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LANGUAGE MANUAL FOR USE WITH IDEOGRAPHIC COMPOSING MACHINES MOD--ETC(U)  
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**RCA**

# Language Manual For Use With Ideographic Composing Machines Models AR816 and AR3L

Volume I. Introduction

*9 Feb. 1970*

Prepared under  
Contract DAAG17-68-C-0064  
for  
Headquarters, Natick Laboratories  
U.S. Army  
Natick, Massachusetts

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Defense Electronic Products  
Camden, New Jersey

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# RCA

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## Language Manual For Use With Ideographic Composing Machines Models AR816 and AR3L

Volume I. Introduction

⑪ 9 Feb 70

Prepared under  
Contract DAAG17-68-C-0064 *new*  
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Headquarters, Natick Laboratories  
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Natick, Massachusetts

⑫ 39p.

*R.D.*  
Prepared by  
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Camden, New Jersey

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## INTRODUCTION

This set of language manuals has been developed by RCA Corporation, for the U. S. Army Natick Research Laboratories on contract DAAG17-68-C-0064, 19 December 1967. They cover the ideographic characters making up the vocabularies of the Chinese composing machines developed under contract DA 19-129-QM-1948 and the Chinese, Japanese, and North Korean composing machine developed under contract DA 19-129-AMC-725(N). These manuals support the operation and maintenance of these machines.

The manuals contain lists of information on the Kanji ideograms stored in the optical memory of the Ideographic Composing Machines (ICM). This information is presented in various formats giving cross references and references to standard dictionaries for Chinese, Japanese, and Korean languages. The lists also give the location in the optical memory of the ICM for each character. The stroke sequence of the character plays a major roll in the ICM system; therefore, the manuals provide a means for obtaining the exact spelling for each character based on the common handwritten K'ai style by the Chinese. Because of the number of variations found in use by the Japanese and Korean writers, it was decided to standardize with the Chinese spelling for these manuals and for the ICM system. A written and printed form of a character is provided in the manual, when there is a difference, to clarify the stroke sequence required by the ICM for identification. The output of the ICM gives the printed Sung style characters.

A serial number is assigned to each character by the order in which it appears in the master list. This number is the key to the cross reference of all the lists;

therefore, it appears in each list with the information about each character. The lists presented in the manual are:

- Master List (Volumes II, III, and IV)
- Total Strokes List (Volume V)
- Radical List (Volume V)
- Pronunciation Lists (Wade-Giles and Pinyin, Volume VI; Japanese and Korean, Volume VII).

The Master List, which contains all available information for each character, is indexed by stroke sequence. The Total Strokes List is a list of the characters in order by stroke count. The Radical List is indexed by radical number. The Pronunciation Lists are indexed by the Romanized sound.

A short description of the ICM is included in this volume to help clarify the development of the data presented in this manual. Additional details concerning the selection of the machine vocabulary and the design, maintenance and operation of the ICM can be found in other reports delivered to the U. S. Army Natick Research Laboratories under previous contracts. These include:

- "Chinese Language Study" under contract DA-19-129-QM-1948.
- "Japanese and Korean Language Study" under contract DA-19-129-QM-1948.
- "Engineering Notes - Maintenance of the Ideographic Composing Machine" under contract DA-19-129-QM-1948.
- "Engineering Notes - Maintenance of the Ideographic Composing Machine - Addendum for Three Language Machine" under contract DA-129-AMC-725(N).
- "Engineering Notes - Operation of the Ideographic Composing Machine" under contract DA-19-129-QM-1948.

It is also recommended that the operator have available copies of the Chinese-English Dictionary, by R. H. Matthews; Modern Reader's Japanese-English Character Dictionary, by Andrew Nathaniel Nelson; and the New Korean Dictionary, edited by the Linguistic Society of Seoul, Korea.

With this manual and the aforelisted reference, the operator can locate any character in the ICM vocabulary by several different methods. He has available cross references by *stroking sequence*, character size, radical, pronunciation, standard dictionaries and *machine organization*. He will also be shown *shortcuts* to composing the characters on the ICM system.

As in any task of this magnitude, which involves human completion of every step of production, errors are likely to occur. The manuals have been thoroughly checked, and errata have been included as part of this volume of the language manuals.

## DESCRIPTION OF IDEOGRAPHIC COMPOSING MACHINE

### INTRODUCTION

The Ideographic Composing Machine (ICM) is designed to compose Chinese, Japanese, and Korean characters (both Kanji and Kana forms) in page format from a keyboard or punched-tape input. The machine has a vocabulary of approximately 10,000 characters. The output of the ICM is a 5-inch-wide film strip containing these characters, composed in text fashion, in any one of four type sizes, 12, 18, 24 or 30 points. The characters may be composed either in the classical style, top to bottom and right to left, or in the modern style, left to right and top to bottom.

The main input to the ICM is derived from a keyboard which contains the 21 fundamental strokes from which all Chinese characters may be composed, plus punctuation marks, operational instructions, and Kana forms. Additional keys are provided to insert commonly used groups of strokes called entities or phrases. As an auxiliary function, the input may be generated from paper tape, and provisions are made for punching the paper tape from the keyboard. For characters not available in the ICM vocabulary, a closed circuit TV system is employed to copy characters from books, magazines or handwritten material.

### DESCRIPTION OF MAJOR COMPONENTS

The Ideographic Composing Machine is comprised of the following seven basic system components which perform the composition function:

- Input writer
- Computer system
- Magnetic drum memory
- Optical memory
- Video system

- Composing camera
- Insertion camera.

These components are described in the following paragraphs.

#### Input Writer

The input writer is essentially an electric typewriter that generates an 8-bit binary code for each key struck. The keys of the keyboard represent the strokes used to form the Kanji characters or the Kana characters depending on the mode of composition selected by the operator. Special keys are also provided for punctuation marks and operational functions.

Associated with the input writer are a tape punch and a tape reader. These can be used to record the development of the character composition and reproduce the text automatically with modifications, if necessary.

The hard copy printout generated by the input writer provides the operator with a means for monitoring the development of each character. This printout gives the Romanized code equivalent for the strokes and the sequence in which they were typed.

#### Computer System

The computer system contains the logic circuitry required for processing the code information from the input writer. It has a storage memory that records the stroke codes inserted by the operator and remembers the sequence of insertion. It identifies an entity insertion from the input writer and performs the proper sequencing and coding to include the entity strokes in the storage memory. It identifies the functional commands from the input writer and controls the sequence of events. It compares the stroke codes of the character in its storage memory with those of the drum memory to determine when a character has been identified. It addresses the light source of the optical memory system and programs the TV deflections circuits to select the identified character for display.

### Magnetic Drum Memory

The magnetic drum memory is a rotating magnetic drum with read only requirements. It has 100 information tracks and two time tracks. The "code stroke" information for all the characters in the ICM vocabulary are permanently recorded in this memory. This information is continually being read out at the rate of a character every 10 microseconds and repeated each tenth of a second. The readout is fed to the computer system where it is compared with the coding recorded in the storage memory.

### Optical Memory

The optical memory has a permanent photographic record of every character in the ICM vocabulary. The characters are arranged in groups of 16 to form a 4 x 4 matrix. There are 625 of these groups in the Chinese only language machine and 635 in the Chinese, Japanese, and Korean language machine. This memory system consists of the photographic plates with the character images, an illumination system with driver circuits, a TV camera pickup unit, and optics to project the image from the photo plate to the face of the TV camera tube.

The light source is activated by the computer and only illuminates the matrix containing the desired character. The TV camera, which is continually operating, immediately senses the illuminated image and converts the information to an electrical signal which can be processed by the video system.

### Video System

The video system is a modified version of a simple closed-circuit TV system designed specifically to process black and white images with no gray scale requirements. The major difference is in the deflection circuits for the TV camera pickup tube. These are designed to have sector scan capability so that one character will be selected

from the 16 being displayed per computer designation. Two TV display tubes are incorporated in the video system; one provides the operator with a visual display of the character he has spelled out on the input writer, the second one is located in the copying camera where the character is transposed to film.

#### Composing Camera

The major components of the composing camera are:

- (1) Exposure Kinescope, which displays the character for copying
- (2) Lens system, which focuses the image on the film and changes the size of the printed character
- (3) Film transport, which positions the film with respect to the lens as each character is recorded.

An electric shutter allows the character image, which is being presented on the monitor for the operator's view, to be displayed on the face of the kinescope. This image is projected onto the film for the time that the shutter is open. After each exposure is made, the film is repositioned a distance equivalent to the character size being copied. When the full width of the film is passed by the lens, the transport assembly automatically returns to the starting position and is advanced a line equal to the character size being composed.

All camera operations, except for font size change, are accomplished from the input writer. Provisions are made for copying, space shifting, and line shifting by the operator as well as the automatic functions performed by the camera when text is being composed.

#### Insertion Camera

The insertion camera provides a means for including, in the composed text, characters not contained in the ICM vocabulary. It is a television camera that can be

focused on a sheet of printed or written material and can inject this image into the video system upon instruction. The operator can set the size of the character by adjusting the zoom lens of the insertion camera.

## THE ICM VOCABULARY

### INTRODUCTION

Because of the 10,000-character limit of the ICM magnetic drum memory, a careful study of the Chinese, Japanese, and Korean languages were made to determine the most useful characters to be incorporated in the ICM vocabulary. The study included characters with variant forms and characters with ambiguous stroking sequences. Consideration was also given to characters that have more than one popular stroking sequence.

From this study the vocabulary developed to approximately 8,500 unique characters. There are about 8,000 standard character forms and 1,500 variants. There are 4,095 characters for the Japanese language and 4,965 characters for the Korean language. There are approximately 3,800 characters that are common to at least two languages.

*The 146 Kana characters required for the Japanese language are included in addition to the Kanji characters. The characters are treated separately during the composition by changing the mode of operation of the machine.*

### STRUCTURE OF KANJI CHARACTERS

A study of the Chinese language revealed that it does have an "alphabet" in the sense that all Kanji characters are written by selecting strokes from a set of 21 basic strokes which are shown in Fig. 1. In addition, the student of Chinese is taught a definite stroking sequence for writing each character. The ICM system takes advantage of these two particulars to provide a method for composing Kanji text through a typewriter keyboard. The keys of the typewriter represent the strokes and the

B	一	Q	丿
D	丨	R	㇇
E	丶	S	し
G	㇇	T	㇇
H	→	U	㇇
J	フ	V	㇇
K	㇇	W	㇇
L	㇇	X	㇇
M	㇇	Y	㇇
N	㇇	Z	㇇
P	㇇		

Fig. 1. Basic strokes for character composition.

sequence of selection represents the spelling of the character. With this input, the ICM computer can identify the desired character and address the optical memory to display it on the TV monitor. Examples of typical stroking sequence are shown in Fig. 2.

Because of the limitation in the magnetic drum memory of the ICM system, it was decided to incorporate only the Chinese stroking sequence for the Kanji characters when there is a difference from that used in the Japanese or Korean languages. If the operator is in doubt as to the spelling, he can check for the ICM version in this manual. Additional information on stroking sequence and problem areas is available in the manuals recommended earlier.

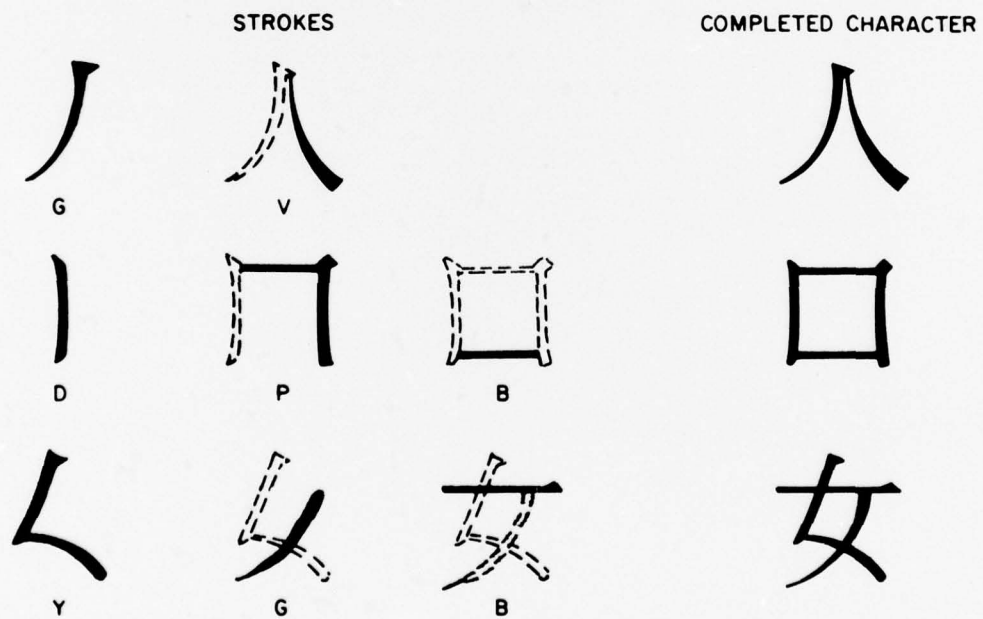


Fig. 2. Typical stroking sequences.

## ROMANIZED DESIGNATIONS

Each of the 21 basic strokes is assigned a letter of the English alphabet (see Fig. 1). This feature provided the correlation required for computer programming. It is also useful for cataloging as well as providing a means for machine operation by personnel not acquainted with the oriental languages. These letters appear on the right side of the typewriter keys for the strokes they represent. The hard copy of the typewriter prints out the strokes in their Romanized equivalents.

## AMBIGUOUS SPELLINGS

It has been shown that a Kanji character may be cataloged and uniquely identified by its strokes and stroking sequence. For the great majority of characters, this stroking sequence is sufficient identification. However, there is a special situation whereby a given stroking sequence leads to two or more different characters. An example of such an ambiguity is shown in Fig. 3. The complete list of ambiguous characters is contained in the manuals recommended earlier. Fortunately, there are relatively few of these character sets.

In the 10,000-character vocabulary of the ICM, there are 271 pairs, 15 triads and a single quad of such characters. These characters are identified as ambiguous characters and require special treatment in the operation of the machine to permit composition of the desired character. When an ambiguous spelling is entered into the computer, the optical memory is commanded to display all the characters with that spelling. The operator then selects the character he wishes by selecting the appropriate key on the input writer.

## ENTITIES

A number of groups of strokes in the Chinese language occur frequently in the generation of characters. Some of these are radicals and the others are somewhat similar to the English syllables such as "ing," "tion" or "ous." Twenty-eight of

BBDB	王	DPBB	日	GBE	々
BDB	土	EBBBDPB	言	GEBBDEGB	金
BDD	廿	EBG	广	GEEG	𠂇
BDGE	木	EED	小	GQBB	月
BGE	大	EEEE	𠂇	JLD	𠂇
BKX	才	EEH	𠂇	KEE	小
DBDB	止	EEX	斗	PBBDRBQ	門
DEG	𠂇	EGGE	火	UUE	么
DPB	口	EJLW	之	YGB	女
		EXGE	𠂇		

Fig. 3. Entities provided in the ICM.

these groups, designated as entities, were selected and assigned a key on the input writer. These are shown in Fig. 4. The operator has the option of using the entity keys to form a complete character or of striking the keys for each individual stroke to form a character, depending on his preference. After additional skill is acquired by the operator, he will learn to recognize the opportunity to save time by using the entity keys.



Fig. 4. Ambiguous set of Chinese characters.

## DESCRIPTION OF THE LISTS

The prime purpose of this manual is to aid the linguist in the operation of the ICM machine. If the general instructions for the spelling rules are insufficient to identify the exact spelling for the ICM input, the operator may use these lists to determine the strokes and their sequence for the character he desires as they are recorded in the ICM memory.

### MASTER LIST (Volumes II through IV)

The Master List (Volumes II through IV) contains all information for spelling, stroke number, pronunciation (Romanized forms), radical number, and all reference serial numbers of every Kanji character in the system with printed and written form of each character (when there is a difference). This is the list which must be used to obtain the spelling of the desired character for input to the ICM. The serial number in this list is repeated in all the lists to provide a convenient cross-reference of the data.

The format of the data in this list is as follows:

The character spelling (stroke sequence) is on the first line and extreme left of each grouping. The spelling sequence is from left to right. A space in the stroke sequence indicates the unique spelling of the character that will identify it in the ICM computer. A "3" in the sequence indicates the unique spelling in the 3-language machine when it differs from that in the Chinese machine.

Directly below this is the character's pronunciation in the three languages; J - Japanese, K - Korean, P - Chinese Pinyin, and W - Chinese Wade-Giles. The second column is the dictionary reference numbers; N - Nelson's Japanese, K - Korean, M - Mathew's. The third column is only pertinent to the ICMs; it gives the serial number

assigned to the character for each machine (3S - 3-language machine and CS - Chinese machine) and the location of each character in the optical memory (3P-three language memory and CP-Chinese language memory).

The fourth column contains:

- (1) The stroke count that uniquely identifies the character in each machine (3M - three language and CM - Chinese language).
- (2) The total stroke count for the character (ST).
- (3) The character's radical number (R).
- (4) The stroke residue after the radical (SR).

The characters presented in columns 5, 6, and 7 are:

- W - the written form
- P - the printed form when different
- R - the radical

The last column (8) is the serial number assigned to each character for this manual.

#### TOTAL STROKES LIST (Volume V)

The number of strokes of each character depends upon how an individual writes the character. The stroke count used in the ICM is based on the conclusions of the language studies mentioned earlier and is based on the Chinese written form of the character. Therefore, the stroke count in this list may vary from some authoritative dictionaries which use the printed character forms.

This Total Strokes List (Volume V) contains the written form of the character and the serial number assigned for the master list. The characters are grouped by number of strokes and ordered by serial number.

## RADICAL LIST (Volume V)

A Chinese character, which is not itself a Radical, consists of two parts: the Radical and the Phonetic or Primitive. The Radical normally gives a clue to the meaning of a character; therefore, it can be helpful in locating the character in the ICM system. The Radical List (Volume V) catalogs all the characters in the ICM vocabulary under one of the 214 radicals according to the traditional radical system. Newly coined simplified forms and the Chinese phonetic symbols not found in the traditional system are cataloged under a radical considered to have the most reasonable conformance to the rules for character structure.

The list has 209 radical groupings, the ICM vocabulary has no characters other than the radical itself for radical group 92, 168, 179, 189, and 213. The list contains the handwritten form of the radicals and the characters, and the radical number and this manual's serial numbers for the characters. The list also gives the residue stroke count for each character. The format of the list is:

- (1) All the characters are grouped by their radical.
- (2) The groups are presented in order by the radical number.
- (3) The characters are sorted in each group by residue count.

The radical number and the radical character are given at the top of each group. The character serial number is located above its character with the residue count positioned between the serial number and the character.

## PRONUNCIATION LISTS (Volume VI and Volume VII)

### Chinese Pronunciation in Wade-Giles

Small variations have developed in the Wade-Giles system as it was presented by various authors of dictionaries. To minimize unimportant details the pronunciation of the characters in this list is based on the Guoyucidian (a dictionary of spoken Chinese) by Wang Yi, and not on the Chinese-English Dictionary by Matthews which does not

use a standard Wade-Giles system of Romanization. The Romanization of the pronunciation of the characters in this list was derived from the comparative chart presented in the Appendix of the Guoyucidian and where there is more than one form of pronunciation only the most common is given.

The numerals included in the Romanized sound represents the tones (accent marks) in the pronunciation. 1 is the first tone as "ā," 2 is the second tone as "á," 3 is the third tone "ǎ," and 4 is the fourth tone as "à." No numeral means no accent marks giving a neutral tone. The apostrophe is the stress symbol for the pronunciation.

The list contains the Romanized pronunciation of each character, the serial number of the manual, and the handwritten form of the character. The characters are organized in groups by sound and appear within each group in order by serial number. The groups are listed in order by the Romanized spelling. The Romanized pronunciation appears above each group. The serial number appears above its character.

#### Chinese Pronunciation in Pinyin

This list follows the same rules and procedures given for the Wade-Giles list. The Romanization for this list was also taken from the comparative chart given in the Appendix of the Guoyucidian by Wang Yi.

#### Japanese Pronunciation

The readings of characters in the Japanese language are generally in either "ON" (Chinese pronunciation) or "Kun" (Japanese pronunciation). This list applies the ON system whenever possible and as a rule only the ON system in current use. The readings are based on the Modern Reader's Japanese-English Character Dictionary by Andrew Nathaniel Nelson. The Romanization of the pronunciation is the Hepburn system. The slash marks appearing in the Romanized pronunciation indicate the accent of the letter preceding it.

This list has the same format as the Wade-Giles system.

### Korean Pronunciation

The Korean readings of the characters are based on the New Korean Dictionary edited by the Linguistic Society of Seoul, Korea. The Romanization of the pronunciation is by the G. M. McCune system. Some components are not spelled using traditional methods but rather in a simpler and more consistent form, which is easier to apply.

This list has the same format as the Wade-Giles list. The accent marks included in the Romanized pronunciation are for the preceding letter.

## APPENDIX

## ERRATA SHEETS

The corrections are grouped by information error. The number presented in the left column is the serial number assigned for this manual. The second column presents the written form of the character. The last two columns show the change. The title above the change columns identifies the data to be changed. Corrections must be made in the Master List as well as the cross reference list.

NUMBER	CHARACTER	Spelling	
		WRONG	CORRECT
1580	櫛	BDGEEBEGBGQBB Z	BDGEEBEGBGQBB ZBBSBBB
3093	馬翼	DBBBDQEEEDBB SGDPBDBBDDDB	DBBBDQEEEDBD SGDPADBBDDDB GE
3138	匡所	DBBDBBDBKDB RBRDPBPBGGBD	DBBDBBDBKDB RBRDPBPBBGG BD
3828	聾耳	DPBDBDBBDDDB BBBDDBBBBD DB	DPBDBDBBDDDB BBBDDBBBBD DBBB
4617	罔	DQGV	DQGVGV
5188	龐	EBGEBEGBGQB BZ	EBGEBEGBGQB BZBBBBBS
5612	聾耳	EEDBDDBBBBD DBBBBDDDB	EEDBDDBBBBD DBBBBDDBBB
6489	罔	EEXPBZBEEGD QDGVGVGV	EEXPBZBEEGD QDGVGVGVGV
7763	倏	GDDGJVEGEE	GDDGJVBGEE
7982	聾耳	GDPBBBDBBDB BDDBDPBDEHD PBDPBBBDDBG	GDPBBBDBBDB BDDBDPBDEHD PBDPBBBDDBG MGV
9039	罔	GLGPBZBEEG DQDGVGVGV	GLGPBZBEEG DQDGVGVGVGV

NUMBER	CHARACTER	Radical	
		WRONG	CORRECT
965	葬	30: 9	32: 9
1451	木 林	78: 8	75: 8
1686	桷	75: 10	75: 11
2124	压	27: 3	27: 4
2223	石馬	112: 9	112: 10
2272	石礫	112: 9	112: 10
2486	区支	66: 3	66: 4
2705	扌	64: 4	64: 5
2955	尧	56: 3	10: 4
3353	旦	72:	72: 1
4116	虫喜	162: 12	142: 12
4121	虫聖	142: 3	142: 13
4840	讒	149: 13	149: 14
5031	京尢	43: 8	43: 9
5400	庚	53: 55	53: 5
5936	竈	116: 16	116: 15

NUMBER	CHARACTER	Radical	
		WRONG	CORRECT
6522	着	109: 6	123: 5
7010	启	63: 4	63: 3
8237	鏞	163: 11	167: 11
8606	懲	96: 8	61: 8
9453	勇	18: 7	19: 7
9751	既	71: 6	71: 5

NUMBER	CHARACTER	Total Stroke	
		WRONG	CORRECT
1580	櫛	14	20
3093	驥	24	26
3828	聶	23	25
4617	网	4	6
5188	龐	13	19
5612	聶	19	21
5920	鶴	21	22
6269	漩	21	14
6489	汙爾	19	21
7982	鼻震	33	36

NUMBER	CHARACTER	Wade-Giles	
		WRONG	CORRECT
352	蚕	TSAN 2	TS'AN 2
741	燾	T'AO 2	T'AO 1
798	聘	P'IN 4	P'ING 4
831	耶	YEH 2	YEH 1
1020	覓	HSIAN 4	HSIEN 4
1048	蠖	HU 4	HUO 4
1118	蓉	YUNG 2	JUNG 2
1120	蓉	YUNG 2	JUNG 2
1160	蠖	HU 4	HUO 4
1165	獲	HU 4	HUO 4
1208	鑊	HU 4	HUO 4
1324	贛	TSE 4	TSE 2
1519	棖	CH'EN 2	CH'ENG 2
1606	榕	YUNG 2	JUNG 2
1609	榕	YUNG 2	JUNG 2
1655	樵	CHIAO 2	CH'IAO 2

NUMBER	CHARACTER	Wade - Giles	
		WRONG	CORRECT
2044	爾見	MI 2	LO 2
2765	攢	TSUAN 1	TSAN 3
2911	擗	PIN 1	P'IN 1
2920	报	BAO 4	PAO 4
3112	馬川	HSÜN 2	HSÜN 4
3306	敞 彗	PIEH 4	PIEH 1
3322	嘗	CH'ANG 3	CH'ANG 2
3668	嘔	OU 3	OU 1
3932	踰	CHIANG 1	CH'ANG 1
3961	袁	YÜAN 3	YÜAN 2
4054	嘍	LOU 2	LOU 1
4078	鞞	CH'AN 1	CH'AN 3
4238	蚣	GUNG 1	KUNG 1
4949	訊	HSÜ 4	HSÜN 4
4953	詮	CHÜAN 2	CH'ÜAN 2
5727	憚	TANG 4	TAN 4

		Wade - Giles	
NUMBER	CHARACTER	WRONG	CORRECT
5922	容	YUNG 2	JUNG 2
5978	容	YUNG 2	JUNG 2
6883	禪	CH'AN 3	CH'AN 2
6856	禧	HSI 1	HSI 3
7645	佮	CHÜ 2	CH'Ü 2
8957	猪	CHU 2	CHU 1
9616	孑	NI 1	NE 1
9630	又力	CH'ÜAN 2	CH'ÜAN 4
10035	纒	CH'AN 2	No Chinese sound
10037	纒	No Chinese Sound	CH'AN 2

NUMBER	CHARACTER	Pinyin	
		WRONG	CORRECT
174	璉	LIEN 2	LIAN 2
573	戴	DAI 3	DAI 4
741	燾	TAO 2	TAO 1
798	聘	PIN 4	PING 4
831	耶	YE 2	YE 1
1048	獲	HU 4	HUO 4
1118	蓉	YONG 2	RONG 2
1120	蓉	YONG 2	RONG 2
1160	獲	HU 4	HUO 4
1165	獲	HU 4	HUO 4
1208	鑊	HU 4	HUO 4
1324	贖	ZE 4	ZE 2
1519	椱	CHEN 2	CHENG 2
1529	椱	KUANG 1	GUANG 1
1580	櫛	LONG	LONG 2
1606	榕	YONG 2	RONG 2

NUMBER	CHARACTER	Pinyin	
		WRONG	CORRECT
1609	榕	YONG 2	RONG 2
2044	覩	MI 2	LUO 2
2442	豕者 木	JU 2	ZHU 2
2765	攢	ZUAN 1	ZAN 3
2911	擗	BIN 1	PIN 1
3112	馱	XUN 2	XUN 4
3306	敝 弓	BIE 4	BIE 1
3322	嘗	CHANG 3	CHANG 2
3654	摺	LUE 4	LÜE 4
3668	嘔	OU 3	OU 1
3961	園	YUAN 3	YUAN 2
3974	畧	LUE 4	LÜE 4
3975	畧	LUE 4	LÜE 4
3983	嗑	NUE 4	NÜE 4
3985	嗑	NUE 4	NÜE 4
4054	婁	LOU 2	LOU 1

NUMBER	CHARACTER	Pinyin	
		WRONG	CORRECT
4078	單展	CHAN 1	CHAN 3
4081	鼉	TO 2	TUO 2
5727	倅	DANG 4	DAN 4
6182	瀑	PAO 4	BAO 4
6259	液	YIE 4	YE 4
6315	熒	RUNG 2	RONG 2
6856	禧	XI 1	XI 3
8697	舫	CHIANG 2	QIANG 2
8733	舫	CHIANG 2	QIANG 2
8957	猪	ZHU 2	ZHU 1
9616	孑	NI 1	NE 1
10035	纒	CHAN 2	No Chinese sound
10037	纒	No Chinese sound	CHAN 2
10209	纒	CHIANG 3	QIANG 3
10211	纒	CHIANG 3	QIANG 3

NUMBER	CHARACTER	Japanese Pronunciation	
		WRONG	CORRECT
130	寿	SŪ	SU
411	取 人	SHŪ	SHU
414	聚	SHŪ	SHU
419	取 女	SHŪ	SHU
771	去	KYŌ	KYŌ
985	菲	KYU	KYŪ
996	菲	KYU	KYŪ
1000	苴	SHO	SO
1023	葺	No sound	SHŪ
1031	邁	BAI	MAI
1995	醜	SHU-	SHŪ
2118	庄	ATSU	EN
2169	百	KYAKU	HYAKU
2581	杯	HŌ	HAI
2982	无 虫	ZAN	SAN
3031	上	JO	JŌ

NUMBER	CHARACTER	Japanese Pronunciation	
		WRONG	CORRECT
3292	光	KO	KŌ
3493	贓	ZO	ZŌ
3596	噓	ETSU	ITSU
3620	喋	SHŌ	CHŌ
3664	唎	RATSŪ	RATSU
3682	遇	GU	GŪ
5400	庚	Ō	KŌ
5887	宙	CHU	CHŪ
5888	宮	KYU	KYŪ
6210	濃	NO	NŌ
6245	泣	KYU	KYŪ
7320	稔	ÑEN	NEN
7408	箒	No Sound	HICHI
7712	鼠由	YU	YŪ
8012	皎	KYO	KYŌ
8845	々	CHARACTER REPETATION	NO SOUND



NUMBER	CHARACTER	Korean Pronunciation	
		WRONG	CORRECT
141	長	SHIN	CHIN
209	瑣	SOE	SWAE
488	坪	PY'ONG	PY'ÖNG
553	坦	TAN	T'AN
908	鞍	ANG	AN
911	鞭	PY'ON	PY'ÖN
1641	節	CHIŬL	CHŬL
1731	橈	TA	T'A
1732	橈	TA	T'A
1826	軋	KWE	AL
2047	平	PY'ONG	PY'ÖNG
2244	礦	KWAG	KWANG
2246	碎	SWOE	SWAE
2395	灰	CHŬK	CH'ŬK
2675	揣	CHW'E	CHW'I
2685	擅	CH'ON	CH'ÖN

NUMBER	CHARACTER	Korean Pronunciation	
		WRONG	CORRECT
2847	招	SO	CH'Ō
3215	鹵咸	KAM	HŎM
3410	暑	SŌ	SŎ
3659	晶	CH'ANG	CHŎNG
3881	踈	CHŎK	CH'ŎK
3956	壘	RU	RYU
4130	蟻	MYŎN	MYŎL
5980	窟	KUN	KUL
6108	灑	SOE	SWAE
6109	灑	SOE	SWAE
6766	鶯	HENG	AENG
7473	簷	CHŎM	CH'ŎM
8345	殺	SŌ	SŎ
8556	卻	KŬK	KAK
8820	魷	CH'Ŭ	CH'U
8867	鴛	WŎM	WŎN

NUMBER	CHARACTER	Korean Pronunciation	
		WRONG	CORRECT
8912	蟹	HAI	HAE
8966	猗	UI	ŬI
8974	狙	SHŎ	CHŎ
9322	逃	IO	TO
9403	个	KA	KAE
9469	矛	BOI	MO
9513	陝	SŎM	HYŎP
9514	隋 土	TA	T'A
9632	双	SANG	SSANG
9674	鬪	T'ŬN	T'ŬM
9860	張	GHANG	CHANG