

# Selected Tables of Atomic Spectra

**A Atomic Energy Levels - Second Edition**

**B Multiplet Tables**

**01**

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Data Derived from the Analyses of Optical Spectra

Charlotte E. Moore

Office of Standard Reference Data  
National Bureau of Standards  
Washington, D.C. 20234

U.S. Naval Research Laboratory  
E. O. Hulbert Center for Space Research  
Washington, D.C. 20375



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### **Abstract**

The present publication is the seventh Section of a series being prepared in response to the need for a current revision of two sets of the author's tables containing data on atomic spectra as derived from analyses of optical spectra. As in the previous Sections, Part A contains the atomic energy levels and Part B the multiplet tables. Section 7 presents this material for the first spectrum of oxygen, O I. The form of presentation is described in detail in the text to Section 1.

**Key words:** Atomic energy levels, O I; Atomic spectra, O I; Multiplet Table, O I; Oxygen, first spectrum; Spectrum O I; Wavelengths, O I.

## Foreword

The National Standard Reference Data System provides access to the quantitative data of physical science, critically evaluated and compiled for convenience and readily accessible through a variety of distribution channels. The System was established in 1963 by action of the President's Office of Science and Technology and the Federal Council for Science and Technology, and responsibility to administer it was assigned to the National Bureau of Standards.

NSRDS receives advice and planning assistance from a Review Committee of the National Research Council of the National Academy of Sciences-National Academy of Engineering. A number of Advisory Panels, each concerned with a single technical area, meet regularly to examine major portions of the program, assign relative priorities, and identify specific key problems in need of further attention. For selected specific topics, the Advisory Panels sponsor subpanels which make detailed studies of users' needs, the present state of knowledge, and existing data resources as a basis for recommending one or more data compilation activities. This assembly of advisory services contributes greatly to the guidance of NSRDS activities.

The System now includes a complex of data centers and other activities in academic institutions and other laboratories. Components of the NSRDS produce compilations of critically evaluated data, reviews of the state of quantitative knowledge in specialized areas, and computations of useful functions derived from standard reference data. The centers and projects also establish criteria for evaluation and compilation of data and recommend improvements in experimental techniques. They are normally associated with research in the relevant field.

The technical scope of NSRDS is indicated by the categories of projects active or being planned: nuclear properties, atomic and molecular properties, solid state properties, thermodynamic and transport properties, chemical kinetics, and colloid and surface properties.

Reliable data on the properties of matter and materials are a major foundation of scientific and technical progress. Such important activities as basic scientific research, industrial quality control, development of new materials for building and other technologies, measuring and correcting environmental pollution depend on quality reference data. In NSRDS, the Bureau's responsibility to support American science, industry, and commerce is vitally fulfilled.

ERNEST AMBLER, *Acting Director*

## Preface

The present publication is the seventh Section of a series that is being prepared in response to the increasing demand for a current revision of two sets of tables containing data on atomic spectra as derived from analyses of optical spectra.

The first set, Atomic Energy Levels, NBS Circular 467, consists of three Volumes published, respectively, in 1949, 1952 and 1958. This Circular has been reprinted as NSRDS-NBS 35, Volumes I, II and III.

The second set consists of two Multiplet Tables; one published in 1945 by the Princeton University Observatory, containing multiplets having wavelengths longer than 3000 Å; the other, An Ultraviolet Multiplet Table, NBS Circular 488, appearing in five Sections, the first in 1950, the second in 1952, and the others in 1962. The Princeton Multiplet Table was reprinted in 1972 as NSRDS-NBS 40.

The present series includes both sets of data, the energy levels and multiplet tables, as parts A and B, respectively, for selected spectra contained in Volume I of "Atomic Energy Levels." The Sections are being published at irregular intervals as revised analyses become available. A flexible paging system permits the arrangement of the various Sections by atomic number, regardless of the order in which the separate spectra are published. Section 1 includes three spectra of silicon,  $Z=14$ : Si II, Si III, Si IV. Section 2 contains similar data for Si I. Section 3 covers all spectra of carbon,  $Z=6$ : C I, C II, C III, C IV, C V, C VI. Section 4 includes the last four spectra of nitrogen,  $Z=7$ : N IV, N V, N VI, N VII. Section 5 completes the spectra of nitrogen, N I, N II, N III. Section 6 contains the spectra of hydrogen,  $Z=1$ : H I, D, T. The present Section, 7, contains the first spectrum of oxygen,  $Z=8$ : O I. The form of presentation of the data is described in detail in the text of Section 1. All Sections are arranged identically, and the same conversion factor,  $\text{cm}^{-1}$  to eV, 0.000123981 is used throughout.

The manuscript has been prepared by Charlotte E. Moore, who has published the earlier tables. She appreciates the cordial cooperation of numerous atomic spectroscopists. She is particularly indebted to colleagues in Sweden, B. Edlén and K.B.S. Eriksson for their helpful guidance and for providing valuable data on the analysis. The splendid work of Barbara N. Somerville in typing the press copy of this difficult material is, also, gratefully acknowledged.

Washington, D.C., June 1975.

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**NSRDS-NBS 3, SECTION 7**

**OXYGEN  $Z = 8$**

**A O I Atomic Energy Levels**

**B O I Multiplet Table**

# Atomic Energy Levels

## OXYGEN

### Part A

#### O I

8 electrons

$Z=8$

Ground state  $1s^2 2s^2 2p^4 \ ^3P_2$

$2p^4 \ ^3P_2$  109837.02  $\pm$  0.06  $\text{cm}^{-1}$ , 910.440  $\text{\AA}$  (Vac)

I P 13.618 eV

The classical paper on O I published in 1943 by B. Edlén has been revised and extended by K. B. S. Eriksson, H. B. S. Isberg and B. Isberg. Their publications in 1963, 1965, 1967, and 1968, have been used for the present compilation. The work of R. E. Huffman, J. C. Larrabee and Y. Tanaka is quoted for the extended absorption series observed from the ground state combinations in the ranges 122  $\text{\AA}$  to 149  $\text{\AA}$  and 666  $\text{\AA}$  to 952  $\text{\AA}$ . The paper on "Energy Spectra of Auto-Ionizing Electrons in Oxygen," by M. E. Rudd and K. Smith, also includes experimental and theoretical energy levels and transitions in these series, expressed in eV. Their observations are for the most part included by Huffman and his associates.

In 1965 Eriksson pointed out the need for a correction of  $-0.012 \text{ cm}^{-1}$  to selected terms in the 1963 paper by him and Isberg. This correction has been made.

The limits are from the 1968 reference.



Atomic Energy Levels

O I—Continued

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O I

O I

Configuration	Desig.	<i>J</i>	Level	Interval	Configuration	Desig.	<i>J</i>	Level	Interval		
$2s^2 2p^4$	$2p^4 \ ^3P$	2	0.000	-158.265 -68.712	$2s^2 2p^3(^2D^{\circ}_{11})3s$	$3s' \ ^1D^{\circ}$	2	102662.026			
		1	158.265								
		0	226.977								
$2s^2 2p^4$	$2p^4 \ ^1D$	2	15867.862		$2s^2 2p^3(^4S^{\circ})4d$	$4d \ ^5D^{\circ}$	4	102865.506	-0.041		
				3			102865.547	-0.059			
				2			102865.606	-0.049			
				1			102865.655	-0.024			
$2s^2 2p^4$	$2p^4 \ ^1S$	0	33792.583				0	102865.679			
$2s^2 2p^3(^4S^{\circ})3s$	$3s \ ^5S^{\circ}$	2	73768.200		$2s^2 2p^3(^4S^{\circ})4d$	$4d \ ^3D^{\circ}$	3	102908.374	-0.069		
$2s^2 2p^3(^4S^{\circ})3s$	$3s \ ^3S^{\circ}$	1	76794.978				2	102908.443	-0.046		
$2s^2 2p^3(^4S^{\circ})3p$	$3p \ ^5P$	1	86625.757	2.021	$2s^2 2p^3(^4S^{\circ})4f$	$4f \ ^5F$	5 to 1	102968.249			
		2	86627.778	3.676							
		3	86631.454				$2s^2 2p^3(^4S^{\circ})4f$	$4f \ ^3F$	4, 3, 2	102968.343	
$2s^2 2p^3(^4S^{\circ})3p$	$3p \ ^3P$	2	88631.146	0.559	$2s^2 2p^3(^4S^{\circ})5p$	$5p \ ^5P$	1	103625.754	0.357		
		1	88630.587	-0.716			2	103626.111	0.500		
		0	88631.303				3	103626.611			
$2s^2 2p^3(^4S^{\circ})4s$	$4s \ ^5S^{\circ}$	2	95476.728		$2s^2 2p^3(^4S^{\circ})5p$	$5p \ ^3P$	2	103869.968	-0.060		
$2s^2 2p^3(^4S^{\circ})4s$	$4s \ ^3S^{\circ}$	1	96225.049				1	103870.028	-0.224		
							0	103870.252			
$2s^2 2p^3(^4S^{\circ})3d$	$3d \ ^5D^{\circ}$	4	97420.630	-0.086	$2s^2 2p^3(^4S^{\circ})6s$	$6s \ ^5S^{\circ}$	2	105019.307			
		3	97420.716	-0.123							
		2	97420.839	-0.103			$2s^2 2p^3(^4S^{\circ})6s$	$6s \ ^3S^{\circ}$	1	105165.232	
		1	97420.942	-0.049							
		0	97420.991						$2s^2 2p^3(^4S^{\circ})5d$	$5d \ ^5D^{\circ}$	4
$2s^2 2p^3(^4S^{\circ})3d$	$3d \ ^3D^{\circ}$	1	97488.378	0.070			3	105385.377	-0.032		
		2	97488.448	0.090			2	105385.409	-0.027		
		3	97488.538				1	105385.436	-0.013		
							0	105385.449			
$2s^2 2p^3(^4S^{\circ})4p$	$4p \ ^5P$	1	99092.968	0.673	$2s^2 2p^3(^4S^{\circ})5d$	$5d \ ^3D^{\circ}$	1, 2, 3	105409.008			
		2	99093.641	1.196							
		3	99094.837				$2s^2 2p^3(^4S^{\circ})5f$	$5f \ ^5F$	1 to 5	105441.645	
$2s^2 2p^3(^4S^{\circ})4p$	$4p \ ^3P$	2	99681.049	0.081	$2s^2 2p^3(^4S^{\circ})5f$	$5f \ ^3F$	4, 3, 2	105441.724			
		1	99680.968	-0.341							
		0	99681.309				$2s^2 2p^3(^4S^{\circ})6p$	$6p \ ^5P$	1	105788.431	0.164
$2s^2 2p^3(^2D^{\circ})3s$	$3s' \ ^3D^{\circ}$	3	101135.407	-12.119			2	105788.595	0.261		
		2	101147.526	-7.896			3	105788.856			
		1	101155.422		$2s^2 2p^3(^4S^{\circ})6p$	$6p \ ^3P$	2, 1, 0	105912.031			
$2s^2 2p^3(^4S^{\circ})5s$	$5s \ ^5S^{\circ}$	2	102116.698		$2s^2 2p^3(^4S^{\circ})7s$	$7s \ ^5S^{\circ}$	2	106545.354			
$2s^2 2p^3(^4S^{\circ})5s$	$5s \ ^3S^{\circ}$	1	102411.995		$2s^2 2p^3(^4S^{\circ})7s$	$7s \ ^3S^{\circ}$	1	106627.934			

## Atomic Energy Levels

## O I—Continued

## O I—Continued

Configuration	Desig.	<i>J</i>	Level	Interval	Configuration	Desig.	<i>J</i>	Level	Interval
$2p^3(^4S^{\circ})6d$	6d $^5D^{\circ}$	4	106751.447	-0.011 -0.016 -0.013 -0.007	$2s^2 2p^3(^4S^{\circ})15d$	15d $^3D^{\circ}$	3, 2, 1	109348.9	
		3	106751.458						
		2	106751.474						
		1	106751.487						
		0	106751.494						
$2p^3(^4S^{\circ})6d$	6d $^3D^{\circ}$	3, 2, 1	106765.803		$2s^2 2p^3(^4S^{\circ})17s$	17s $^3S^{\circ}$	1	109402.4	
					$2s^2 2p^3(^4S^{\circ})16d$	16d $^3D^{\circ}$	3, 2, 1	109409.5	
$2p^3(^4S^{\circ})6f$	6f $^5F$	5 to 1	106785.160		$2s^2 2p^3(^4S^{\circ})18s$	18s $^3S^{\circ}$	1	109454.7	
$2p^3(^4S^{\circ})6f$	6f $^3F$	4, 3, 2	106785.201		$2s^2 2p^3(^4S^{\circ})17d$	17d $^3D^{\circ}$	3, 2, 1	109457.6	
$2p^3(^4S^{\circ})6g$	6g $^5G^{\circ}$	6 to 2	106787.891		$2s^2 2p^3(^4S^{\circ})18d$	18d $^3D^{\circ}$	3, 2, 1	109498.0	
$2p^3(^4S^{\circ})8s$	8s $^5S^{\circ}$	2	107446.036		$2s^2 2p^3(^4S^{\circ})19s$	19s $^3S^{\circ}$	1	109499.0	
$2p^3(^4S^{\circ})8s$	8s $^3S^{\circ}$	1	107497.224		$2s^2 2p^3(^4S^{\circ})19d$	19d $^3D^{\circ}$	3, 2, 1	109533.2	
$2p^3(^4S^{\circ})7d$	7d $^5D^{\circ}$	4	107573.476	-0.008 -0.011 -0.009 -0.004	$2s^2 2p^3(^4S^{\circ})20s$	20s $^3S^{\circ}$	1	109533.3	
		3	107573.484						
		2	107573.495						
		1	107573.504						
		0	107573.508						
$2p^3(^4S^{\circ})7d$	7d $^3D^{\circ}$	3, 2, 1	107582.777		$2s^2 2p^3(^4S^{\circ})20d$	20d $^3D^{\circ}$	3, 2, 1	109561.5	
					$2s^2 2p^3(^4S^{\circ})21s$	21s $^3S^{\circ}$	1	109562.3	
$2p^3(^4S^{\circ})7f$	7f $^5F$	5 to 1	107595.140		$2s^2 2p^3(^4S^{\circ})22s$	22s $^3S^{\circ}$	1	109589.0	
$2p^3(^4S^{\circ})7f$	7f $^3F$	4, 3, 2	107595.147		$2s^2 2p^3(^4S^{\circ})21d$	21d $^3D^{\circ}$	3, 2, 1	109589.3	
$2p^3(^4S^{\circ})9s$	9s $^3S^{\circ}$	1	108056.0		$2s^2 2p^3(^4S^{\circ})23s$	23s $^3S^{\circ}$	1	109610.5	
$2p^3(^4S^{\circ})8d$	8d $^5D^{\circ}$	4	108106.072	-0.005 -0.008 -0.006 -0.003	$2s^2 2p^3(^4S^{\circ})22d$	22d $^3D^{\circ}$	3, 2, 1	109610.5	
		3	108106.077						
		2	108106.085						
		1	108106.091						
		0	108106.094						
$2p^3(^4S^{\circ})8d$	8d $^3D^{\circ}$	3, 2, 1	108114.0		$2s^2 2p^3(^4S^{\circ})24s$	24s $^3S^{\circ}$	1	109630.0	
					$2s^2 2p^3(^4S^{\circ})23d$	23d $^3D^{\circ}$	3, 2, 1	109630.0	
$2p^3(^4S^{\circ})10s$	10s $^3S^{\circ}$	1	108436.3		$2s^2 2p^3(^4S^{\circ})25s$	25s $^3S^{\circ}$	1	109647.7	
$2p^3(^4S^{\circ})9d$	9d $^3D^{\circ}$	3, 2, 1	108476.7		$2s^2 2p^3(^4S^{\circ})24d$	24d $^3D^{\circ}$	3, 2, 1	109647.7	
$2p^3(^4S^{\circ})11s$	11s $^3S^{\circ}$	1	108705.5		$2s^2 2p^3(^4S^{\circ})26s$	26s $^3S^{\circ}$	1	109661.4	
$2p^3(^4S^{\circ})10d$	10d $^3D^{\circ}$	3, 2, 1	108736.1		$2s^2 2p^3(^4S^{\circ})25d$	25d $^3D^{\circ}$	3, 2, 1	109661.4	
$2p^3(^4S^{\circ})12s$	12s $^3S^{\circ}$	1	108906.1		$2s^2 2p^3(^4S^{\circ})27s$	27s $^3S^{\circ}$	1	109673.5	
$2p^3(^4S^{\circ})11d$	11d $^3D^{\circ}$	3, 2, 1	108927.2		$2s^2 2p^3(^4S^{\circ})26d$	26d $^3D^{\circ}$	3, 2, 1	109673.5	
$2p^3(^4S^{\circ})13s$	13s $^3S^{\circ}$	1	109056.0		$2s^2 2p^3(^4S^{\circ})28s$	28s $^3S^{\circ}$	1	109686.2	
$2p^3(^4S^{\circ})12d$	12d $^3D^{\circ}$	3, 2, 1	109073.3		$2s^2 2p^3(^4S^{\circ})27d$	27d $^3D^{\circ}$	3, 2, 1	109686.2	
$2p^3(^4S^{\circ})14s$	14s $^3S^{\circ}$	1	109171.7		$2s^2 2p^3(^4S^{\circ})29s$	29s $^3S^{\circ}$	1	109695.9	
$2p^3(^4S^{\circ})13d$	13d $^3D^{\circ}$	3, 2, 1	109186.3		$2s^2 2p^3(^4S^{\circ})28d$	28d $^3D^{\circ}$	3, 2, 1	109695.9	
$2p^3(^4S^{\circ})15s$	15s $^3S^{\circ}$	1	109265.9		$2s^2 2p^3(^4S^{\circ})30s$	30s $^3S^{\circ}$	1	109705.4	
$2p^3(^4S^{\circ})14d$	14d $^3D^{\circ}$	3, 2, 1	109270.2		$2s^2 2p^3(^4S^{\circ})29d$	29d $^3D^{\circ}$	3, 2, 1	109705.4	
$2p^3(^4S^{\circ})16s$	16s $^3S^{\circ}$	1	109341.0		$2s^2 2p^3(^4S^{\circ})31s$	31s $^3S^{\circ}$	1	109713.7	
					$2s^2 2p^3(^4S^{\circ})30d$	30d $^3D^{\circ}$	3, 2, 1	109713.7	
					O II $2s^2 2p^3(^4S^{\circ}_{11})$	Limit		109837.02 ± .06	
					$2s^2 2p^3(^2D^{\circ})3p$	3p' $^1P$	1	113204.445	

## Atomic Energy Levels

## O I—Continued

## O I—Continued

Configuration	Desig.	<i>J</i>	Level	Interval	Configuration	Desig.	<i>J</i>	Level	Interval		
$2s^2 2p^3(^2D^\circ)3p$	$3p'$ $^3D$	3	113294.816	-0.030 -3.466	$2s^2 2p^3(^2P^\circ)3p$	$3p''$ $^1P$	1	127667.754			
		2	113294.854				$2s^2 2p^3(^2P^\circ)3p$	$3p''$ $^1D$		2	128594.916
		1	113298.320								
$2s^2 2p^3(^2D^\circ)3p$	$3p'$ $^3F$	4	113714.444	-6.969 -5.752	$2s^2 2p^3(^2D^\circ)5s$	$5s'$ $^3D^\circ$	3	128978.8	-11.4 -8.0		
		3	113721.413				2	128990.2			
		2	113727.165				1	128998.2			
$2s^2 2p^3(^2P^\circ)3s$	$3s''$ $^3P^\circ$	2	113910.957	-10.434 -6.143	$2s^2 2p^3(^2D^\circ_{11})5s$	$5s'$ $^1D^\circ$	2	129132.323			
		1	113921.391				$2s^2 2p^3(^2D^\circ_{21})4d$	$4d'$ $^3F^\circ$		4	129666.907
		0	113927.534							3	
$2s^2 2p^3(^2D^\circ)3p$	$3p'$ $^1F$	3	113996.239								
$2s^2 2p^3(^2P^\circ)3s$	$3s''$ $^1P^\circ$	1	115918.143		$2s^2 2p^3(^2D^\circ)4d$	$4d'$ $^3G^\circ$	5	129680.522	0.681		
$2s^2 2p^3(^2D^\circ)3p$	$3p'$ $^1D$	2	116631.094				4	129679.841	-13.647		
							3	129693.488			
$2s^2 2p^3(^2D^\circ)4s$	$4s'$ $^3D^\circ$	3	122419.7	-13.5 -7.8	$2s^2 2p^3(^2D^\circ_{21})4d$	$4d'$ $^1S^\circ$	0	129682.528			
		2	122433.2				$2s^2 2p^3(^2D^\circ_{21})4d$	$4d'$ $^1P^\circ$		1	129683
		1	122441.0								
$2s^2 2p^3(^2D^\circ_{11})4s$	$4s'$ $^1D^\circ$	2	122797.661		$2s^2 2p^3(^2D^\circ_{21})4d$	$4d'$ $^3D^\circ$	3	129692.3	-5.2		
				2			129697.5				
$2s^2 2p^3(^2D^\circ_{11})3d$	$3d'$ $^3P^\circ$	2	123296.777	-58.735 -31.827	$2s^2 2p^3(^2D^\circ_{11})4d$	$4d'$ $^1G^\circ$	4	129699.521			
		1	123355.512				$2s^2 2p^3(^2D^\circ_{11})4d$	$4d'$ $^1D^\circ$		2	129731
		0	123387.339								
$2s^2 2p^3(^2D^\circ_{21})3d$	$3d'$ $^3F^\circ$	4	124213.607	-5.418 -5.093	$2s^2 2p^3(^2D^\circ_{11})4d$	$4d'$ $^3S^\circ$	1	129736.6			
		3	124219.025				$2s^2 2p^3(^2D^\circ_{11})4d$	$4d'$ $^1F^\circ$		3	129737.052
		2	124224.118								
$2s^2 2p^3(^2D^\circ)3d$	$3d'$ $^3G^\circ$	5	124240.118	1.468 -14.276	$2s^2 2p^3(^2D^\circ)4f$	$4f'$ $^3G$	5	129777.940			
		4	124238.650				4				
		3	124252.926				3				
$2s^2 2p^3(^2D^\circ_{21})3d$	$3d'$ $^1S^\circ$	0	124242.576								
$2s^2 2p^3(^2D^\circ_{21})3d$	$3d'$ $^3D^\circ$	3	124247.1	-10.6 -6.3	$2s^2 2p^3(^2D^\circ)4f$	$4f'$ $^3H$	4		0.010		
		2	124257.7				5	129779.919			
		1	124264.0				6	129779.929			
$2s^2 2p^3(^2D^\circ_{11})3d$	$3d'$ $^1G^\circ$	4	124258.780		$2s^2 2p^3(^2D^\circ)4f$	$4f'$ $^1H$	5	129799.831			
$2s^2 2p^3(^2D^\circ_{21})3d$	$3d'$ $^1P^\circ$	1	124274		$2s^2 2p^3(^2D^\circ_{11})4d$	$4d'$ $^3P^\circ$	2	129970.000	-9.384 -0.169		
							1	129979.384			
							0	129984.553			
$2s^2 2p^3(^2D^\circ_{11})3d$	$3d'$ $^1D^\circ$	2	124319.175								
$2s^2 2p^3(^2D^\circ_{11})3d$	$3d'$ $^1F^\circ$	3	124326.779		$2s^2 2p^3(^2P^\circ)3p$	$3p''$ $^1S$	0	130942.923			
$2s^2 2p^3(^2D^\circ_{11})3d$	$3d'$ $^3S^\circ$	1	124336.3		$2s^2 2p^3(^2D^\circ)6s$	$6s'$ $^3D^\circ$	3	131854.5	-11.0 -10.6		
				2			131865.5				
				1			131876.1				
$2s^2 2p^3(^2D^\circ)4p$	$4p'$ $^3D$	3	125775.493	-7.396 -5.119	$2s^2 2p^3(^2D^\circ_{11})6s$	$6s'$ $^1D^\circ$	2	131936			
		2	125782.889								
		1	125788.008								
$2s 2p^5$	$2p^5$ $^3P^\circ$	2	126266.896	-73.329 -43.526	$2s^2 2p^3(^2D^\circ_{21})5d$	$5d'$ $^3F^\circ$	4	132190.671			
		1	126340.225				3				
		0	126383.751				2				
$2s^2 2p^3(^2P^\circ)3p$	$3p''$ $^3D$	3	127282.626	-5.723 -3.289	$2s^2 2p^3(^2D^\circ)5d$	$5d'$ $^3G^\circ$	3		0.350		
		2	127288.349				4	132198.046			
		1	127291.638				5	132198.396			

## Atomic Energy Levels

## O I—Continued

## O I—Continued

Configuration	Desig.	<i>J</i>	Level	Interval	Configuration	Desig.	<i>J</i>	Level	Interval
$s^2 2p^3(^2D^{\circ}_{23})5d$	$5d' \ ^1P^{\circ}$	1	132203		$2s^2 2p^3(^2D^{\circ}_{21})8d$	$8d' \ ^3D^{\circ}$	3, 2, 1	134919.2	
$s^2 2p^3(^2D^{\circ}_{21})5d$	$5d' \ ^3D^{\circ}$	3 2 1	132203.4 132213.8 132218.1	-10.4 -4.3	$2s^2 2p^3(^2D^{\circ}_{11})8d$	$8d' \ ^3S^{\circ}$	1	134919.2	
$s^2 2p^3(^2D^{\circ}_{11})5d$	$5d' \ ^1G^{\circ}$	4	132217.679		$2s^2 2p^3(^2D^{\circ}_{21})8d$	$8d' \ ^1P^{\circ}$	1	134921	
$s^2 2p^3(^2D^{\circ}_{11})5d$	$5d' \ ^3S^{\circ}$	1	132232.6		$2s^2 2p^3(^2D^{\circ}_{11})8d$	$8d' \ ^1D^{\circ}$	2	134940	
$s^2 2p^3(^2D^{\circ}_{11})5d$	$5d' \ ^1D^{\circ}$	2	132235		$2s^2 2p^3(^2D^{\circ}_{11})8d$	$8d' \ ^1F^{\circ}$	3	134940	
$s^2 2p^3(^2D^{\circ}_{11})5d$	$5d' \ ^1F^{\circ}$	3	132240		$2s^2 2p^3(^2D^{\circ}_{11})8d$	$8d' \ ^3P^{\circ}$	2 1 0	134943.8 134947.1	-3.3
$s^2 2p^3(^2D^{\circ}_{11})5d$	$5d' \ ^3P^{\circ}$	2 1 0	132311.1 132316.2	-5.1	$2s^2 2p^3(^2D^{\circ})10s$	$10s' \ ^3D^{\circ}$	3 2 1	135226.7	
$s^2 2p^3(^2D^{\circ})7s$	$7s' \ ^3D^{\circ}$	3 2 1	133369.8 133378.8 133390.2	-9.0 -11.4	$2s^2 2p^3(^2D^{\circ}_{11})10s$	$10s' \ ^1D^{\circ}$	2	135252	
$s^2 2p^3(^2D^{\circ}_{11})7s$	$7s' \ ^1D^{\circ}$	2	133421		$2s^2 2p^3(^2D^{\circ}_{21})9d$	$9d' \ ^3D^{\circ}$	3, 2, 1	135283.7	
$s^2 2p^3(^2D^{\circ}_{21})6d$	$6d' \ ^3D^{\circ}$	3, 2, 1	133566.8		$2s^2 2p^3(^2D^{\circ}_{11})9d$	$9d' \ ^3S^{\circ}$	1	135283.7	
$s^2 2p^3(^2D^{\circ}_{21})6d$	$6d' \ ^1P^{\circ}$	1	133569		$2s^2 2p^3(^2D^{\circ}_{21})9d$	$9d' \ ^1P^{\circ}$	1	135285	
$s^2 2p^3(^2D^{\circ}_{11})6d$	$6d' \ ^3S^{\circ}$	1	133577.9		$2s^2 2p^3(^2D^{\circ}_{11})9d$	$9d' \ ^3P^{\circ}$	2 1 0	135303.5 135305.0	-1.5
$s^2 2p^3(^2D^{\circ}_{11})6d$	$6d' \ ^1D^{\circ}$	2	133587		$2s^2 2p^3(^2D^{\circ}_{11})9d$	$9d' \ ^1D^{\circ}$	2	135304	
$s^2 2p^3(^2D^{\circ}_{11})6d$	$6d' \ ^1F^{\circ}$	3	133591		$2s^2 2p^3(^2D^{\circ}_{11})9d$	$9d' \ ^1F^{\circ}$	3	135304	
$s^2 2p^3(^2D^{\circ}_{11})6d$	$6d' \ ^3P^{\circ}$	2 1 0	133622.0 133626.5	-4.5	$2s^2 2p^3(^2D^{\circ})11s$	$11s' \ ^3D^{\circ}$	3 2 1	135502.3	
$s^2 2p^3(^2D^{\circ})8s$	$8s' \ ^3D^{\circ}$	3 2 1	134265.3 134273.4 134285.1	-8.1 -11.7	$2s^2 2p^3(^2D^{\circ}_{21})10d$	$10d' \ ^3D^{\circ}$	3, 2, 1	135541.7	
$s^2 2p^3(^2D^{\circ}_{11})8s$	$8s' \ ^1D^{\circ}$	2	134305		$2s^2 2p^3(^2D^{\circ}_{11})10d$	$10d' \ ^3S^{\circ}$	1	135541.7	
$s^2 2p^3(^2D^{\circ}_{21})7d$	$7d' \ ^3D^{\circ}$	3, 2, 1	134385.0		$2s^2 2p^3(^2D^{\circ}_{21})10d$	$10d' \ ^1P^{\circ}$	1	135542	
$s^2 2p^3(^2D^{\circ}_{21})7d$	$7d' \ ^1P^{\circ}$	1	134387		$2s^2 2p^3(^2D^{\circ}_{11})10d$	$10d' \ ^3P^{\circ}$	2 1 0	135560.3 135562.2	-1.9
$s^2 2p^3(^2D^{\circ}_{11})7d$	$7d' \ ^3S^{\circ}$	1	134402.5		$2s^2 2p^3(^2D^{\circ}_{11})10d$	$10d' \ ^1D^{\circ}$	2	135565	
$s^2 2p^3(^2D^{\circ}_{11})7d$	$7d' \ ^1D^{\circ}$	2	134409		$2s^2 2p^3(^2D^{\circ}_{11})10d$	$10d' \ ^1F^{\circ}$	3	135565	
$s^2 2p^3(^2D^{\circ}_{11})7d$	$7d' \ ^1F^{\circ}$	3	134409		$2s^2 2p^3(^2P^{\circ})4s$	$4s'' \ ^3P^{\circ}$	2, 1, 0	[135681.7]	
$s^2 2p^3(^2D^{\circ}_{11})7d$	$7d' \ ^3P^{\circ}$	2 1 0	134421.4 134426.5	-5.1	$2s^2 2p^3(^2D^{\circ})12s$	$12s' \ ^3D^{\circ}$	3 2 1	135701.8	
$s^2 2p^3(^2D^{\circ})9s$	$9s' \ ^3D^{\circ}$	3 2 1	134839.0 134843.7	-4.7	$2s^2 2p^3(^2D^{\circ}_{11})12s$	$12s' \ ^1D^{\circ}$	2	135723	
$s^2 2p^3(^2D^{\circ}_{11})9s$	$9s' \ ^1D^{\circ}$	2	134869		$2s^2 2p^3(^2D^{\circ}_{21})11d$	$11d' \ ^3D^{\circ}$	3, 2, 1	135732.4	
					$2s^2 2p^3(^2D^{\circ}_{11})11d$	$11d' \ ^3S^{\circ}$	1	135732.4	

## Atomic Energy Levels

## O I—Continued

## O I—Continued

Configuration	Desig.	<i>J</i>	Level	Interval	Configuration	Desig.	<i>J</i>	Level	Interval
$2s^2 2p^3(^2D^{\circ}_{21})11d$	$11d'$ $^1P^{\circ}$	1	135736	1.2	$2s^2 2p^3(^2D^{\circ}_{11})16d$	$16d'$ $^3P^{\circ}$	2 1 0	136242.2	-19.79
$2s^2 2p^3(^2D^{\circ}_{11})11d$	$11d'$ $^3P^{\circ}$	2 1 0	135752.9 135751.7		$2s^2 2p^3(^2P^{\circ})4s$	$4s''$ $^1P^{\circ}$	1	136353	
$2s^2 2p^3(^2D^{\circ}_{11})11d$	$11d'$ $^1D^{\circ}$	2	135755	$O \text{ II } 2s^2 2p^3(^2D^{\circ})$	<i>Limit</i>	$2\frac{1}{2}$	136647.67		
$2s^2 2p^3(^2D^{\circ}_{11})11d$	$11d'$ $^1F^{\circ}$	3	135755		<i>Limit</i>	$1\frac{1}{2}$	136667.46		
$2s^2 2p^3(^2D^{\circ})13s$	$13s'$ $^3D^{\circ}$	3 2 1	135852.6	$2s^2 2p^3(^2P^{\circ})3d$	$3d''$ $^1D^{\circ}$	2	137928		
$2s^2 2p^3(^2D^{\circ}_{21})12d$	$12d'$ $^3D^{\circ}$	3, 2, 1	135876.4	$2s^2 2p^3(^2P^{\circ})3d$	$3d''$ $^3P^{\circ}$	2, 1, 0	137946.5		
$2s^2 2p^3(^2D^{\circ}_{11})12d$	$12d'$ $^3S^{\circ}$	1	135876.4	$2s^2 2p^3(^2P^{\circ})3d$	$3d''$ $^3D^{\circ}$	3, 2, 1	137962.5		
$2s^2 2p^3(^2D^{\circ}_{21})12d$	$12d'$ $^1P^{\circ}$	1	135887	$2s^2 2p^3(^2P^{\circ})3d$	$3d''$ $^1P^{\circ}$	1	137981		
$2s^2 2p^3(^2D^{\circ}_{11})12d$	$12d'$ $^3P^{\circ}$	2 1 0	135899.1 135896.9	$2s^2 2p^3(^2P^{\circ})5s$	$5s''$ $^3P^{\circ}$	2, 1, 0	142650.5		
$2s^2 2p^3(^2D^{\circ}_{11})12d$	$12d'$ $^1D^{\circ}$	2	135902	$2s^2 2p^3(^2P^{\circ})5s$	$5s''$ $^1P^{\circ}$	1	142743		
$2s^2 2p^3(^2D^{\circ}_{11})12d$	$12d'$ $^1F^{\circ}$	3	135902	$2s^2 2p^3(^2P^{\circ})4d$	$4d''$ $^1D^{\circ}$	2	143359		
$2s^2 2p^3(^2D^{\circ}_{21})13d$	$13d'$ $^3D^{\circ}$	3, 2, 1	135986.4	$2s^2 2p^3(^2P^{\circ})4d$	$4d''$ $^3P^{\circ}$	2, 1, 0	143363.4		
$2s^2 2p^3(^2D^{\circ}_{11})13d$	$13d'$ $^3S^{\circ}$	1	135986.4	$2s^2 2p^3(^2P^{\circ})4d$	$4d''$ $^3D^{\circ}$	3, 2, 1	143363.4		
$2s^2 2p^3(^2D^{\circ}_{11})14s$	$14s'$ $^1D^{\circ}$	2	136000	$2s^2 2p^3(^2P^{\circ})4d$	$4d''$ $^1P^{\circ}$	1	143384		
$2s^2 2p^3(^2D^{\circ}_{21})13d$	$13d'$ $^1P^{\circ}$	1	136000	$2s^2 2p^3(^2P^{\circ})6s$	$6s''$ $^3P^{\circ}$	2, 1, 0	145516.5		
$2s^2 2p^3(^2D^{\circ}_{11})13d$	$13d'$ $^3P^{\circ}$	2 1 0	136011.0 136011.7	$2s^2 2p^3(^2P^{\circ})6s$	$6s''$ $^1P^{\circ}$	1	145620		
$2s^2 2p^3(^2D^{\circ}_{21})14d$	$14d'$ $^3D^{\circ}$	3, 2, 1	136071.3	$2s^2 2p^3(^2P^{\circ})5d$	$5d''$ $^1D^{\circ}$	2	145868		
$2s^2 2p^3(^2D^{\circ}_{11})14d$	$14d'$ $^3S^{\circ}$	1	136071.3	$2s^2 2p^3(^2P^{\circ})5d$	$5d''$ $^3P^{\circ}$	2, 1, 0	145870.5		
$2s^2 2p^3(^2D^{\circ}_{21})14d$	$14d'$ $^1P^{\circ}$	1	136085	$2s^2 2p^3(^2P^{\circ})5d$	$5d''$ $^3D^{\circ}$	3, 2, 1	145870.5		
$2s^2 2p^3(^2D^{\circ}_{11})14d$	$14d'$ $^3P^{\circ}$	2 1 0	136100.1	$2s^2 2p^3(^2P^{\circ})5d$	$5d''$ $^1P^{\circ}$	1	145887		
$2s^2 2p^3(^2D^{\circ}_{21})15d$	$15d'$ $^3D^{\circ}$	3, 2, 1	136138.9	$2s^2 2p^3(^2P^{\circ})7s$	$7s''$ $^3P^{\circ}$	2, 1, 0	147028.7		
$2s^2 2p^3(^2D^{\circ}_{11})15d$	$15d'$ $^3S^{\circ}$	1	136138.9	$2s^2 2p^3(^2P^{\circ})7s$	$7s''$ $^1P^{\circ}$	1	147057		
$2s^2 2p^3(^2D^{\circ}_{11})15d$	$15d'$ $^3P^{\circ}$	2 1 0	136171.5	$2s^2 2p^3(^2P^{\circ})6d$	$6d''$ $^1D^{\circ}$	2	147229		
$2s^2 2p^3(^2D^{\circ}_{21})16d$	$16d'$ $^3D^{\circ}$	3, 2, 1	136194.4	$2s^2 2p^3(^2P^{\circ})6d$	$6d''$ $^3P^{\circ}$	2, 1, 0	147230.1		
$2s^2 2p^3(^2D^{\circ}_{11})16d$	$16d'$ $^3S^{\circ}$	1	136194.4	$2s^2 2p^3(^2P^{\circ})6d$	$6d''$ $^3D^{\circ}$	3, 2, 1	147230.1		
				-0.7	$2s^2 2p^3(^2P^{\circ})6d$	$6d''$ $^1P^{\circ}$	1	147240	
					$2s^2 2p^3(^2P^{\circ})8s$	$8s''$ $^3P^{\circ}$	2, 1, 0	147921.1	
					$2s^2 2p^3(^2P^{\circ})8s$	$8s''$ $^1P^{\circ}$	1	147942	
					$2s^2 2p^3(^2P^{\circ})7d$	$7d''$ $^1D^{\circ}$	2	148045	
					$2s^2 2p^3(^2P^{\circ})7d$	$7d''$ $^3P^{\circ}$	2, 1, 0	148047.7	
					$2s^2 2p^3(^2P^{\circ})7d$	$7d''$ $^3D^{\circ}$	3, 2, 1	148047.7	

Atomic Energy Levels

O I—Continued

O I—Continued

Configuration	Desig.	<i>J</i>	Level	Interval	Configuration	Desig.	<i>J</i>	Level	Interval
$2p^3(^2P^o)7d$	$7d''\ ^1P^o$	1	148058		$2s^2\ 2p^3(^3P^o)11d$	$11d''\ ^3D^o$	3, 2, 1	149390.6	
$2p^3(^2P^o)9s$	$9s''\ ^3P^o$	2, 1, 0	148495.5		$2s^2\ 2p^3(^2P^o)11d$	$11d''\ ^1D^o$	2	149392	
$2p^3(^2P^o)9s$	$9s''\ ^1P^o$	1	148505		$2s^2\ 2p^3(^2P^o)13s$	$13s''\ ^3P^o$	2, 1, 0	149514.4	
$2p^3(^2P^o)8d$	$8d''\ ^3P^o$	2, 1, 0	148576.9		$2s^2\ 2p^3(^2P^o)12d$	$12d''\ ^3P^o$	2, 1, 0	149539.4	
$2p^3(^2P^o)8d$	$8d''\ ^3D^o$	3, 2, 1	148576.9		$2s^2\ 2p^3(^2P^o)12d$	$12d''\ ^3D^o$	3, 2, 1	149539.4	
$2p^3(^2P^o)8d$	$8d''\ ^1D^o$	2	148578		$2s^2\ 2p^3(^2P^o)14s$	$14s''\ ^3P^o$	2, 1, 0	149631.8	
$2p^3(^2P^o)8d$	$8d''\ ^1P^o$	1	148582		$2s^2\ 2p^3(^2P^o)13d$	$13d''\ ^3P^o$	2, 1, 0	149652.2	
$2p^3(^2P^o)10s$	$10s''\ ^3P^o$	2, 1, 0	148882.9		$2s^2\ 2p^3(^2P^o)13d$	$13d''\ ^3D^o$	3, 2, 1	149652.2	
$2p^3(^2P^o)10s$	$10s''\ ^1P^o$	1	148891		$2s^2\ 2p^3(^2P^o)14d$	$14d''\ ^3P^o$	2, 1, 0	149744.9	
$2p^3(^2P^o)9d$	$9d''\ ^1D^o$	2	148941		$2s^2\ 2p^3(^2P^o)14d$	$14d''\ ^3D^o$	3, 2, 1	149744.9	
$2p^3(^2P^o)9d$	$9d''\ ^3P^o$	2, 1, 0	148945.4		$2s^2\ 2p^3(^2P^o)15d$	$15d''\ ^3P^o$	2, 1, 0	149815.6	
$2p^3(^2P^o)9d$	$9d''\ ^3D^o$	3, 2, 1	148945.4		$2s^2\ 2p^3(^2P^o)15d$	$15d''\ ^3D^o$	3, 2, 1	149815.6	
$2p^3(^2P^o)9d$	$9d''\ ^1P^o$	1	148946		$2s^2\ 2p^3(^2P^o)17d$	$17d''\ ^3P^o$	2, 1, 0	149923.7	
$2p^3(^2P^o)11s$	$11s''\ ^3P^o$	2, 1, 0	149159.1		$2s^2\ 2p^3(^2P^o)17d$	$17d''\ ^3D^o$	3, 2, 1	149923.7	
$2p^3(^2P^o)11s$	$11s''\ ^1P^o$	1	149168		$2s^2\ 2p^3(^2P^o)18d$	$18d''\ ^3P^o$	2, 1, 0	149961.5	
$2p^3(^2P^o)10d$	$10d''\ ^3P^o$	2, 1, 0	149200.6		$2s^2\ 2p^3(^2P^o)18d$	$18d''\ ^3D^o$	3, 2, 1	149961.5	
$2p^3(^2P^o)10d$	$10d''\ ^3D^o$	3, 2, 1	149200.6		$2s^2\ 2p^3(^2P^o)19d$	$19d''\ ^3P^o$	2, 1, 0	150000.8	
$2p^3(^2P^o)10d$	$10d''\ ^1D^o$	2	149203		$2s^2\ 2p^3(^2P^o)19d$	$19d''\ ^3D^o$	3, 2, 1	150000.8	
$2p^3(^2P^o)12s$	$12s''\ ^3P^o$	2, 1, 0	149359.4		$O\ II\ 2s^2(2p^3\ ^2P^o)$	<b>Limit</b>	.....	150305.6	
$2p^3(^2P^o)11d$	$11d''\ ^3P^o$	2, 1, 0	149390.6						

April 1975.

Atomic Energy Levels

O I OBSERVED TERMS

Config. $1s^2+$	Observed Terms			
$2s^2 2p^4$	$2p^4 \ ^1S$	$2p^4 \ ^3P$	$2p^4 \ ^1D$	
$2s 2p^5$		$2p^5 \ ^3P^o$		
	$ns(n \geq 3)$		$np(n \geq 3)$	
$2s^2 2p^3(^4S^o)nl$	$\left\{ \begin{array}{l} 3-8s \ ^4S^o \\ 3-31s \ ^4S^o \end{array} \right.$		$\begin{array}{l} 3-6p \ ^4P \\ 3-6p \ ^3P \end{array}$	
$2s^2 2p^3(^2D^o)nl'$	$\left\{ \begin{array}{l} 3-13s' \ ^3D^o \\ 3-10,12,14s' \ ^1D^o \end{array} \right.$		$3p' \ ^1P$	$\begin{array}{l} 3,4p' \ ^3D \\ 3p' \ ^1D \\ 3p' \ ^3F \\ 3p' \ ^1F \end{array}$
$2s^2 2p^3(^2P^o)nl''$	$\left\{ \begin{array}{l} 3,5-14s'' \ ^3P^o \\ 3-11s'' \ ^1P^o \end{array} \right.$		$3p'' \ ^1S$	$\begin{array}{l} 3p'' \ ^1P \\ 3p'' \ ^3D \\ 3p'' \ ^1D \end{array}$
	$nd(n \geq 3)$		$nf(n \geq 4)$	$ng(n \geq 5)$
$2s^2 2p^3(^4S^o)nl$	$\left\{ \begin{array}{l} 3-8d \ ^4D^o \\ 3-30d \ ^4D^o \end{array} \right.$		$\begin{array}{l} 4-7f \ ^4F \\ 4-7f \ ^3F \end{array}$	$\begin{array}{l} 6g \ ^4G^o \\ 6g \ ^3G^o \end{array}$
$2s^2 2p^3(^2D^o)nl'$	$\left\{ \begin{array}{l} 3-16d' \ ^3S^o \\ 3-4d' \ ^1S^o \end{array} \right.$	$\begin{array}{l} 3-16d' \ ^3P^o \\ 3-14d' \ ^1P^o \end{array}$	$\begin{array}{l} 3-16d' \ ^3D^o \\ 3-12d' \ ^1D^o \end{array}$	$\begin{array}{l} 3-5d' \ ^3F^o \\ 3-12d' \ ^1F^o \\ 3-5d' \ ^3G^o \\ 3-5d' \ ^1G^o \end{array}$
$2s^2 2p^3(^2P^o)nl''$	$\left\{ \begin{array}{l} 3-15,17 \ 10d'' \ ^3P^o \\ 3-9d'' \ ^1P^o \end{array} \right.$		$\begin{array}{l} 3-15,17 \ 10d'' \ ^3D^o \\ 3-11d'' \ ^1D^o \end{array}$	$\begin{array}{l} 4f' \ ^3G \\ 4f' \ ^3H \\ 4f' \ ^1H \end{array}$

# Multiplet Table

Part B

## OXYGEN

O I (Z=8)

I P 13.618 eV    Limit  $109837.02 \pm 0.06 \text{ cm}^{-1}$     910.440 Å (Vac)

Anal A    List A    April 1975

### REFERENCES

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- B K. B. S. Eriksson and H. B. S. Isberg, Ark. Fys. (Stockholm) **24**, No. 41, 549-558 (1963). I P, T, C L, I; W L 4654 Å-18244 Å
- C B. Isberg, Ark. Fys. (Stockholm) **35**, No. 40, 495-498 (1967). T, C L, I; W L 3348 Å-26173 Å
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- E R. E. Huffman, J. C. Larrabee and Y. Tanaka, J. Chem. Phys. **46**, No. 6, 2213-2233 (1967). T, C L, G D, (I); W L, Absorption Series 666 Å-952 Å
- F R. E. Huffman, J. C. Larrabee and Y. Tanaka, J. Chem. Phys. **47**, No. 11, 4462-4471 (1967). T, C L, (I); W L Absorption Series 748 Å-959 Å
- B. Edlén, Kungl. Svenska, Vetenskapsakad. Handlingar [3] **20**, No. 10, 31 pp. (1943). I P, T, C L; W L 748 Å-1358 Å, 2876 Å-13163 Å
- P Predicted Lines. Four-place wavelengths are quoted from references A and B and are entered with these authors as source.

New Multiplet Numbers, not inserted between older ones, start with UV 6 and 66. The Multiplet Numbers UV 6 through UV 10 in Nat. Bur. Stand. Circ. 488, Section 1, 17 (1950) have been abandoned.

m Masked

† Raie Ultime

\* Blend

\* and § Blend with Ar I



Multiplet Table

O I

O I

I A	Ref.	Int.	E P		J	Multiplet No.	I A	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Air							Vac						
6300.304	D		0.00	1.96	2-2	$2p^4 \ ^3P - 2p^4 \ ^1D$ 1F	948.6855	A		0.00	13.07	2-	$2p^4 \ ^3P - 5d \ ^3D^\circ$ UV 12
6363.776	D		0.02	1.96	1-2		950.1121	A	(2)	0.02	13.07	1-	
6391.733	P		0.03	1.96	0-2		950.7327	A		0.03	13.07	0-1	
2958.365	P		0.00	4.19	2-0	$2p^4 \ ^3P - 2p^4 \ ^1S$ 2F	937.8405	A		0.00	13.22	2-1	$2p^4 \ ^3P - 7s \ ^3S^\circ$ UV 13
2972.288	D		0.02	4.19	1-0		939.2346	A		0.02	13.22	1-1	
							939.8412	A	(2)	0.03	13.22	0-1	
Vac							936.6295	A	(3)	0.00	13.24	2-	$2p^4 \ ^3P - 6d \ ^3D^\circ$ UV 14
1355.5977	A		0.00	9.15	2-2	938.0200	A	(2)	0.02	13.24	1-		
1358.5123	A		0.02	9.15	1-2	938.6249	A		0.03	13.24	0-1		
1302.1685†	A		0.00	9.52	2-1	$2p^4 \ ^3P - 3s \ ^3S^\circ$ UV 2	930.2566	A	(2)	0.00	13.33	2-1	$2p^4 \ ^3P - 8s \ ^3S^\circ$ UV 15
1304.8576	A		0.02	9.52	1-1		931.6282	A	(2)	0.02	13.33	1-1	
1306.0286	A		0.03	9.52	0-1		932.2249	A		0.03	13.33	0-1	
1047.376	P		0.00	11.84	2-2	$2p^4 \ ^3P - 4s \ ^5S^\circ$ UV 2.01	929.5168	A	(3)	0.00	13.34	2-	$2p^4 \ ^3P - 7d \ ^3D^\circ$ UV 16
1049.115	P		0.02	11.84	1-2		930.8862	A	(2)	0.02	13.34	1-	
							931.4820	A	(2)	0.03	13.34	0 1	
1039.2304	A		0.00	11.93	2-1	$2p^4 \ ^3P - 4s \ ^3S^\circ$ UV 3	925.442	E	(2)	0.00	13.40	2-1	$2p^4 \ ^3P - 9s \ ^3S^\circ$ UV 17
1040.9425	A		0.02	11.93	1-1		926.809	E	(2)	0.02	13.40	1-1	
1041.6876	A		0.03	11.93	0-1		927.394	P		0.03	13.40	0-1	
1026.476	P		0.00	12.08	2-3	$2p^4 \ ^3P - 3d \ ^5D^\circ$ UV 3.01	924.952	E	(2)	0.00	13.40	2-	$2p^4 \ ^3P - 8d \ ^3D^\circ$ UV 18
1028.145	P		0.02	12.08	1-2		926.295	E	(3)	0.02	13.40	1-	
1028.870	P		0.03	12.08	0-1		926.903	E	(2)	0.03	13.40	0-1	
1025.7618	A		0.00	12.09	2-	$2p^4 \ ^3P - 3d \ ^3D^\circ$ UV 4	922.200	E	(2)	0.00	13.44	2-1	$2p^4 \ ^3P - 10s \ ^3S^\circ$ UV 19
1027.4307	A		0.02	12.09	1-		923.549	P		0.02	13.44	1-1	
1028.1571	A		0.03	12.09	0-1		924.135	P		0.03	13.44	0-1	
988.7734	A		0.00	12.54	2-3	$2p^4 \ ^3P - 3s' \ ^3D^\circ$ UV 5	921.860	E	(3)	0.00	13.45	2-	$2p^4 \ ^3P - 9d \ ^3D^\circ$ UV 20
990.2043	A		0.02	12.54	1-2		923.200	E	(3)	0.02	13.45	1-	
990.8010	A		0.03	12.54	0-1		923.790	P		0.03	13.45	0-1	
988.6549	A		0.00	12.54	2-2								
990.1269	A		0.02	12.54	1-1								
988.5778	A		0.00	12.54	2-1								
979.272	P		0.00	12.66	2-2	$2p^4 \ ^3P - 5s \ ^5S^\circ$ UV 6	919.908	E	(2)	0.00	13.48	2-1	$2p^4 \ ^3P - 11s \ ^3S^\circ$ UV 21
980.792	P		0.02	12.66	1-2		921.247	E	(1)	0.02	13.48	1-1	
							921.860	E	(3)	0.03	13.48	0-1	
976.4481	A		0.00	12.70	2-1	$2p^4 \ ^3P - 5s \ ^3S^\circ$ UV 7	919.658	E	(3)	0.00	13.48	2-	$2p^4 \ ^3P - 10d \ ^3D^\circ$ UV 22
977.9594	A		0.02	12.70	1-1		921.005	E	(3)	0.02	13.48	1-	
978.6170	A		0.03	12.70	0-1		921.575	E	(1)	0.03	13.48	0-1	
974.070	P		0.00	12.73	2-2	$2p^4 \ ^3P - 3s' \ ^1D^\circ$ UV 8	918.221	E	(2)	0.00	13.50	2-1	$2p^4 \ ^3P - 12s \ ^3S^\circ$ UV 23
975.574	P		0.02	12.73	1-2		919.559	E	(2)	0.02	13.50	1-1	
							918.039	E	(3)	0.00	13.50	2-	
972.143	P		0.00	12.75	2-3	$2p^4 \ ^3P - 4d \ ^5D^\circ$ UV 9	919.376	E	(2)	0.02	13.50	1-	$2p^4 \ ^3P - 11d \ ^3D^\circ$ UV 24
973.640	P		0.02	12.75	1-2		919.971	E	(1)	0.03	13.50	0-1	
974.292	P		0.03	12.75	0-1		916.960	E	(2)	0.00	13.52	2-1	
971.7381	A		0.00	12.76	2-	$2p^4 \ ^3P - 4d \ ^3D^\circ$ UV 10	918.293	P		0.02	13.52	1-1	$2p^4 \ ^3P - 13s \ ^3S^\circ$ UV 25
973.2342	A		0.02	12.76	1-		916.816	E	(3)	0.00	13.52	2-	
973.8852	A		0.03	12.76	0-1		918.149	E	(2)	0.02	13.52	1-	
950.8846	A	(3)	0.00	13.04	2-1	$2p^4 \ ^3P - 6s \ ^3S^\circ$ UV 11	918.724	E	(1)	0.03	13.52	0-1	$2p^4 \ ^3P - 12d \ ^3D^\circ$ UV 26
952.3178	A	(1)	0.02	13.04	1-1		915.991	E	(2)	0.00	13.54	2-1	
952.9413	A	(1)	0.03	13.04	0-1		917.315	E	(2)	0.02	13.54	1-1	

Multiplet Table

O I—Continued

O I—Continued

I A	Ref.	Int.	E P		J	Multiplet No.	I A	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Vac							Vac						
915.877	E	(3)	0.00	13.54	2-	2p <sup>4</sup> 3P -13d 3D°	*912.318	E	(3)	0.00	13.59	2-	2p <sup>4</sup> 3P -22d 3D°
917.185	E	(2)	0.02	13.54	1-	UV 28	913.644	E	(3)	0.02	13.59	1-	UV 46
915.199	E	(1)	0.00	13.55	2-1	2p <sup>4</sup> 3P -15s 3S°	*912.155	E	(3)	0.00	13.59	2-1	2p <sup>4</sup> 3P -24s 3S°
916.526	P		0.02	13.55	1-1	UV 29							UV 47
915.100	E	(2)	0.00	13.55	2-	2p <sup>4</sup> 3P -14d 3D°	*912.155	E	(3)	0.00	13.59	2-	2p <sup>4</sup> 3P -23d 3D°
916.420	E	(3)	0.02	13.55	1-	UV 30	913.483	E	(3)	0.02	13.59	1-	UV 48
916.960	E	(2)	0.03	13.55	0-1		*912.012	E	(3)	0.00	13.59	2-1	2p <sup>4</sup> 3P -25s 3S°
914.588	E	(3)	0.00	13.56	2-1	2p <sup>4</sup> 3P -16s 3S°							UV 49
915.877	E	(3)	0.02	13.56	1-1	UV 31	*912.012	E	(3)	0.00	13.59	2-	2p <sup>4</sup> 3P -24d 3D°
914.513	E	(3)	0.00	13.56	2-	2p <sup>4</sup> 3P -15d 3D°							UV 50
915.821	E	(3)	0.02	13.56	1-	UV 32	*911.898	E	(2)	0.00	13.60	2-1	2p <sup>4</sup> 3P -26s 3S°
914.057	E	(1)	0.00	13.56	2-1	2p <sup>4</sup> 3P -17s 3S°							UV 51
915.381	P		0.02	13.56	1-1	UV 33	*911.898	E	(2)	0.00	13.60	2-	2p <sup>4</sup> 3P -25d 3D°
913.997	E	(4)	0.00	13.56	2-	2p <sup>4</sup> 3P -16d 3D°							UV 52
915.321	E	(2)	0.02	13.56	1-	UV 34	*911.786	E	(2)	0.00	13.60	2-1	2p <sup>4</sup> 3P -27s 3S°
913.644	E	(3)	0.00	13.57	2-1	2p <sup>4</sup> 3P -18s 3S°							UV 53
*914.918	E	(2)	0.02	13.57	1-1	UV 35	*911.786	E	(2)	0.00	13.60	2-	2p <sup>4</sup> 3P -26d 3D°
913.590	E	(3)	0.00	13.57	2-	2p <sup>4</sup> 3P -17d 3D°	913.127	E	(2)	0.02	13.60	1-	UV 54
*914.918	E	(2)	0.02	13.57	1-	UV 36	*911.692	E	(2)	0.00	13.60	2-1	2p <sup>4</sup> 3P -28s 3S°
915.499	E	(1)	0.03	13.57	0-1								UV 55
*913.250	E	(4)	0.00	13.58	2-	2p <sup>4</sup> 3P -18d 3D°	*911.692	E	(2)	0.00	13.60	2-	2p <sup>4</sup> 3P -27d 3D°
914.588	E	(3)	0.02	13.58	1-	UV 37							UV 56
915.199	E	(1)	0.03	13.58	0-1		*911.611	E	(2)	0.00	13.60	2-1	2p <sup>4</sup> 3P -29s 3S°
*913.250	E	(4)	0.00	13.58	2-1	2p <sup>4</sup> 3P -19s 3S°							UV 57
						UV 38	*911.611	E	(2)	0.00	13.60	2-	2p <sup>4</sup> 3P -28d 3D°
*912.964	E	(4)	0.00	13.58	2-	2p <sup>4</sup> 3P -19d 3D°							UV 58
914.293	E	(2)	0.02	13.58	1-	UV 39	*911.538	E	(2)	0.00	13.60	2-1	2p <sup>4</sup> 3P -30s 3S°
914.854	E	(1)	0.03	13.58	0-1								UV 59
*912.964	E	(4)	0.00	13.58	2-1	2p <sup>4</sup> 3P -20s 3S°	*911.538	E	(2)	0.00	13.60	2-	2p <sup>4</sup> 3P -29d 3D°
						UV 40	912.843	E	(3)	0.02	13.60	1-	UV 60
*912.723	E	(4)	0.00	13.58	2-	2p <sup>4</sup> 3P -20d 3D°	*911.463	E	(1)	0.00	13.60	2-1	2p <sup>4</sup> 3P -31s 3S°
914.057	E	(3)	0.02	13.58	1	UV 41							UV 61
*912.723	E	(4)	0.00	13.58	2-1	2p <sup>4</sup> 3P -21s 3S°	*911.463	E	(1)	0.00	13.60	2-	2p <sup>4</sup> 3P -30d 3D°
						UV 42							UV 62
*912.500	E	(3)	0.00	13.59	2-1	2p <sup>4</sup> 3P -22s 3S°	877.8787	A	(7)	0.00	14.12	2-2	2p <sup>4</sup> 3P - 3s'' 3P°
						UV 43	879.0194	A	(4)	0.02	14.12	1-1	UV 63
*912.500	E	(3)	0.00	13.59	2-	2p <sup>4</sup> 3P -21d 3D°	877.7983	A	(8)	0.00	14.12	2-1	
913.815	E	(3)	0.02	13.59	1-	UV 44	878.9720	A	(4)	0.02	14.12	1-0	
*912.318	E	(3)	0.00	13.59	2-1	2p <sup>4</sup> 3P -23s 3S°	879.1001	A	(4)	0.02	14.12	1-2	
						UV 45	879.5507	A	(5)	0.03	14.12	0-1	

Multiplet Table

O I—Continued

O I—Continued

I A	Ref.	Int.	E P		J	Multiplet No.	I A	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Vac							Vac						
862.678	P		0.00	14.37	2-1	$2p^4 \ ^3P - 3s' \ ^1P^\circ$ UV 64	756.410	E	(6)	0.00	16.39	2-3	$2p^4 \ ^3P - 5d' \ ^3D^\circ$ UV 75
863.857	P		0.02	14.37	1-1		757.254	E	(4)	0.02	16.39	1-2	
864.370	P		0.03	14.37	0-1		757.627	E	(3)	0.03	16.39	0-1	
							756.354	E	(5)	0.00	16.39	2-2	
816.862	E	(9)	0.00	15.18	2-3	$2p^4 \ ^3P - 4s' \ ^3D^\circ$ UV 65	756.243	E	(6)	0.00	16.39	2-1	$2p^4 \ ^3P - 5d' \ ^3S^\circ$ UV 76
817.835	E	(7)	0.02	15.18	1-2		*757.149	E	(3)	0.02	16.39	1-1	
818.236	E	(7)	0.03	15.18	0-1								
816.766	E	(9)	0.00	15.18	2-2								
817.777	E	(7)	0.02	15.18	1-1								
811.0512	A		0.00	15.29	2-2	$2p^4 \ ^3P - 3d' \ ^3P^\circ$ UV 66	755.790	E	(6)	0.00	16.40	2-2	$2p^4 \ ^3P - 5d' \ ^3P^\circ$ UV 77
811.7064	A		0.02	15.29	1-1		756.676	E	(4)	0.02	16.40	1-	
810.6650	A		0.00	15.29	2-1		756.704	E	(3)	0.02	16.40	1-2	
811.4968	A		0.02	15.30	1-0								
812.0936	A		0.02	15.29	1-2		749.795	E	(3)	0.00	16.54	2-3	$2p^4 \ ^3P - 7s' \ ^3D^\circ$ UV 78
812.1594	A		0.03	15.29	0-1		750.637	E	(3)	0.02	16.54	1-2	
							750.956	E	(3)	0.03	16.54	0-1	
804.848	E	(7)	0.00	15.40	2-3	$2p^4 \ ^3P - 3d' \ ^3D^\circ$ UV 67	749.742	E	(3)	0.00	16.54	2-2	
805.810	E	(8)	0.02	15.41	1-2		750.573	E	(2)	0.02	16.54	1-1	
806.231	E	(4)	0.03	15.41	0-1								
804.775	E	(6)	0.00	15.41	2-2		748.680	E	(5)	0.00	16.56	2-3	$2p^4 \ ^3P - 6d' \ ^3D^\circ$ UV 79
805.745	E	(3)	0.02	15.41	1-1		749.586	E	(3)	0.02	16.56	1-2	
804.267	E	(9)	0.00	15.42	2-1	$2p^4 \ ^3P - 3d' \ ^3S^\circ$ UV 68	748.632	E	(5)	0.00	16.56	2-1	$2p^4 \ ^3P - 6d' \ ^3S^\circ$ UV 80
805.295	E	(7)	0.02	15.42	1-1		749.517	E	(3)	0.02	16.56	1-1	
805.745	E	(3)	0.03	15.42	0-1		749.894	E	(2)	0.03	16.56	0-1	
791.9732	A	(7)	0.00	15.65	2-2	$2p^4 \ ^3P - 2p^5 \ ^3P^\circ$ UV 69	748.380	E	(6)	0.00	16.57	2-2	$2p^4 \ ^3P - 6d' \ ^3P^\circ$ UV 81
792.5063	A	(4)	0.02	15.66	1-1		749.253	E	(6)	0.02	16.57	1-	
791.5136	A	(5)	0.00	15.66	2-1		749.628	E	(3)	0.03	16.57	0-1	
792.2330	A	(4)	0.02	15.67	1-0								
792.9671	A	(6)	0.02	15.65	1-2		*744.794	E	(7)	0.00	16.65	2-3	$2p^4 \ ^3P - 8s' \ ^3D^\circ$ UV 82
792.9381	A	(6)	0.03	15.66	0-1	745.628	E	(2)	0.02	16.65	1-2		
						745.945	E	(2)	0.03	16.65	0-1		
775.321	E	(7)	0.00	15.99	2-3	$2p^4 \ ^3P - 5s' \ ^3D^\circ$ UV 70	744.128	E	(5)	0.00	16.66	2-	$2p^4 \ ^3P - 7d' \ ^3D^\circ$ UV 83
776.206	E	(5)	0.02	15.99	1-2		745.011	E	(3)	0.02	16.66	1-	
776.569	E	(4)	0.03	15.99	0-1								
775.252	E	(6)	0.00	15.99	2-2		744.051	E	(6)	0.00	16.66	2-1	$2p^4 \ ^3P - 7d' \ ^3S^\circ$ UV 84
776.159	E	(5)	0.02	15.99	1-1	744.899	E	(3)	0.02	16.66	1-1		
771.056	E	(9)	0.00	16.08	2-3	$2p^4 \ ^3P - 4d' \ ^3D^\circ$ UV 71	745.287	E	(2)	0.03	16.66	0-1	
771.967	E	(6)	0.02	16.08	1-2		743.929	E	(5)	0.00	16.67	2-2	$2p^4 \ ^3P - 7d' \ ^3P^\circ$ UV 85
772.344	E	(4)	0.03	16.08	0-1		*744.794	E	(7)	0.02	16.67	1-	
770.793	E	(7)	0.00	16.08	2-1	$2p^4 \ ^3P - 4d' \ ^3S^\circ$ UV 72	745.159	E	(3)	0.03	16.67	0-1	
771.729	E	(5)	0.02	16.08	1-1		741.625	E	(4)	0.00	16.72	2-3	$2p^4 \ ^3P - 9s' \ ^3D^\circ$ UV 86
772.147	E	(2)	0.03	16.08	0-1		742.471	E	(2)	0.02	16.72	1-2	
769.4083	A		0.00	16.11	2-2	$2p^4 \ ^3P - 4d' \ ^3P^\circ$ UV 73	*741.177	E	(6)	0.00	16.73	2-	$2p^4 \ ^3P - 8d' \ ^3D^\circ$ UV 87
770.2907	A		0.02	16.11	1-1		*742.062	E	(3)	0.02	16.73	1-	
769.3528	A		0.00	16.11	2-1								
770.2600	A		0.02	16.12	1-0								
770.3464	A		0.02	16.11	1-2								
*770.6986	A		0.03	16.11	0-1								
758.412	E	(5)	0.00	16.35	2-3	$2p^4 \ ^3P - 6s' \ ^3D^\circ$ UV 74	741.055	E	(5)	0.00	16.73	2-2	$2p^4 \ ^3P - 8d' \ ^3P^\circ$ UV 89
759.262	E	(4)	0.02	16.35	1-2		741.914	E	(4)	0.02	16.73	1-	
759.593	E	(3)	0.03	16.35	0-1		742.280	E	(3)	0.03	16.73	0-1	
758.347	E	(4)	0.00	16.35	2-2								
759.200	E	(3)	0.02	16.35	1-1		739.499	E	(3)	0.00	16.77	2-3	$2p^4 \ ^3P - 10s' \ ^3D^\circ$ UV 90

Multiplet Table

O I—Continued

O I—Continued

I A	Ref.	Int.	E P		J	Multiplet No.	I A	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Vac							Vac						
*739.188	E	(5)	0.00	16.77	2-	$2p^4 \ ^3P - 9d' \ ^3D^\circ$	*734.913	E	(4)	0.00	16.87	2-	$2p^4 \ ^3P - 14d' \ ^3D^\circ$
*740.053	E	(3)	0.02	16.77	1-	UV 91	*735.760	E	(2)	0.02	16.87	1-	UV 110
*739.188	E	(5)	0.00	16.77	2-1	$2p^4 \ ^3P - 9d' \ ^3S^\circ$	*734.913	E	(4)	0.00	16.87	2-1	$2p^4 \ ^3P - 14d' \ ^3S^\circ$
*740.053	E	(3)	0.02	16.77	1-1	UV 92	*735.760	E	(2)	0.02	16.87	1-1	UV 111
739.085	E	(4)	0.00	16.78	2-2	$2p^4 \ ^3P - 9d' \ ^3P^\circ$	734.746	E	(2)	0.00	16.87	2-	$2p^4 \ ^3P - 14d' \ ^3P^\circ$
739.940	E	(4)	0.02	16.78	1-	UV 93	735.616	E	(3)	0.02	16.87	1-	UV 112
740.313	E	(0)	0.03	16.78	0-1								
737.995	E	(3)	0.00	16.80	2-3	$2p^4 \ ^3P - 11s' \ ^3D^\circ$	*734.544	E	(3)	0.00	16.88	2-	$2p^4 \ ^3P - 15d' \ ^3D^\circ$
						UV 94							UV 113
*737.779	E	(5)	0.00	16.80	2-	$2p^4 \ ^3P - 10d' \ ^3D^\circ$	*734.544	E	(3)	0.00	16.88	2-1	$2p^4 \ ^3P - 15d' \ ^3S^\circ$
*738.644	E	(3)	0.02	16.80	1-	UV 95							UV 114
*737.779	E	(5)	0.00	16.80	2-1	$2p^4 \ ^3P - 10d' \ ^3S^\circ$	734.368	E	(2)	0.00	16.88	2-2	$2p^4 \ ^3P - 15d' \ ^3P^\circ$
*738.644	E	(3)	0.02	16.80	1-1	UV 96							UV 115
737.683	E	(3)	0.00	16.81	2-2	$2p^4 \ ^3P - 10d' \ ^3P^\circ$	*734.251	E	(3)	0.00	16.89	2-	$2p^4 \ ^3P - 16d' \ ^3D^\circ$
738.537	E	(4)	0.02	16.81	1-	UV 97	*735.092	E	(2)	0.02	16.89	1-	UV 116
738.906	E	(2)	0.03	16.81	0-1								
737.019	E	(2)	0.00	16.82	2-	$2p^4 \ ^3P - 4s'' \ ^3P^\circ$	*734.251	E	(3)	0.00	16.89	2-1	$2p^4 \ ^3P - 16d' \ ^3S^\circ$
						UV 98	*735.092	E	(2)	0.02	16.89	1-1	UV 117
736.910	E	(3)	0.00	16.82	2-3	$2p^4 \ ^3P - 12s' \ ^3D^\circ$	733.987	E	(2)	0.00	16.89	2-2	$2p^4 \ ^3P - 16d' \ ^3P^\circ$
						UV 99							UV 118
*736.734	E	(5)	0.00	16.83	2-	$2p^4 \ ^3P - 11d' \ ^3D^\circ$	724.932	E	(5)	0.00	17.10	2-	$2p^4 \ ^3P - 3d'' \ ^3P^\circ$
*737.614	E	(3)	0.02	16.83	1-	UV 100	725.748	E	(4)	0.02	17.10	1-	UV 119
*736.734	E	(5)	0.00	16.83	2-1	$2p^4 \ ^3P - 11d' \ ^3S^\circ$	*726.104	E	(3)	0.03	17.10	0-1	
*737.614	E	(3)	0.02	16.83	1-1	UV 101							
736.629	E	(3)	0.00	16.83	2-	$2p^4 \ ^3P - 11d' \ ^3P^\circ$	724.830	E	(6)	0.00	17.10	2-	$2p^4 \ ^3P - 3d'' \ ^3D^\circ$
737.495	E	(4)	0.02	16.83	1-	UV 102	725.665	E	(5)	0.02	17.10	1-	UV 120
737.873	E	(3)	0.03	16.83	0-1		726.035	E	(3)	0.03	17.10	0-1	
736.092	E	(3)	0.00	16.84	2-3	$2p^4 \ ^3P - 13s' \ ^3D^\circ$	701.014	E	(2)	0.00	17.69	2-	$2p^4 \ ^3P - 5s'' \ ^3P^\circ$
						UV 103							UV 121
*735.960	E	(4)	0.00	16.85	2-	$2p^4 \ ^3P - 12d' \ ^3D^\circ$	697.532	E	(6)	0.00	17.77	2-	$2p^4 \ ^3P - 4d'' \ ^3P^\circ$
*736.824	E	(3)	0.02	16.85	1-	UV 104	698.297	E	(4)	0.02	17.77	1-	UV 122 $^3D^\circ$
*735.960	E	(4)	0.00	16.85	2-1	$2p^4 \ ^3P - 12d' \ ^3S^\circ$	698.631	E	(3)	0.03	17.77	0-1	
*736.824	E	(3)	0.02	16.85	1-1	UV 105							
735.840	E	(2)	0.00	16.85	2-	$2p^4 \ ^3P - 12d' \ ^3P^\circ$	687.202	E	(4)	0.00	18.04	2-	$2p^4 \ ^3P - 6s'' \ ^3P^\circ$
737.083	E	(3)	0.03	16.85	0-1	UV 106	687.997	E	(2)	0.02	18.04	1-	UV 123
*735.367	E	(4)	0.00	16.86	2-	$2p^4 \ ^3P - 13d' \ ^3D^\circ$	688.245	E	(2)	0.03	18.04	0-	
*736.225	E	(3)	0.02	16.86	1-	UV 107							
*735.367	E	(4)	0.00	16.86	2-1	$2p^4 \ ^3P - 13d' \ ^3S^\circ$	685.544	E	(7)	0.00	18.09	2-	$2p^4 \ ^3P - 5d'' \ ^3P^\circ$
*736.225	E	(3)	0.02	16.86	1-1	UV 108	686.284	E	(5)	0.02	18.09	1-	UV 124 $^3D^\circ$
735.234	E	(3)	0.00	16.86	2-	$2p^4 \ ^3P - 13d' \ ^3P^\circ$	686.603	E	(3)	0.03	18.09	0-1	
736.092	E	(3)	0.02	16.86	1-	UV 109							
736.460	E	(2)	0.03	16.86	0-1		680.146	E	(2)	0.00	18.23	2-	$2p^4 \ ^3P - 7s'' \ ^3P^\circ$
							680.866	E	(2)	0.02	18.23	1-	UV 125
							679.202	E	(4)	0.00	18.25	2-	$2p^4 \ ^3P - 6d'' \ ^3P^\circ$
							679.948	E	(4)	0.02	18.25	1-	UV 126 $^3D^\circ$
							680.256	E	(2)	0.03	18.25	0-1	
							676.033	E	(2)	0.00	18.34	2-	$2p^4 \ ^3P - 8s'' \ ^3P^\circ$
							676.763	E	(1)	0.02	18.34	1-	UV 127

Multiplet Table

O I—Continued

O I—Continued

I A	Ref.	Int.	E P		J	Multiplet No.	I A	Ref.	Int.	E P		J	Multiplet No.	
			Low	High						Low	High			
Vac														
675.463	E	(5)	0.00	18.36	2-	$2p^4 \ ^3P - 7d'' \ ^3P^\circ$ UV 128 $\ ^3D^\circ$	1641.305	P		1.96	9.52	2-1	$2p^4 \ ^1D - 3s \ ^3S^\circ$ UV 146	
676.183	E	(3)	0.02	18.36	1-									
676.487	E	(2)	0.03	18.36	0-1									
673.421	E	(2)	0.00	18.41	2-	$2p^4 \ ^3P - 9s'' \ ^3P^\circ$ UV 129	1240.377 1240.378 1240.379	P P P		1.96 1.96 1.96	12.09 12.09 12.09	2-3 2-2 2-1	$2p^4 \ ^1D - 3d \ ^3D^\circ$ UV 147	
673.052	E	(5)	0.00	18.42	2-	$2p^4 \ ^3P - 8d'' \ ^3P^\circ$ UV 130 $\ ^3D^\circ$	1152.1512	A		1.96	12.73	2-2	$2p^4 \ ^1D - 3s' \ ^1D^\circ$ UV 148	
671.669	E	(2)	0.00	18.46	2-	$2p^4 \ ^3P - 10s'' \ ^3P^\circ$ UV 131	999.4974	A		1.96	14.37	2-1	$2p^4 \ ^1D - 3s'' \ ^1P^\circ$ UV 149	
671.406	E	(5)	0.00	18.47	2-	$2p^4 \ ^3P - 9d'' \ ^3P^\circ$ UV 132 $\ ^3D^\circ$	935.1930	A	(9)	1.96	15.22	2-2	$2p^4 \ ^1D - 4s' \ ^1D^\circ$ UV 150	
672.090	E	(3)	0.02	18.47	1-									
672.404	E	(2)	0.03	18.47	0-1									
*670.425	E	(2)	0.00	18.49	2-	$2p^4 \ ^3P - 11s'' \ ^3P^\circ$ UV 133	922.46	F	(2)	1.96	15.41	2-1	$2p^4 \ ^1D - 3d' \ ^1P^\circ$ UV 151	
670.237	E	(4)	0.00	18.50	2-	$2p^4 \ ^3P - 10d'' \ ^3P^\circ$ UV 134 $\ ^3D^\circ$	922.0727	A	(4)	1.96	15.41	2-2	$2p^4 \ ^1D - 3d' \ ^1D^\circ$ UV 152	
670.952	E	(3)	0.02	18.50	1-									
669.526	E	(2)	0.00	18.52	2-	$2p^4 \ ^3P - 12s'' \ ^3P^\circ$ UV 135	922.0081	A	(8)	1.96	15.41	2-3	$2p^4 \ ^1D - 3d' \ ^1F^\circ$ UV 153	
669.371	E	(4)	0.00	18.52	2-	$2p^4 \ ^3P - 11d'' \ ^3P^\circ$ UV 136 $\ ^3D^\circ$	882.8895	A	(6)	1.96	16.01	2-2	$2p^4 \ ^1D - 5s' \ ^1D^\circ$ UV 154	
670.091	E	(2)	0.02	18.52	1-									
*670.425	E	(2)	0.03	18.52	0-1									
668.832	E	(1)	0.00	18.54	2-	$2p^4 \ ^3P - 13s'' \ ^3P^\circ$ UV 137	878.62	F	(0)	1.96	16.08	2-1	$2p^4 \ ^1D - 4d' \ ^1P^\circ$ UV 155	
668.720	E	(4)	0.00	18.54	2-	$2p^4 \ ^3P - 12d'' \ ^3P^\circ$ UV 138 $\ ^3D^\circ$	878.25	F	(3)	1.96	16.08	2-2	$2p^4 \ ^1D - 4d' \ ^1D^\circ$ UV 156	
668.307	E	(1)	0.00	18.55	2-	$2p^4 \ ^3P - 14s'' \ ^3P^\circ$ UV 139	878.2007	A	(4)	1.96	16.08	2-3	$2p^4 \ ^1D - 4d' \ ^1F^\circ$ UV 157	
668.211	E	(3)	0.00	18.55	2-	$2p^4 \ ^3P - 13d'' \ ^3P^\circ$ UV 140 $\ ^3D^\circ$	861.56	F	(6)	1.96	16.36	2-2	$2p^4 \ ^1D - 6s' \ ^1D^\circ$ UV 158	
668.928	E	(1)	0.02	18.55	1-									
668.509	E	(2)	0.02	18.57	1-	$2p^4 \ ^3P - 14d'' \ ^3P^\circ$ UV 141 $\ ^3D^\circ$	859.59	F	(1)	1.96	16.39	2-1	$2p^4 \ ^1D - 5d' \ ^1P^\circ$ UV 159	
667.487	E	(3)	0.00	18.57	2-	$2p^4 \ ^3P - 15d'' \ ^3P^\circ$ UV 142 $\ ^3D^\circ$	859.35	F	(3)	1.96	16.39	2-2	$2p^4 \ ^1D - 5d' \ ^1D^\circ$ UV 160	
667.006	E	(3)	0.00	18.59	2-	$2p^4 \ ^3P - 17d'' \ ^3P^\circ$ UV 143 $\ ^3D^\circ$	859.31	F	(4)	1.96	16.40	2-3	$2p^4 \ ^1D - 5d' \ ^1F^\circ$ UV 161	
666.838	E	(2)	0.00	18.59	2-	$2p^4 \ ^3P - 18d'' \ ^3P^\circ$ UV 144 $\ ^3D^\circ$	850.68	F	(2)	1.96	16.54	2-2	$2p^4 \ ^1D - 7s' \ ^1D^\circ$ UV 162	
666.663	E	(1)	0.00	18.60	2-	$2p^4 \ ^3P - 19d'' \ ^3P^\circ$ UV 145 $\ ^3D^\circ$	849.61	F	(2)	1.96	16.56	2-1	$2p^4 \ ^1D - 6d' \ ^1P^\circ$ UV 163	
Air														
5577.339	D		1.96	4.19	2-0	$2p^4 \ ^1D - 2p^4 \ ^1S$ 3F	849.48	F	(1)	1.96	16.56	2-2	$2p^4 \ ^1D - 6d' \ ^1D^\circ$ UV 164	

Multiplet Table

O I—Continued

O I—Continued

I A	Ref.	Int.	E P		J	Multiplet No.	I A	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Vac 849.45	F	(0)	1.96	16.56	2-3	$2p^4 \ ^1D - 6d' \ ^1F^\circ$ UV 165	Vac *832.42	F	(0)	1.96	16.86	2-1	$2p^4 \ ^1D - 13d' \ ^1P^\circ$ UV 186
844.53	F	(0)	1.96	16.65	2-2	$2p^4 \ ^1D - 8s' \ ^3D^\circ$ UV 166	831.83	F	(0)	1.96	16.87	2-1	$2p^4 \ ^1D - 14d' \ ^1P^\circ$ UV 187
844.33	F	(0)	1.96	16.65	2-2	$2p^4 \ ^1D - 8s' \ ^1D^\circ$ UV 167	829.98	F	(1)	1.96	16.91	2-1	$2p^4 \ ^1D - 4s'' \ ^1P^\circ$ UV 188
843.75	F	(1)	1.96	16.66	2-1	$2p^4 \ ^1D - 7d' \ ^1P^\circ$ UV 168	819.27	F	(3)	1.96	17.10	2-2	$2p^4 \ ^1D - 3d'' \ ^1D^\circ$ UV 189
843.59	F	(1)	1.96	16.66	2-2 -3	$2p^4 \ ^1D - 7d' \ ^1D^\circ$ UV 169 $^1F^\circ$	788.18	F	(1)	1.96	17.70	2-1	$2p^4 \ ^1D - 5s'' \ ^1P^\circ$ UV 190
840.49	F	(0)	1.96	16.72	2-2	$2p^4 \ ^1D - 9s' \ ^3D^\circ$ UV 170	784.37	F	(2)	1.96	17.77	2-2	$2p^4 \ ^1D - 4d'' \ ^1D^\circ$ UV 191
840.33	F	(0)	1.96	16.72	2-2	$2p^4 \ ^1D - 9s' \ ^1D^\circ$ UV 171	*770.70	F	(?)	1.96	18.05	2-1	$2p^4 \ ^1D - 6s'' \ ^1P^\circ$ UV 192
839.96	F	(1)	1.96	16.73	2-1	$2p^4 \ ^1D - 8d' \ ^1P^\circ$ UV 172	769.23	F	(2)	1.96	18.08	2-2	$2p^4 \ ^1D - 5d'' \ ^1D^\circ$ UV 193
839.83	F	(1)	1.96	16.73	2-2 -3	$2p^4 \ ^1D - 8d' \ ^1D^\circ$ UV 173 $^1F^\circ$	762.26	F	(1)	1.96	18.23	2-1	$2p^4 \ ^1D - 7s'' \ ^1P^\circ$ UV 194
837.76	F	(0)	1.96	16.77	2-2	$2p^4 \ ^1D - 10s' \ ^3D^\circ$ UV 174	761.26	F	(1)	1.96	18.25	2-2	$2p^4 \ ^1D - 6d'' \ ^1D^\circ$ UV 195
837.63	F	(0)	1.96	16.77	2-2	$2p^4 \ ^1D - 10s' \ ^1D^\circ$ UV 175	757.15	F	(1)	1.96	18.34	2-1	$2p^4 \ ^1D - 8s'' \ ^1P^\circ$ UV 196
837.40	F	(1)	1.96	16.77	2-1	$2p^4 \ ^1D - 9d' \ ^1P^\circ$ UV 176	756.56	F	(0)	1.96	18.35	2-2	$2p^4 \ ^1D - 7d'' \ ^1D^\circ$ UV 197
837.27	F	(1)	1.96	16.78	2-2 -3	$2p^4 \ ^1D - 9d' \ ^1D^\circ$ UV 177 $^1F^\circ$	753.94	F	(0)	1.96	18.41	2-1	$2p^4 \ ^1D - 9s'' \ ^1P^\circ$ UV 198
835.60	F	(1)	1.96	16.80	2-1	$2p^4 \ ^1D - 10d' \ ^1P^\circ$ UV 178	753.52	F	(1)	1.92	18.42	2-2	$2p^4 \ ^1D - 8d'' \ ^1D^\circ$ UV 199
835.44	F	(1)	1.96	16.81	2-2 -3	$2p^4 \ ^1D - 10d' \ ^1D^\circ$ UV 179 $^1F^\circ$	751.75	F	(0)	1.96	18.46	2-1	$2p^4 \ ^1D - 10s'' \ ^1P^\circ$ UV 200
834.34	F	(0)	1.96	16.83	2-2	$2p^4 \ ^1D - 12s' \ ^1D^\circ?$ UV 180	751.47	F	(1)	1.96	18.47	2-2	$2p^4 \ ^1D - 9d'' \ ^1D^\circ$ UV 201
834.25	F	(0)	1.96	16.83	2-1	$2p^4 \ ^1D - 11d' \ ^1P^\circ$ UV 181	750.19	F	(1)	1.96	18.49	2-1	$2p^4 \ ^1D - 11s'' \ ^1P^\circ$ UV 202
834.12	F	(0)	1.96	16.83	2-2 -3	$2p^4 \ ^1D - 11d' \ ^1D^\circ$ UV 182 $^1F^\circ$	749.99	F	(0)	1.96	18.50	2-2	$2p^4 \ ^1D - 10d'' \ ^1D^\circ$ UV 203
833.20	F	(0)	1.96	16.85	2-1	$2p^4 \ ^1D - 12d' \ ^1P^\circ$ UV 183	748.93	F	(0)	1.96	18.52	2-2	$2p^4 \ ^1D - 11d'' \ ^1D^\circ$ UV 204
833.10	F	(0)	1.96	16.85	2-2 -3	$2p^4 \ ^1D - 12d' \ ^1D^\circ$ UV 184 $^1F^\circ$							
*832.42	F	(0)	1.96	16.86	2-2	$2p^4 \ ^1D - 14s' \ ^1D^\circ$ UV 185							

Multiplet Table

O I—Continued

O I—Continued

I A	Ref.	Int.	E P		J	Multiplet No.	I A	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Air 2324.738	P		4.19	9.52	0-1	$2p^4 \ ^1S - 3s \ ^3S^\circ$ UV 205	3348.1776 3348.2336 3348.2737	C C C	8 7 6	9.15 9.15 9.15	12.85 12.85 12.85	2-3 2-2 2-1	$3s \ ^5S^\circ - 5p \ ^5P$ 3.01
Vac 1601.731	P		4.19	11.93	0-1	$2p^4 \ ^1S - 4s \ ^3S^\circ$ UV 206							
1217.6477	A		4.19	14.37	0-1	$2p^4 \ ^1S - 3s'' \ ^1P^\circ$ UV 207	10167.252 10169.347	B P	10	9.52 9.52	10.74 10.74	1-2 1-1	$3s \ ^3S^\circ - 3p \ ^3P$ 3.02
1105.20	P		4.19	15.41	0-1	$2p^4 \ ^1S - 3d' \ ^1P^\circ$ UV 208	8446.3596 8446.7581 8446.250	B B B	30 29 27	9.52 9.52 9.52	10.99 10.99 10.99	1-2 1 1 1-0	$3s \ ^3S^\circ - 3p \ ^3P$ 4
1042.86	P		4.19	16.08	0-1	$2p^4 \ ^1S - 4d' \ ^1P^\circ$ UV 209	4368.2467 4368.1933	C C	11 8	9.52 9.52	12.36 12.36	1- 1-0	$3s \ ^3S^\circ - 4p \ ^3P$ 5
975.04	P		4.19	16.91	0-1	$2p^4 \ ^1S - 4s'' \ ^1P^\circ$ UV 210	3692.3945 3692.3863 3692.3558	A A A		9.52 9.52 9.52	12.88 12.88 12.88	1-2 1-1 1-0	$3s \ ^3S^\circ - 5p \ ^3P$ 6
959.80	F	(0)	4.19	17.11	0-1	$2p^4 \ ^1S - 3d'' \ ^1P^\circ$ UV 211							
912.48	F	(0)	4.19	17.78	0-1	$2p^4 \ ^1S - 4d'' \ ^1P^\circ$ UV 212	11302.376 11297.682 11295.104	B B B	23 22 21	10.74 10.74 10.74	11.84 11.84 11.84	3-2 2-2 1-2	$3p \ ^5P - 4s \ ^5S^\circ$ 7
892.11	F	(1)	4.19	18.09	0-1	$2p^4 \ ^1S - 5d'' \ ^1P^\circ$ UV 213	9266.006 9262.774	B B	24 23	10.74 10.74	12.08 12.08	3-4 2-3	$3p \ ^5P - 3d \ ^5D^\circ$ 8
881.47	F	(0)	4.19	18.25	0-1	$2p^4 \ ^1S - 6d'' \ ^1P^\circ$ UV 214	9260.935 9265.938 9262.671	B B B	20 21 22	10.74 10.74 10.74	12.08 12.08 12.08	1-2 3-3 2-2	
875.16	F	(1)	4.19	18.36	0-1	$2p^4 \ ^1S - 7d'' \ ^1P^\circ$ UV 215	9260.845 9265.827 9262.584	B P B	21  19	10.74 10.74 10.74	12.08 12.08 12.08	1-1 3-2 2-1	
871.16	F	(0)	4.19	18.42	0-1	$2p^4 \ ^1S - 8d'' \ ^1P^\circ$ UV 216	9260.806	B	20	10.74	12.08	1-0	
868.41	F	(0)	4.19	18.47	0-1	$2p^4 \ ^1S - 9d'' \ ^1P^\circ$ UV 217	6455.9756 6454.4451 6453.6023	B B B	19 18 17	10.74 10.74 10.74	12.66 12.66 12.66	3-2 2-2 1-2	$3p \ ^5P - 5s \ ^5S^\circ$ 9
							6158.1835 6156.7658 6155.9756	B B B	21 20 19	10.74 10.74 10.74	12.75 12.75 12.75	3- 2- 1-	$3p \ ^5P - 4d \ ^5D^\circ$ 10
Air 7771.9436	B	28	9.15	10.74	2-3	$3s \ ^5S^\circ - 3p \ ^5P$	5436.8616 5435.7756 5435.1767	B B B	11 10 9	10.74 10.74 10.74	13.02 13.02 13.02	3-2 2-2 1-2	$3p \ ^5P - 6s \ ^5S^\circ$ 11
7774.1665	B	27	9.15	10.74	2-2	1							
7775.3884	B	26	9.15	10.74	2-1								
6726.2833	B	9	9.15	10.99	2-2	$3s \ ^5S^\circ - 3p \ ^3P$	5330.7396 5329.6855 5329.1012	B B B	13 12 11	10.74 10.74 10.74	13.07 13.07 13.07	3- 2- 1-	$3p \ ^5P - 5d \ ^5D^\circ$ 12
6726.5389	B	6	9.15	10.99	2-1	2							
3947.2948	C	15	9.15	12.29	2-3	$3s \ ^5S^\circ - 4p \ ^5P$	5020.2179 5019.2910 5018.7832	B B B	7 6 5	10.74 10.74 10.74	13.21 13.21 13.21	3-2 2-2 1-2	$3p \ ^5P - 7s \ ^5S^\circ$ 13
3947.4812	C	14	9.15	12.29	2-2	3							
3947.5862	C	13	9.15	12.29	2-1								

Multiplet Table

O I—Continued

O I—Continued

I A	Ref.	Int.	E P		J	Multiplet No.	I A	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Air							Air						
4968.7931	B	8	10.74	13.24	3-	3p <sup>o</sup> P - 6d <sup>o</sup> D°	3954.6073	A	11	10.99	14.12	2-2	3p <sup>o</sup> P - 3s'' <sup>o</sup> P°
4967.8821	B	7	10.74	13.24	2-	14	3952.8870	A	5	10.99	14.12	1-1	30
4967.3783	B	6	10.74	13.24	1-		*3952.9834	A	7	10.99	14.12	2-1	
4802.9816	B	4	10.74	13.32	3-2	3p <sup>o</sup> P - 8s <sup>o</sup> S°	3951.9271	A	8	10.99	14.12	1-0	
4802.132	B	3	10.74	13.32	2-2	15	3954.5199	A	9	10.99	14.12	1-2	
4773.7522	B	5	10.74	13.34	3-	3p <sup>o</sup> P - 7d <sup>o</sup> D°	*3952.9834	A	7	10.99	14.12	0-1	
4772.9133	B	4	10.74	13.34	2-	16	2883.8557	A		10.99	15.29	2-2	3p <sup>o</sup> P - 3d' <sup>o</sup> P°
4772.4489	B	3	10.74	13.34	1-		2878.9312	A		10.99	15.29	1-1	30.01
4655.359	B	3	10.74	13.40	3-	3p <sup>o</sup> P - 8d <sup>o</sup> D°	2878.9776	A		10.99	15.29	2-1	
4654.5584	B	2	10.74	13.40	2-	18	2876.2948	A		10.99	15.30	1-0	
4654.1183	B	1	10.74	13.40	1-		2883.8092	A		10.99	15.29	1-2	
							2878.9906	A		10.99	15.29	0-1	
13164.85	B	26	10.99	11.93	2-1	3p <sup>o</sup> P - 4s <sup>o</sup> S°	9694.661	C	10	11.84	13.12	2-3	4s <sup>o</sup> S° - 6p <sup>o</sup> P
13163.89	B	25	10.99	11.93	1-1	18.01	9694.906	C	9	11.84	13.12	2-2	30.02
13165.11	B	24	10.99	11.93	0-1		9695.060	C	8	11.84	13.12	2-1	
11286.914	B	24	10.99	12.09	2-3	3p <sup>o</sup> P - 3d <sup>o</sup> D°							
11286.344	B	23	10.99	12.09	1-	18.02	13076.91	C	14	11.93	12.88	1-	4s <sup>o</sup> S° - 5p <sup>o</sup> P
11287.318	B	21	10.99	12.09	0-1								30.03
11287.022	B	21	10.99	12.09	2-		10320.304	C	9	11.93	13.13	1-	4s <sup>o</sup> S° - 6p <sup>o</sup> P
7995.0742	B	15	10.99	12.54	2-3	3p <sup>o</sup> P - 3s' <sup>o</sup> D°							30.04
7986.9777	B	13	10.99	12.54	1-2	19							
7982.3986	B	11	10.99	12.54	0-1								
7987.3330	B	11	10.99	12.54	2-2								
7981.9414	B	10	10.99	12.54	1-1								
7254.4475	B	20	10.99	12.70	2-1	3p <sup>o</sup> P - 5s <sup>o</sup> S°	18021.21	B	23	12.08	12.77		3d <sup>o</sup> D° - 4f <sup>o</sup> F
7254.1544	B	19	10.99	12.70	1-1	20							30.05
7254.529	B	17	10.99	12.70	0-1		12464.02	B	21	12.08	13.07		3d <sup>o</sup> D° - 5f <sup>o</sup> F
7002.2282	B	20	10.99	12.76	2-	3p <sup>o</sup> P - 4d <sup>o</sup> D°							30.06
7001.9157	B	18	10.99	12.76	1-	21							
6046.4381	B	13	10.99	13.04	2-1	3p <sup>o</sup> P - 6s <sup>o</sup> S°	10675.725	B	17	12.08	13.24		3d <sup>o</sup> D° - 6f <sup>o</sup> F
6046.2329	B	12	10.99	13.04	1-1	22	10675.940	B	16	12.08	13.24		30.07
6046.494	B	10	10.99	13.04	0-1								
5958.5830	B	13	10.99	13.07	2-	3p <sup>o</sup> P - 5d <sup>o</sup> D°	9825.847	B	13	12.08	13.34		3d <sup>o</sup> D° - 7f <sup>o</sup> F
5958.3868	B	12	10.99	13.07	1-	23	9826.002	B	12	12.08	13.34		30.08
5555.0036	B	9	10.99	13.22	2-1	3p <sup>o</sup> P - 7s <sup>o</sup> S°	18243.63	B	22	12.09	12.77		3d <sup>o</sup> D° - 4f <sup>o</sup> F
5554.8322	B	8	10.99	13.22	1-1	24							30.09
5512.7709	B	8	10.99	13.24	2-	3p <sup>o</sup> P - 6d <sup>o</sup> D°	12570.04	B	20	12.09	13.07		3d <sup>o</sup> D° - 5f <sup>o</sup> F
5512.6030	B	7	10.99	13.24	1-	25							30.10
5299.0441	B	5	10.99	13.33	2-1	3p <sup>o</sup> P - 8s <sup>o</sup> S°	10753.530	B	17	12.09	13.24		3d <sup>o</sup> D° - 6f <sup>o</sup> F
5298.8876	B	4	10.99	13.33	1-1	26							30.11
5275.121	B	4	10.99	13.34	2-	3p <sup>o</sup> P - 7d <sup>o</sup> D°	9891.743	B	13	12.09	13.34		3d <sup>o</sup> D° - 7f <sup>o</sup> F
5274.9680	B	2	10.99	13.34	1-	27							30.12



Multiplet Table

O I—Continued

O I—Continued

I A	Ref.	Int.	E P		J	Multiplet No.	I A	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Air 6324.842 6323.388	A A	7 5	12.09 12.09	14.05 14.05	-1	3d <sup>3</sup> D°- 3p' <sup>3</sup> D 31	Air 8820.426	A	20	12.73	14.13	2-3	3s' <sup>1</sup> D°- 3p' <sup>1</sup> F 37
3534.1883 3533.2532 3532.6054 3533.2645 3532.6141 3534.1771 3533.2445	A A A A A A A		12.09 12.09 12.09 12.09 12.09 12.09	15.59 15.59 15.60 15.59 15.60 15.59	3-3 2-2 1-1 3-2 2-1 2-3 1-2	3d <sup>3</sup> D°- 4p' <sup>3</sup> D 31.01	7156.701	A	16	12.73	14.46	2-2	3s' <sup>1</sup> D°- 3p' <sup>1</sup> D 38
18229.23	C	13	12.36	13.04	-1	4p <sup>3</sup> P - 6s <sup>3</sup> S° 31.02	3997.9528	A	4	12.73	15.83	2-1	3s' <sup>1</sup> D°- 3p'' <sup>1</sup> P 38.01
*7025.509 *7020.357 *7020.357 *7025.509	A A A A	5 2 2 5	12.36 12.36 12.36 12.36	14.12 14.12 14.12 14.12	2-2 1-1 2-1 1-2	4p <sup>3</sup> P - 3s'' <sup>3</sup> P° 32	3855.0141	A	6	12.73	15.94	2-2	3s' <sup>1</sup> D°- 3p'' <sup>1</sup> D 38.02
4233.2680 4222.7651 4217.0875 4222.8182	A A A A	10 8 7 7	12.36 12.36 12.36 12.36	15.29 15.29 15.30 15.29	-2 -1 1-0 0-1	4p <sup>3</sup> P - 3d' <sup>3</sup> P° 33	*9625.290 *9625.290 *9622.127 *9625.290 *9622.127 *9625.290 *9625.290	A A A A A A A	12 12 11 12 11 12 12	12.76 12.76 12.76 12.76 12.76 12.76 12.76	14.05 14.05 14.05 14.05 14.05 14.05 14.05	3-3 2-2 1-1 3-2 2-1 2-3 1-2	4d <sup>3</sup> D°- 3p' <sup>3</sup> D 38.03
8221.823 8230.020 8233.005 8227.652 8235.351	A A A A A	22 18 20 18 12	12.54 12.54 12.54 12.54 12.54	14.05 14.05 14.05 14.05 14.05	3- 2- 1-1 2-1 1-2	3s' <sup>3</sup> D°- 3p' <sup>3</sup> D 34	*26173.56	C	13	12.77	13.24		4f <sup>3</sup> F - 6g <sup>3</sup> G° 38.04
7947.548 7950.804 7952.160 7943.153 7947.169 7939.514	A A A A A A	17 16 15 11 11 6	12.54 12.54 12.54 12.54 12.54 12.54	14.10 14.10 14.10 14.10 14.10 14.10	3-4 2-3 1-2 3-3 2-2 3-2	3s' <sup>3</sup> D°- 3p' <sup>3</sup> F 35	*26173.56	C	13	12.77	13.24		4f <sup>3</sup> F - 6g <sup>3</sup> G° 38.05
3823.4123 3824.3509 3825.0221 3822.5740 3823.8686 3825.1873 3825.498	A A A A A A A	12 7 7 5 6 8 A	12.54 12.54 12.54 12.54 12.54 12.54 12.54	15.78 15.78 15.78 15.78 15.78 15.78 15.78	3-3 2-2 1-1 3-2 2-1 2-3 1-2	3s' <sup>3</sup> D°- 3p'' <sup>3</sup> D 36	5146.096 5130.586 5122.229 5130.655	A A A A	7 5 4 5	12.88 12.88 12.88 12.88	15.29 15.29 15.30 15.29	-2 -1 1-0 0-1	5p <sup>3</sup> P - 3d' <sup>3</sup> P° 39
9482.884	A	12d	12.73	14.04	2-1	3s' <sup>1</sup> D°- 3p' <sup>1</sup> P 36.01	3830.3261 3830.3349	P P		12.88 12.88	16.11 16.11	2-2 1-2	5p <sup>3</sup> P - 4d' <sup>3</sup> P° 39.01
9402.290 9402.256 9399.192	P P A		12.73 12.73 12.73	14.05 14.05 14.05	2-3 2-2 2-1	3s' <sup>1</sup> D°- 3p' <sup>3</sup> D 36.02	5750.57 5731.21 5720.77	P P P		13.13 13.13 13.13	15.29 15.29 15.30	-2 -1 -0	6p <sup>3</sup> P - 3d' <sup>3</sup> P° 40
9039.607 9034.912	A P	8	12.73 12.73	14.10 14.10	2-3 2-2	3s' <sup>1</sup> D°- 3p' <sup>3</sup> F 36.03	10421.177 9057.014	A A	12d 14d	14.04 14.04	15.22 15.40	1-2 1-0	3p' <sup>1</sup> P - 4s' <sup>1</sup> D° 40.01 3p' <sup>1</sup> P - 3d' <sup>1</sup> S° 40.02
							8994.604	A	9d	14.04	15.41	1-2	3p' <sup>1</sup> P - 3d' <sup>1</sup> D° 40.03
							6276.563	A	7d	14.04	16.01	1-2	3p' <sup>1</sup> P - 5s' <sup>1</sup> D° 40.04

Multiplet Table

O I—Continued

O I—Continued

I A	Ref.	Int.	E P		J	Multiplet No.	I A	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Air 6066.986	A	7d	14.04	16.08	1-0	$3p' \ ^1P - 4d' \ ^1S^\circ$ 40.05	Air 9521.956 9523.364 9523.965 9528.282	A A A A	16 12 12 11	14.10 14.10 14.10 14.10	15.40 15.40 15.40 15.40	4-4 3-3 2-2 3-4	$3p' \ ^3F - 3d' \ ^3F^\circ$ 45
*9995.310 9936.983 9909.050 *9995.310 9940.408 9998.802	A A A A A A	14 13 12 14 12 8	14.05 14.05 14.05 14.05 14.05 14.05	15.29 15.29 15.30 15.29 15.29 15.29	3-2 2-1 1-0 2-2 1-1 1-2	$3p' \ ^3D - 3d' \ ^3P^\circ$ 40.06	9497.974 9505.594 9497.895 9499.300 9492.708	A A P A A	18 17 m O I 14 13	14.10 14.10 14.10 14.10 14.10	15.40 15.40 15.41 15.40 15.41	4-5 3-4 2-3 4-4 3-3	$3p' \ ^3F - 3d' \ ^3G^\circ$ 47
9156.011 *9151.481 9150.135 *9151.481 *9147.230 *9147.230	A A A A A A	17 10 10 10 9 9	14.05 14.05 14.05 14.05 14.05 14.05	15.40 15.40 15.40 15.40 15.40 15.40	3-4 2-3 1-2 3-3 2-2 3-2	$3p' \ ^3D - 3d' \ ^3F^\circ$ 41	9481.165 9487.434  9431.715	A A  A	12 17  8	14.10 14.10  14.10	15.41 15.41  15.41	4-4 3-4  2-3	$3p' \ ^3F - 3d' \ ^1G^\circ$ 47.01  $3p' \ ^3F - 3d' \ ^1F^\circ$ 47.02
9135.055	A	9	14.05	15.40	3-4	$3p' \ ^3D - 3d' \ ^3G^\circ$ 41.01	6266.890	A	9	14.10	16.08	4-4	$3p' \ ^3F - 4d' \ ^3F^\circ$ 48
9134.711	A	10	14.05	15.40	1-0	$3p' \ ^3D - 3d' \ ^1S^\circ$ 41.02	6261.547 6264.549 6261.451 6261.814 6259.196	A A P A A	11 9 m O I 6 6	14.10 14.10 14.10 14.10 14.10	16.08 16.08 16.08 16.08 16.08	4-5 3-4 2-3 4-4 3-3	$3p' \ ^3F - 4d' \ ^3G^\circ$ 50
9118.288	A	12	14.05	15.41	3-4	$3p' \ ^3D - 3d' \ ^1G^\circ$ 41.03	6254.102 6256.832	A A	4 10	14.10 14.10	16.08 16.08	4-4 3-4	$3p' \ ^3F - 4d' \ ^1G^\circ$ 50.01
9071.209	A	8	14.05	15.41	1-2	$3p' \ ^3D - 3d' \ ^1D^\circ$ 41.04	5410.856	A	4	14.10	16.39	4-4	$3p' \ ^3F - 5d' \ ^3F^\circ$ 51
9062.098	A	7	14.05	15.41	-3	$3p' \ ^3D - 3d' \ ^1F^\circ$ 41.05	5408.595 5410.739	A A	6 4	14.10 14.10	16.39 16.39	4-5 3-4	$3p' \ ^3F - 5d' \ ^3G^\circ$ 53
*7706.751 7663.443 7639.984 *7706.751 7665.483 7708.825	A A A A A A	11 9 7 11 7 3	14.05 14.05 14.05 14.05 14.05 14.05	15.65 15.66 15.67 15.65 15.66 15.65	3-2 2-1 1-0 2-2 1-1 1-2	$3p' \ ^3D - 2p^5 \ ^3P^\circ$ 42	5404.993	A	5	14.10	16.39	3-4	$3p' \ ^3F - 5d' \ ^1G^\circ$ 53.01
6106.266	A	11	14.05	16.08	3-4	$3p' \ ^3D - 4d' \ ^3F^\circ$ 43	8426.164 8428.319 8429.050 8420.918 8424.687	A A A A P	12 8 8 6 m Ar I	14.12 14.12 14.12 14.12 14.12	15.59 15.59 15.60 15.59 15.60	2-3 1-2 0-1 2-2 1-1	$3s'' \ ^3P^\circ - 4p' \ ^3D$ 54
6101.750	A	3	14.05	16.08	1-0	$3p' \ ^3D - 4d' \ ^1S^\circ$ 43.01	7476.440 7479.075 7480.670 7473.241 7477.236 7471.404	A A A A A A	16 12 12 9 11 6	14.12 14.12 14.12 14.12 14.12 14.12	15.78 15.78 15.78 15.78 15.78 15.78	2-3 1-2 0-1 2-2 1-1 2-1	$3s'' \ ^3P^\circ - 3p'' \ ^3D$ 55
6094.126	A	6	14.05	16.08	3-4	$3p' \ ^3D - 4d' \ ^1G^\circ$ 43.02	11358.692	A	18	14.13	15.22	3-2	$3p' \ ^1F - 4s' \ ^1D^\circ$ 55.01
*5995.277 5991.915 5991.305 *5995.277 5993.163	A A A A A	10 7 7 10 6	14.05 14.05 14.05 14.05 14.05	16.11 16.11 16.12 16.11 16.11	3-2 2-1 1-0 2-2 1-1	$3p' \ ^3D - 4d' \ ^3P^\circ$ 44							
5290.693	A	6	14.05	16.39	3-4	$3p' \ ^3D - 5d' \ ^3F^\circ$ 44.01							

Multiplet Table

O I—Continued

O I—Continued

I A	Ref.	Int.	E P		J	Multiplet No.	I A	Ref.	Int.	E P		J	Multiplet No.
			Low	High						Low	High		
Air							Air						
*9784.55§	A		14.13	15.40	3-4	$3p' \ ^1F - 3d' \ ^3F^\circ$ 55.02	8508.583	A	7	14.37	15.83	1-1	$3s'' \ ^1P^\circ - 3p'' \ ^1P$ 61.03
9760.653	A	17	14.13	15.40	3-4	$3p' \ ^1F - 3d' \ ^3G^\circ$ 55.03	7886.273	A	10	14.37	15.94	1-2	$3s'' \ ^1P^\circ - 3p'' \ ^1D$ 64
9741.503	A	17	14.13	15.41	3-4	$3p' \ ^1F - 3d' \ ^1G^\circ$ 55.04	6653.834	A	11	14.37	16.23	1-0	$3s'' \ ^1P^\circ - 3p'' \ ^1S$ 65
9684.513	A	8	14.13	15.41	3-2	$3p' \ ^1F - 3d' \ ^1D^\circ$ 55.05	16212.06	A	14	14.46	15.22	2-2	$3p' \ ^1D - 4s'' \ ^1D^\circ$ 66
9677.384	A	14	14.13	15.41	3-3	$3p' \ ^1F - 3d' \ ^1F^\circ$ 58	12990.77	A	12	14.46	15.41	2-3	$3p' \ ^1D - 3d' \ ^1F^\circ$ 67
6604.906	A	10	14.13	16.01	3-2	$3p' \ ^1F - 5s' \ ^1D^\circ$ 58.01	7997.013	A	8	14.46	16.01	2-2	$3p' \ ^1D - 5s' \ ^1D^\circ$ 68
6374.324	A	11	14.13	16.08	3-4	$3p' \ ^1F - 4d' \ ^3G^\circ$ 59							
6366.335	A	11	14.13	16.08	3-4	$3p' \ ^1F - 4d' \ ^1G^\circ$ 59.01	17966.70	A	12	15.40	16.09	4-5	$3d' \ ^3F^\circ - 4f' \ ^3G$ 69
6351.156	A	8	14.13	16.08	3-3	$3p' \ ^1F - 4d' \ ^1F^\circ$ 61							
5492.432	A	5	14.13	16.39	3-4	$3p' \ ^1F - 5d' \ ^3G^\circ$ 61.01	18046.23	A	12	15.40	16.09	5-6	$3d' \ ^3G^\circ - 4f' \ ^3H$ 70
5486.517	A	5	14.13	16.39	3-4	$3p' \ ^1F - 5d' \ ^1G^\circ$ 61.02	18041.48	A	12	15.40	16.09	4-5	70
							18042.19	A	12	15.41	16.09	4-5	$3d' \ ^1G^\circ - 4f' \ ^1H$ 71