	26	501.4
1024	24.9	3	3	3	6.9	47.8	-	-	23.1	531.6	-	-	23	330.9
1025	22.6	3	3	N	6.3	39.4	-	-	20.9	437.9	-	-	21	247.4
1026	19.4	N	3	N	5.4	29.0	-	-	18.0	322.7	-	-	13	156.5
1027	16.7	N	N	N	4.6	21.5	-	-	15.5	239.1	-	-	13	99.8
1028	14.2	N	N	N	3.9	15.6	-	-	13.1	172.9	-	-	13	61.4
1029	10.7	N	N	N	3.0	8.8	-	-	9.9	98.2	-	-	13	26.3
1030	6.7	N	N	N	1.9	3.5	-	-	6.2	38.5	-	-	13	6.4
1031	3.5	N	N	N	1.0	0.9	-	-	3.2	10.5	-	-	13	0.9
1032	0	N	N	N	0.0	0.0	0.0	-	0.0	0.0	0.0	-	13	0.0
1033	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
1034	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
1035	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
1036	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
1037	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
1038	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
1039	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
1040	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
1041	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
1042	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
1043	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
1044	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
1045	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
1046	0	1	1	1	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
1047	3.2	1	1	1	0.9	0.8	-	-	3.0	8.8	-	-	7	0.7
1048	7.5	1	1	1	2.1	4.3	-	-	6.9	48.2	-	-	16	9.0
1049	11.6	1	1	1	3.2	10.4	-	-	10.7	115.4	-	-	25	33.5
1050	14.8	1	1	1	4.1	16.9	-	-	13.7	187.8	-	-	32	69.5
1051	17.5	1	2	1	4.9	23.6	-	-	16.2	262.6	-	-	38	114.9
1052	20.2	1	2	1	5.6	31.5	-	-	18.7	349.8	-	-	44	176.7
1053	23.1	2	2	1	6.4	41.2	-	-	21.4	457.5	-	-	30	264.2
1054	25.9	2	2	1	7.2	51.8	-	-	24.0	575.1	-	-	34	372.4
1055	28.6	2	2	2	7.9	63.1	-	-	26.5	701.3	-	-	37	501.4
1056	30.8	2	3	2	8.6	73.2	-	-	28.5	813.3	-	-	40	626.2
1057	32.8	2	3	2	9.1	83.0	-	-	30.4	922.4	-	-	43	756.3
1058	35	2	3	2	9.7	94.5	-	-	32.4	1050.2	-	-	46	919.0
1059	37	3	3	2	10.3	105.6	-	-	34.3	1173.7	-	-	34	1085.7
1060	38.8	3	3	3	10.8	116.2	-	-	35.9	1290.7	-	-	36	1252.0
1061	40.6	3	3	3	11.3	127.2	-	-	37.6	1413.2	-	-	37	1434.4
1062	42.7	3	3	3	11.9	140.7	-	-	39.5	1563.2	-	-	39	1668.7
1063	44.6	3	4	3	12.4	153.5	-	-	41.3	1705.4	-	-	41	1901.5
1064	46.2	3	4	3	12.8	164.7	-	-	42.8	1829.9	-	-	42	2113.6
1065	48.1	3	4	3	13.4	178.5	-	-	44.5	1983.5	-	-	44	2385.2

1066	50.2	3	4	3	13.9	194.4	-	-	46.5	2160.5	-	-	46	2711.5
1067	52	4	4	3	14.4	208.6	-	-	48.1	2318.2	-	-	38	3013.7
1068	53.6	4	4	3	14.9	221.7	-	-	49.6	2463.1	-	-	39	3300.6
1069	55.4	4	4	OD	15.4	236.8	-	-	51.3	2631.3	-	-	40	3644.4
1070	56.9	4	5	OD	15.8	249.8	-	-	52.7	2775.7	-	-	41	3948.5
1071	58.2	4	5	OD	16.2	261.4	-	-	53.9	2904.0	-	-	42	4225.3
1072	59.7	4	5	OD	16.6	275.0	-	-	55.3	3055.6	-	-	43	4560.5
1073	61.8	4	5	OD	17.2	294.7	-	-	57.2	3274.4	-	-	45	5058.9
1074	63.9	4	5	OD	17.8	315.1	-	-	59.2	3500.7	-	-	46	5592.4
1075	65.5	5	5	OD	18.2	331.0	-	-	60.6	3678.2	-	-	40	6023.0
1076	66.7	5	5	OD	18.5	343.3	-	-	61.8	3814.2	-	-	40	6360.2
1077	67.8	5	5	OD	18.8	354.7	-	-	62.8	3941.0	-	-	41	6680.1
1078	69.1	5	5	OD	19.2	368.4	-	-	64.0	4093.6	-	-	42	7071.7
1079	70.1	5	5	OD	19.5	379.2	-	-	64.9	4213.0	-	-	42	7383.2
1080	71	5	5	OD	19.7	389.0	-	-	65.7	4321.8	-	-	43	7671.3
1081	72.1	5	6	OD	20.0	401.1	-	-	66.8	4456.8	-	-	44	8033.4
1082	73.3	5	6	OD	20.4	414.6	-	-	67.9	4606.4	-	-	44	8441.2
1083	74.2	5	6	OD	20.6	424.8	-	-	68.7	4720.2	-	-	45	8756.0
1084	75	5	6	OD	20.8	434.0	-	-	69.4	4822.5	-	-	45	9042.2
1085	75.9	5	6	OD	21.1	444.5	-	-	70.3	4939.0	-	-	46	9371.7
1086	76.7	5	6	OD	21.3	453.9	-	-	71.0	5043.6	-	-	46	9671.2
1087	77.1	5	6	OD	21.4	458.7	-	458.7	71.4	5096.4	-	5096.4	47	9823.3
1088	76.4	5	6	OD	21.2	450.4	-	-	70.7	5004.3	-	-	46	9558.1
1089	75.2	5	6	OD	20.9	436.3	-	-	69.6	4848.3	-	-	45	9114.8
1090	73.3	5	6	OD	20.4	414.6	-	-	67.9	4606.4	-	-	44	8441.2
1091	71.2	5	6	OD	19.8	391.2	-	-	65.9	4346.2	-	-	43	7736.3
1092	69.8	5	6	OD	19.4	375.9	-	-	64.6	4177.0	-	-	42	7288.8
1093	69.3	5	6	OD	19.3	370.6	370.6	-	64.2	4117.4	4117.4	-	42	7133.3
1094	69.4	5	6	OD	19.3	371.6	-	-	64.3	4129.3	-	-	42	7164.3
1095	69.6	5	6	OD	19.3	373.8	-	-	64.4	4153.1	-	-	42	7226.4
1096	69.7	5	6	OD	19.4	374.9	-	374.9	64.5	4165.0	-	4165.0	42	7257.6
1097	69.6	5	6	OD	19.3	373.8	373.8	-	64.4	4153.1	4153.1	-	42	7226.4
1098	69.6	5	6	OD	19.3	373.8	-	-	64.4	4153.1	-	-	42	7226.4
1099	69.8	5	6	OD	19.4	375.9	-	-	64.6	4177.0	-	-	42	7288.8
1100	70	5	6	OD	19.4	378.1	-	-	64.8	4201.0	-	-	42	7351.7
1101	70.3	5	6	OD	19.5	381.3	-	-	65.1	4237.0	-	-	42	7446.6
1102	70.5	5	6	OD	19.6	383.5	-	383.5	65.3	4261.2	-	4261.2	43	7510.3
1103	70.3	5	6	OD	19.5	381.3	-	-	65.1	4237.0	-	-	42	7446.6
1104	69.9	5	6	OD	19.4	377.0	377.0	-	64.7	4189.0	4189.0	-	42	7320.2
1105	70	5	6	OD	19.4	378.1	-	-	64.8	4201.0	-	-	42	7351.7
1106	70.8	5	6	OD	19.7	386.8	-	-	65.6	4297.5	-	-	43	7606.6
1107	71.8	5	6	OD	19.9	397.8	-	-	66.5	4419.8	-	-	43	7933.5
1108	72.8	5	6	OD	20.2	408.9	-	-	67.4	4543.8	-	-	44	8269.6
1109	73.8	5	6	OD	20.5	420.3	-	-	68.3	4669.4	-	-	45	8615.1
1110	74.8	5	6	OD	20.8	431.7	-	-	69.3	4796.8	-	-	45	8970.1
1111	75.6	5	6	OD	21.0	441.0	-	-	70.0	4900.0	-	-	46	9261.0
1112	76.3	5	6	OD	21.2	449.2	-	-	70.6	4991.2	-	-	46	9520.6
1113	77.1	5	6	OD	21.4	458.7	-	-	71.4	5096.4	-	-	47	9823.3
1114	77.8	5	6	OD	21.6	467.0	-	-	72.0	5189.3	-	-	47	10093.3

1115	78.3	6	6	OD	21.8	473.1	-	-	72.5	5256.3	-	-	36	10289.1
1116	78.8	6	6	OD	21.9	479.1	-	-	73.0	5323.6	-	-	36	10487.5
1117	79.3	6	6	OD	22.0	485.2	-	-	73.4	5391.4	-	-	36	10688.4
1118	79.7	6	6	OD	22.1	490.1	-	-	73.8	5445.9	-	-	37	10850.9
1119	80.2	6	6	OD	22.3	496.3	-	-	74.3	5514.4	-	-	37	11056.4
1120	80.4	6	6	OD	22.3	498.8	-	-	74.4	5542.0	-	-	37	11139.4
1121	80.4	6	6	OD	22.3	498.8	-	-	74.4	5542.0	-	-	37	11139.4
1122	80.6	6	6	OD	22.4	501.3	-	-	74.6	5569.6	-	-	37	11222.7
1123	81	6	6	OD	22.5	506.3	-	-	75.0	5625.0	-	-	37	11390.6
1124	81.1	6	6	OD	22.5	507.5	-	-	75.1	5638.9	-	-	37	11432.9
1125	81.3	6	6	OD	22.6	510.0	-	-	75.3	5666.7	-	-	37	11517.7
1126	81.6	6	6	OD	22.7	513.8	-	513.8	75.6	5708.6	-	5708.6	37	11645.6
1127	81.5	6	6	OD	22.6	512.5	-	-	75.5	5694.7	-	-	37	11602.9
1128	80.6	6	6	OD	22.4	501.3	-	-	74.6	5569.6	-	-	37	11222.7
1129	79.7	6	6	OD	22.1	490.1	-	-	73.8	5445.9	-	-	37	10850.9
1130	79.2	6	6	OD	22.0	484.0	-	-	73.3	5377.8	-	-	36	10648.0
1131	78.8	6	6	OD	21.9	479.1	-	-	73.0	5323.6	-	-	36	10487.5
1132	78.2	6	6	OD	21.7	471.9	-	-	72.4	5242.8	-	-	36	10249.7
1133	77.8	6	6	OD	21.6	467.0	-	-	72.0	5189.3	-	-	36	10093.3
1134	77.4	6	6	OD	21.5	462.3	-	-	71.7	5136.1	-	-	36	9938.4
1135	74.2	6	6	OD	20.6	424.8	-	-	68.7	4720.2	-	-	34	8756.0
1136	71.7	6	6	OD	19.9	396.7	-	-	66.4	4407.5	-	-	33	7900.4
1137	69	6	6	OD	19.2	367.4	-	-	63.9	4081.8	-	-	32	7041.1
1138	65.6	6	6	OD	18.2	332.0	-	-	60.7	3689.4	-	-	30	6050.7
1139	63.2	6	6	OD	17.6	308.2	-	-	58.5	3424.4	-	-	29	5410.6
1140	60	6	6	OD	16.7	277.8	-	-	55.6	3086.4	-	-	28	4629.6
1141	57.4	6	6	OD	15.9	254.2	-	-	53.1	2824.7	-	-	26	4053.5
1142	54.9	6	6	OD	15.3	232.6	-	-	50.8	2584.0	-	-	25	3546.6
1143	51.4	6	6	OD	14.3	203.9	-	-	47.6	2265.1	-	-	24	2910.6
1144	47.4	6	6	OD	13.2	173.4	-	-	43.9	1926.2	-	-	22	2282.6
1145	44.1	6	6	OD	12.3	150.1	-	-	40.8	1667.4	-	-	20	1838.3
1146	41.6	6	6	OD	11.6	133.5	-	-	38.5	1483.7	-	-	19	1543.0
1147	38.7	6	6	OD	10.8	115.6	-	-	35.8	1284.0	-	-	18	1242.3
1148	37.2	6	6	OD	10.3	106.8	-	-	34.4	1186.4	-	-	17	1103.4
1149	35.4	6	6	OD	9.8	96.7	-	-	32.8	1074.4	-	-	16	950.8
1150	33.8	6	6	OD	9.4	88.2	-	-	31.3	979.5	-	-	16	827.6
1151	30.7	6	6	OD	8.5	72.7	-	-	28.4	808.0	-	-	14	620.2
1152	28.7	3	3	2	8.0	63.6	63.6	-	26.6	706.2	706.2	-	26	506.7
1153	28.7	3	3	2	8.0	63.6	-	-	26.6	706.2	-	-	26	506.7
1154	29.1	3	3	2	8.1	65.3	-	-	26.9	726.0	-	-	27	528.2
1155	29.1	3	3	2	8.1	65.3	-	-	26.9	726.0	-	-	27	528.2
1156	29.4	3	3	2	8.2	66.7	-	-	27.2	741.0	-	-	27	544.7
1157	29.8	3	3	2	8.3	68.5	-	68.5	27.6	761.4	-	761.4	27	567.2
1158	29.6	3	3	2	8.2	67.6	67.6	-	27.4	751.2	751.2	-	27	555.9
1159	29.7	3	3	2	8.3	68.1	-	-	27.5	756.3	-	-	27	561.5
1160	31.4	3	3	2	8.7	76.1	-	-	29.1	845.3	-	-	29	663.6
1161	33.2	3	3	2	9.2	85.0	-	85.0	30.7	945.0	-	945.0	30	784.3
1162	32.4	3	3	2	9.0	81.0	-	-	30.0	900.0	-	-	30	729.0
1163	29.1	3	3	2	8.1	65.3	-	-	26.9	726.0	-	-	27	528.2

1164	25.7	3	3	2	7.1	51.0	-	-	23.8	566.3	-	-	24	363.8
1165	24	3	3	2	6.7	44.4	-	-	22.2	493.8	-	-	22	296.3
1166	23.4	3	3	2	6.5	42.3	-	-	21.7	469.4	-	-	21	274.6
1167	22.8	3	3	2	6.3	40.1	-	-	21.1	445.7	-	-	21	254.0
1168	22.1	3	3	2	6.1	37.7	-	-	20.5	418.7	-	-	20	231.3
1169	21.8	3	3	2	6.1	36.7	-	-	20.2	407.4	-	-	20	222.1
1170	21.7	2	3	2	6.0	36.3	36.3	-	20.1	403.7	403.7	-	28	219.0
1171	22.3	2	3	2	6.2	38.4	-	-	20.6	426.3	-	-	29	237.7
1172	24.4	2	3	2	6.8	45.9	-	-	22.6	510.4	-	-	32	311.4
1173	27.5	2	3	2	7.6	58.4	-	-	25.5	648.4	-	-	36	445.7
1174	29.2	2	3	2	8.1	65.8	-	65.8	27.0	731.0	-	731.0	38	533.6
1175	29	2	3	2	8.1	64.9	64.9	-	26.9	721.0	721.0	-	38	522.7
1176	29.1	2	3	2	8.1	65.3	-	-	26.9	726.0	-	-	38	528.2
1177	31.1	2	3	2	8.6	74.6	-	-	28.8	829.2	-	-	41	644.7
1178	32.9	2	3	2	9.1	83.5	-	-	30.5	928.0	-	-	43	763.3
1179	33	3	3	2	9.2	84.0	-	84.0	30.6	933.6	-	933.6	30	770.3
1180	32.9	3	3	2	9.1	83.5	83.5	-	30.5	928.0	928.0	-	30	763.3
1181	33.5	3	3	2	9.3	86.6	-	86.6	31.0	962.1	-	962.1	31	805.8
1182	32.9	3	3	2	9.1	83.5	-	-	30.5	928.0	-	-	30	763.3
1183	29.4	3	3	2	8.2	66.7	-	-	27.2	741.0	-	-	27	544.7
1184	25.1	3	3	2	7.0	48.6	-	-	23.2	540.1	-	-	23	338.9
1185	22.6	3	3	2	6.3	39.4	-	-	20.9	437.9	-	-	21	247.4
1186	22.2	2	3	2	6.2	38.0	38.0	-	20.6	422.5	422.5	-	29	234.5
1187	22.6	2	3	2	6.3	39.4	-	-	20.9	437.9	-	-	29	247.4
1188	23.7	2	3	2	6.6	43.3	-	-	21.9	481.6	-	-	31	285.3
1189	25.9	2	3	2	7.2	51.8	-	-	24.0	575.1	-	-	34	372.4
1190	28.5	2	3	2	7.9	62.7	-	-	26.4	696.4	-	-	37	496.2
1191	30.9	2	3	2	8.6	73.7	-	-	28.6	818.6	-	-	40	632.4
1192	33.3	2	3	2	9.3	85.6	-	-	30.8	950.7	-	-	43	791.5
1193	34.7	3	3	2	9.6	92.9	-	92.9	32.1	1032.3	-	1032.3	32	895.5
1194	31.8	3	3	2	8.8	78.0	-	-	29.4	867.0	-	-	29	689.2
1195	28.1	3	3	2	7.8	60.9	-	-	26.0	677.0	-	-	26	475.6
1196	24.9	3	3	2	6.9	47.8	-	-	23.1	531.6	-	-	23	330.9
1197	22.6	3	3	2	6.3	39.4	-	-	20.9	437.9	-	-	21	247.4
1198	19.4	N	3	2	5.4	29.0	-	-	18.0	322.7	-	-	13	156.5
1199	16.7	N	N	N	4.6	21.5	-	-	15.5	239.1	-	-	13	99.8
1200	14.2	N	N	N	3.9	15.6	-	-	13.1	172.9	-	-	13	61.4
1201	10.7	N	N	N	3.0	8.8	-	-	9.9	98.2	-	-	13	26.3
1202	6.7	N	N	N	1.9	3.5	-	-	6.2	38.5	-	-	13	6.4
1203	3.5	N	N	N	1.0	0.9	-	-	3.2	10.5	-	-	13	0.9
1204	0	N	N	N	0.0	0.0	-	-	0.0	0.0	-	-	13	0.0
Start and end of acceleration					Total $(Speed)^2$		3310	4752	Total (Angular $velocity)^2$		36781	52802	Average Engine [rpm]	Value of integral for Variable for workload in terms of air resistance
Workload of acceleration per 1 kg 戻る Alt + ←					$1/2\Sigma(v'^2-v^2)=$		1442		$1/2\Sigma(\omega'^2-\omega^2)=$		16021		1500	1561716

Annex 2 Allocation in direct connection with the loss in the generation of power in the prime mover of internal combustion engine

Procedures for calculating the allocation ratio:

1) Estimating the cost of manufacture of passenger car
2) Estimating the cost of manufacture of engine
3) Estimating the selling price (the cost from the standpoint of engine manufacturing) of individual automotive parts
4) Calculating the ratio of the cost of individual component parts to the cost of manufacture of engine

Detail explanation:

1) Estimating the cost of manufacture of passenger car

Components		Selling price (1,000 yen)	Manufacturing cost (1,000 yen)	Ratio (%)
Entire automobile		1,800	1,440	100
	Engine	(432)	346	24
	Chassis	(198)	158	11
	Body	(414)	331	23
	Electrical equipment & Electronic components	(360)	288	20
	Auto supplies	(396)	317	22

Complied based on Table 3-3 in Section 3 Evaluation of High-Efficiency Automobiles and Hybrid Automobiles in Part 2 Standardized Technical Information for Energy Statistics consistent with SNA (System of National Accounts) of the Research on Administration of Technical Information for Contribution to Comprehensive Economy, Energy, and Environment Analyses, one of the FY 2006 research projects commissioned by the Economic and Social Research Institute (ESRI), Cabinet Office, Government of Japan (http: //www.esri.go.jp/jp/prj/hou/hou031/hou31.pdf#page=215).

Suppose that a passenger car is sold at 1.8 million yen (tax-exclusive). Set the manufacturing cost at 80% of the selling price involved for estimation of the cost of manufacture. As a result, the manufacturing cost of passenger car without any profit included is found to be **1,800×80%=1,440 (x 1,000 yen).**

2) Estimating the cost of manufacture of engine
Since the engine cost ratio is found to be 24% from the table shown above, the engine manufacturing cost becomes **1,440×24%=346 (x 1,000 yen).**

3) Estimating the selling price (the cost from the standpoint of engine manufacturing) of individual automotive parts
①②
Based on the Results of Survey on Automotive Part Shipment Trends, FY 2012 Automotive Part Shipment Values by Product and Shipment Destination (http: //www.japia.or.jp/research/foword.html) released by the Japan Auto Parts Industries Association (JAPIA)
③
Production of four-wheeled vehicles in the term from April 2012 to March 2013 based on the Active Matrix Database System (http: //jamaserv.jama.or.jp/newdb/index.html) released by the Japan Automobile Manufacturers Association, Inc. (JAMA)

No.	Part name (Engine part)	Shipment value to domestic automakers ① [million yen]	Shipment value to (Domestic ①＋ Domestic auto part manufacturers) ② [million yen]	No. of vehicles shipped (Four-wheeled) ③	Average estimated selling price (each vehicle) ②÷③ [yen]	Remarks
101	Piston	36,615	36,757	9,550,883	3,849	
103	Piston ring	18,704	18,912	9,550,883	1,980	
104	Cylinder liner	18,161	18,161	9,550,883	1,901	
105	Engine gaskets & packings	21,038	22,622	9,550,883	2,369	
107	Engine valve	22,392	22,511	9,550,883	2,357	
111	Valve rocker arm & shaft	16,839	17,441	9,550,883	1,826	
112	Valve drive part and camshaft	33,870	34,798	9,550,883	3,643	
123	Bearing metal	16,509	18,809	9,550,883	1,969	
140	Fuel pump	31,364	38,588	9,550,883	4,040	
142	Diesel fuel injection system (Mechanical)	53,631	54,936	1,361,979	40,335	Referring only to the number of trucks and buses.
143	Diesel fuel injection system (Electronic)	78,100	78,109	1,361,979	57,350	↑
144	Diesel fuel injection nozzle	19,631	19,631	1,361,979	14,414	↑
145	Gasoline fuel injection nozzle (Injector)	76,799	78,090	8,188,904	9,536	Referring only to the number of passenger cars.
146	Fuel filter	3,161	28,113	9,550,883	2,943	
147	Air cleaner	19,831	47,482	9,550,883	4,971	
148	Air cleaner element	280	430	9,550,883	45	
150	Manifold	104,129	115,391	9,550,883	12,082	
151	Supercharger (Turbocharger & supercharger)	-	318,000	12,220,000	26,023	The number of vehicles estimated based on an article in the Toyo Keizai magazine (dated Feb. 26, 2015).
160	Oil pump	36,072	47,949	9,550,883	5,020	
161	Oil filter	4,835	14,572	9,550,883	1,526	
162	Water pump	18,918	20,743	9,550,883	2,172	
163	Radiator	95,786	97,713	9,550,883	10,231	
164	Thermostat	8,418	8,919	9,550,883	934	
165	Oil cooler	21,216	25,089	9,550,883	2,627	
166	Fan & fan clutch	12,035	13,123	9,550,883	1,374	
171	Catalytic converter	129,919	132,253	9,550,883	13,847	
172	Other exhaust emission control devices	110,374	113,115	9,550,883	11,843	
174	Hoses	70,123	87,105	9,550,883	9,120	
175	Exhaust pipe & muffler	224,084	224,741	9,550,883	23,531	

190	Other engine parts	492,745	624,785	-	-	The wholesale prices to auto makers is assumed to be one-third of the retail prices of auto parts, and the retail prices are defined based on the survey by the Subcommittee.
191	Valve spring	-	-	-	2,300	
192	Timing chain & belt	-	-	-	1,600	
193	Canister	-	-	-	5,000	
194	Flywheel	-	-	-	6,700	
195	Crankshaft	-	-	-	26,700	
196	Connecting rod	-	-	-	13,300	
197	Timing gear cylinder head & bolt	-	-	-	43,300	
198	Rotary engine exclusive part, etc.	-	-	-	-	

No.	Part name (Electrical equipment & Electronic components)	Shipment value to domestic automakers ① [million yen]	Shipment value to (Domestic ① ＋Domestic auto part manufacture) ② [million yen]	No. of vehicles shipped (Four-wheeled) ③	Average estimated selling price (each vehicle) ②÷③ [yen]	Remarks
213	Ignition coil	51,362	52,422	8,554,503	6,128	Referring only to the number of passenger cars.
214	Spark plug	9,921	10,138	8,554,503	1,185	↑
215	Glow plug	3,793	3,955	1,388,574	2,848	Referring only to the number of trucks and buses.
220	Engine control system	140,993	148,441	9,943,077	14,929	

4) Calculating the ratio of the cost of individual component parts to the cost of manufacture of engine
The difference obtained by subtracting the sum total of selling prices of parts related to engine (natural aspiration gasoline engine) determined in 3) from the engine manufacturing cost determined in 2) is regarded as the cost of cylinder block and other engine parts which are not manufactured by any JAPIA member companies, and the cost is assumed to be common to gasoline engine and diesel engine. In this case, the cost of engine parts manufactured at any manufacturers other than JAPIA member companies becomes **346-257＝89 (1,000 yen).**

For individual types, the engine manufacturing costs have been specified as listed below.

Gasoline engine (incl. HEV/PHEV) (Natural aspiration) [1,000 yen]	Gasoline engine (Supercharged) [1,000 yen]	Diesel engine (Natural aspiration) [1,000 yen]	Diesel engine (Supercharged) [1,000 yen]
3,456	3,716	4,095	4,355

Setting the engine manufacturing cost as the denominator, calculate the ratio of cost of individual parts configuring the engine.

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