

11.A.2.16 Appendix

11.A.2.16.1 Storage Data Flag

- The category definition frame declares category fields for all hierarchies in a batch.
- A parent category record is defined for each category table. The method of definition conforms to “11.1.2.2 Rules on defining option records” in Chapter 11, specifying the ‘definition field declaration’ as a delimiter and defining a parent category and selective (child) category records. In this case, a field for the definition field declaration is not reflected in the actual data frame description section.
- **A Storage Data Flag** is defined to specify a field used for each hierarchy. In defining category data, the storage data flag is not defined for each option record, but it is defined only for the parent record.
- A storage data flag is defined for each record in defining the applicable data and POI information.

The storage data flag shows whether or not the field corresponding to each bit exists (1: exists, 0: Not exist). The lower bits are assigned to the following fields sequentially regardless of bit configuration.

11.A.2.16.2 Jump Table

If a search is performed hierarchically, records that can be selected are listed in alphabetical order. However, the records can also be sorted by genre in a genre selection list. Both of the following types of jump tables are possible:

- Alphabetic Jump Table
- Genre Jump Table

Define a jump table as follows for a category (parent):

```
Jump table reference level
Jump table {
    Number of jump records
    Sequence of jump records
}
Jump record {
    Jump key
    Offset to jump option records
}
```

- As the content of a jump key, set the values based upon the code scheme of a search key that each option record has in a category. Thus, the search key for option records in the category can determine the type of a jump table.
- The offset to jump option records means the offset to the option records for the jump key.
- The creation criteria level must be defined as data to avoid a redundant record.

11.A.2.16.3 Area Code

ARCD is the unique area code assigned for each disk.

11.A.2.16.4 Area Name

The area name is a generic name covering the following elements assigned to an area code.

- 1) National Name
- 2) Regional Name (US: DCA...)
- 3) State Name (US: State, EU: Municipality ...)
- 4) City Name (US: City, EU: Settlement ...)
- 5) Administrative City Name

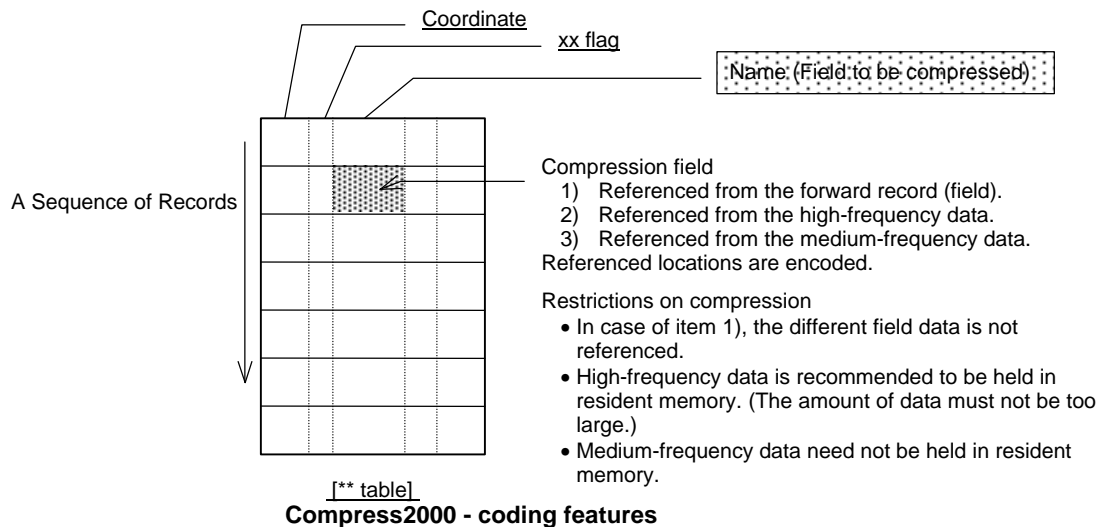
The area name can be acquired by an area code search key using the character information frame.

11.A.2.16.5 Field Data Compression

The data compression method allows data decoding on a field basis for specific fields, so that even an application not supporting compression can read the non-compressed field data. To reduce the decoding process, a method with fewer calculations for decoding is employed.

11.A.2.16.5.1 Compress2000 Coding Method

This version uses the compress2000 as the compression method (provisional) and defines the coding method.



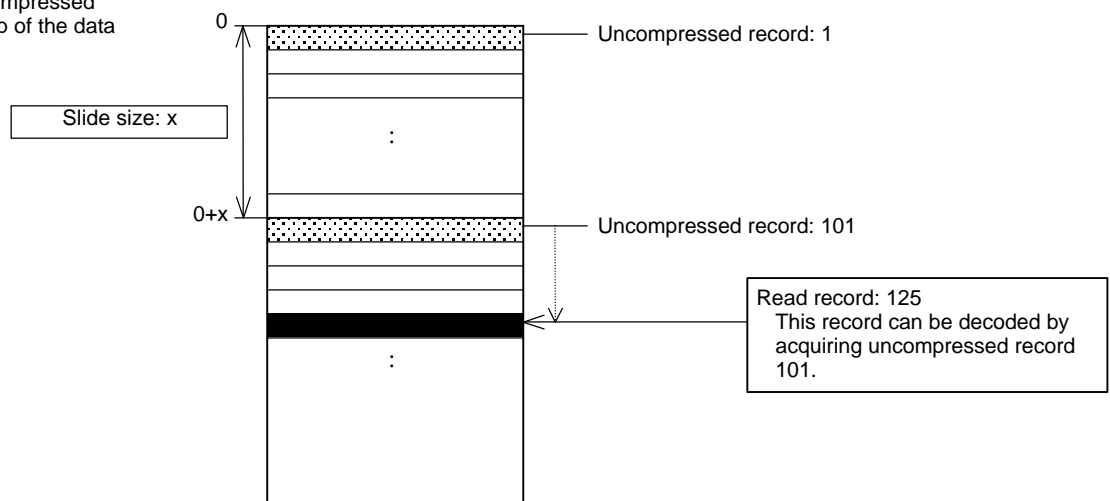
11.A.2.16.5.1.1 Refreshing the Forward Field Data Reference

The data used as the index data allows a search using part of the target data frame. However, if the data is coded because of being referenced from previous records, an infinite number of previous records might be required (if the previous record also references its previous record.)

To acquire partial data from the target data frame (e.g. applicable data frame in Japanese syllabary search) through user operation, it is necessary to read all the data starting from the first record. Otherwise, the target record information cannot be decoded.

Considering the acquiring and decoding systems for the index data, reference from previous records should be once refreshed in a fixed-length area (slide size: x). Then set always uncompressed records (not being referenced from previous records).

Data frame to be compressed
Offset from the top of the data
frame



Compress2000 - Refreshing the forward reference Codes

11.A.2.16.5.1.2 Numeric Data Compression

11.A.2.16.5.1.2.1 Definition Field Configuration for Numeric Data Compression

Definition field configuration (example)

No.	Usage	Description type	Description type declaration	Number of data items	Additional information	Comment	Classification
-	'LKID'	'VRBL'	'BT'	'UH'	'CMUL'	Link ID	a

'UH' specifies the data count. Add 'CM' to the signature indicated in the field-type declaration, and set it as the signature in the additional information.

If the 'UL' data is compressed and represented, set 'CMUL' as shown in the example above.

11.A.2.16.5.1.2.2 Field Data for Numeric Data Compression

No.	Repeat	Type	Item	Setting value	Remarks
1	-	'UH'	Compressed Data Size	Compressed Code size in No. 3: 0 to 4	1)
2	-	'UH'	Number of Reference Records	Number of lines of the reference record that exists in the forward x lines	2)
3	#1	'BT'	Compressed Code	Offset representation value to the corresponding data of the reference record in the previous line	3) 4)

1) All the compressed codes are defined in the variable length data and this field describes the data of the data size area at the beginning. ('UH' is declared in a definition field.)

2) Compression of numeric data does not use coding method including referencing from high-frequency data. The offset from x line before is always used. (Since the number of previous-line reference records are represented with four bits, referencing from 15 or more lines before are impossible.)

No definition is made in a definition field. This field definition is specific to the numeric data compression. This field is always set when the format is specified for numeric compression.

3) A three-byte representation is also possible with the signed type.

4) Care must be taken when a code is reversed.

Note: Refreshing the offset representation conforms to the refreshing rules for the forward field data reference.

Note: Numeric values represented by multiple fields like the latitude or longitude are also compressed. These values are defined individually by each signature. (However, the structure enabling a skip is needed even with unknown signature.) For details of definition, see the signature definition.

Example of numeric data compression

nth record	: 88 88 88 88 88 <i>40 12 34 00 00</i> 88 ...	(Uncompressed: 0x12340000)
nth + 1 record	: 88 88 88 <i>21 10 00</i> 88 88 88 88 88 ...	(Compressed 2 bytes, reference from 1 line before: 0x12341000)
nth + 2 records	: 88 88 88 <i>22 F0 00</i> 88 88 88 88 88 ...	(Compressed 2 bytes, reference from 2 lines before: 0x1233F000)
nth + 3 records	: 88 88 88 <i>13 10</i> 88 88 88 88 88 ...	(Compressed 1 byte, reference from 1 line before: 0x12340010)
nth + 4 records	: 88 88 88 <i>12 40</i> 88 88 88 88 88 ...	(Compressed 1 byte, reference from 4 lines before: 0x1233F040)

Refresh line:

nth + m record(s)	: 88 88 88 88 88 <i>40 22 22 00 00</i> 88 ...	(Uncompressed: 0x22220000)
nth + m + 2 records	: 88 88 88 <i>11 C0</i> 88 88 88 88 88 ...	(Compressed 1 byte, reference from 1 line before: 0x222FFF40)
nth + m + 3 records	: 88 88 88 <i>12 70</i> 88 88 88 88 88 ...	(Compressed 1 byte, reference from 2 lines before: 0x22220070)
nth + m + 4 records	: 88 88 88 <i>21 10 00</i> 88 88 88 88 88 ...	(Compressed 2 bytes, reference from 1 line before: 0x22221070)

The fields to be compressed are highlighted by in ***bold and italic***.

11.A.2.16.5.1.3 Character String Data Compression

(S-JIS code, ISO-8859 code: Specified by Metadata.)

The data creator can implement the following four encoding methods for the data compression and store the character string data in the string information field. Since the allowable size at the device and the data-decoding speed differ for each compression method, extreme care must be taken to implement compression in a frame or field.

11.A.2.16.5.1.3.1 Definition Field Configuration for Character String Data

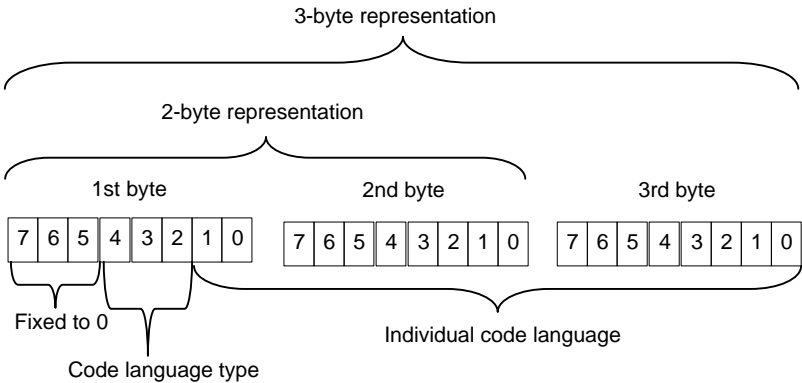
Example of definition field configuration:

No.	Usage	Description type	Description type declaration	Number of data items	Additional information	Comment	Classification
-	'NAME'	'VRBL'	'CH'	'UB'	'CMCH'	Name	a

'UB' specifies the data count. Add 'CM' to the signature indicated in the field-type declaration, and set it as the signature in the additional information. If the 'CH' data is compressed and represented, set 'CMCH' as shown in the example above.

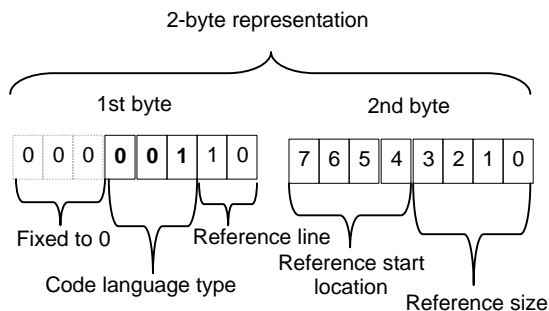
11.A.2.16.5.1.3.2 Code Language System for Character String Data

Compressed codes are represented by two bytes or three bytes. The following shows the structure:



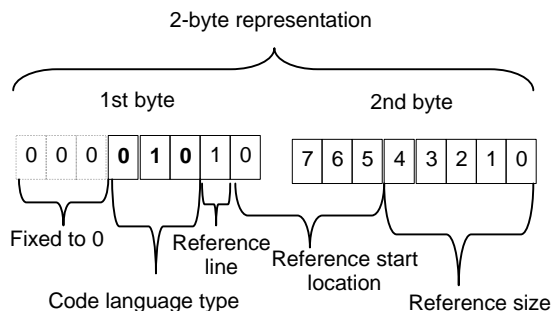
- <Code language type>
- 000 : Definition disabled
 - 001 : Refer to the line before the short phrase. (2-byte code, return preceded)
 - 010 : Refer to the line before the short phrase. (2-byte code, character count preceded)
 - 011 : Refer to the line before the long phrase. (3-byte code)
 - 100 : Reserved
 - 101 : Refer to the high-frequency dictionary for short phrases. (2-byte code)
 - 110 : Refer to the high-frequency dictionary for long phrases. (3-byte code)
 - 111 : Refer to the medium-frequency dictionary. (4- or 5-byte code)

11.A.2.16.5.1.3.2.1 Reference Codes for the Short Phrase in the Previous Line



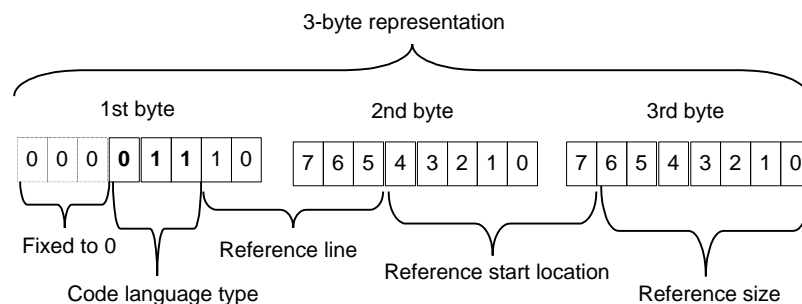
- Reference line** : Defines how many lines before are referenced by a two-bit binary. The definition is made from 0 to 3, each of which corresponds to the actual reference line from 1 to 4 data items before.
- Reference start location** : Defines from which character reference starts in a reference line by a four-bit binary. The definition is made from 0th to 15th characters.
- Reference size** : Defines the number of characters to be referenced by a four-bit binary. The definition is made from 0 to 15, each of which corresponds to the actual reference size from 3 bytes to 18 bytes. (Because the code length is two bytes, the minimum reference size is three bytes.)

11.12.16.5.1.3.2.2 Reference Codes for the Short Phrase in the Previous Line



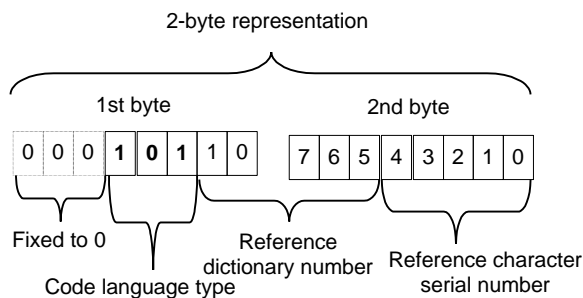
- Reference line** : Defines how many lines before are referenced by a one-bit binary. The definition is made from 0 to 1, each of which corresponds to the actual reference line from 1 to 2 data items before.
- Reference start location** : Defines from which character reference starts in a reference line by a four-bit binary. The definition is made from 0th to 15th character.
- Number of characters referenced** : Defines the number of characters to be referenced by a five-bit binary. The definition is made from 0 to 31, each of which corresponds to the actual reference size from 3 bytes to 34 bytes. (Because the code length is two bytes, the minimum reference size is three bytes.)

11.A.2.16.5.1.3.2.3 Reference Codes for the Long Phrase in the Previous Line



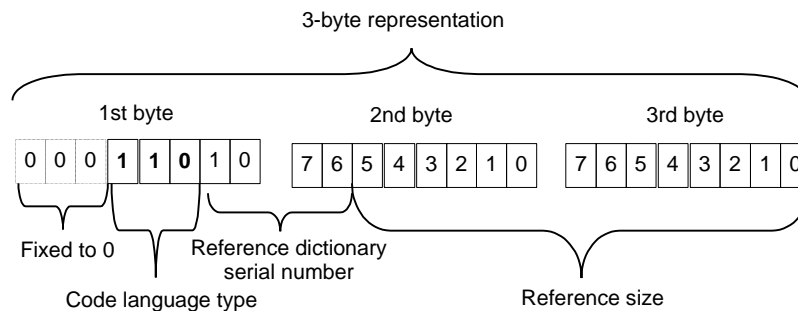
- Reference line** : Defines how many lines before are referenced by a five-bit binary. The definition is made from 0 to 31, each of which corresponds to the actual reference line from 1 to 32 data items before.
- Reference start location** : Defines from which character reference starts in a reference line by a six-bit binary. The definition is made from 0th to 63rd character.
- Number of characters referenced** : Defines the number of characters to be referenced by a seven-bit binary. The definition is made from 0 to 127, each of which corresponds to the actual reference size from 4 bytes to 131 bytes. (Because the code length is three bytes, the minimum reference size is four bytes.)

11.A.2.16.5.1.3.2.4 Reference to the Short Phrase High-frequency Dictionary



- Reference dictionary number** : Defines the number of characters of the dictionary by using a four-bit binary. The definition is made from 0 to 15, each of which corresponds to the actual number of characters from 4 to 19. The dictionary stores the upper 64 words for each of the 4-character to 19-character words.
- Reference character serial number** : Defines the dictionary location (word order) with a 6-bit binary. The definition from 0 to 63 represents the actual order 1 to 64.

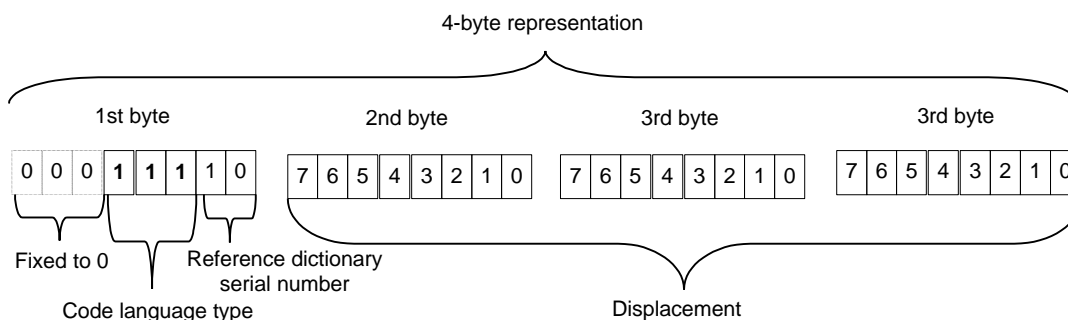
11.A.2.16.5.1.3.2.5 High-frequency Long Phrase Dictionary Reference



Reference dictionary number : Defines the number of characters of the dictionary by using a four-bit binary. The definition is made from 0 to 15, each of which corresponds to the actual number of characters from 4 to 19. Dictionaries are provided as many as required for each of the 4-character to the 19-character words.

Reference location : Defines the reference location with a 14-bit binary. The definition from 0 to 16383 represents location N (recording count) from the actual beginning.

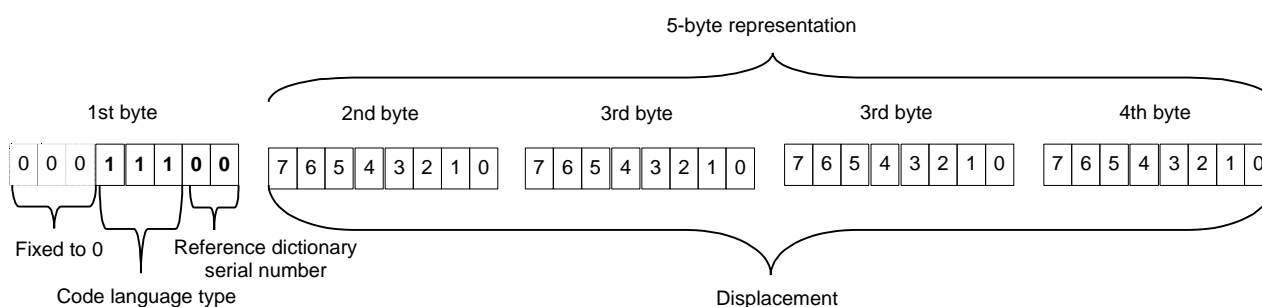
11.A.2.16.5.1.3.2.6 Medium-frequency Dictionary Reference (4-byte type)



Reference dictionary serial number : Specify 1 to 3. The string size after decoding is unknown and it is determined in the target medium-frequency character information.

Displacement : Displacement from the beginning of the data frame of the target medium-frequency character information (1 to 3) to the data record of the target medium-frequency character.

11.A.2.16.5.1.3.2.7 Medium-frequency Dictionary Reference (4-byte type)



Reference dictionary serial number : Specify 0. The string size after decoding is unknown and it is determined in the target medium-frequency character information.

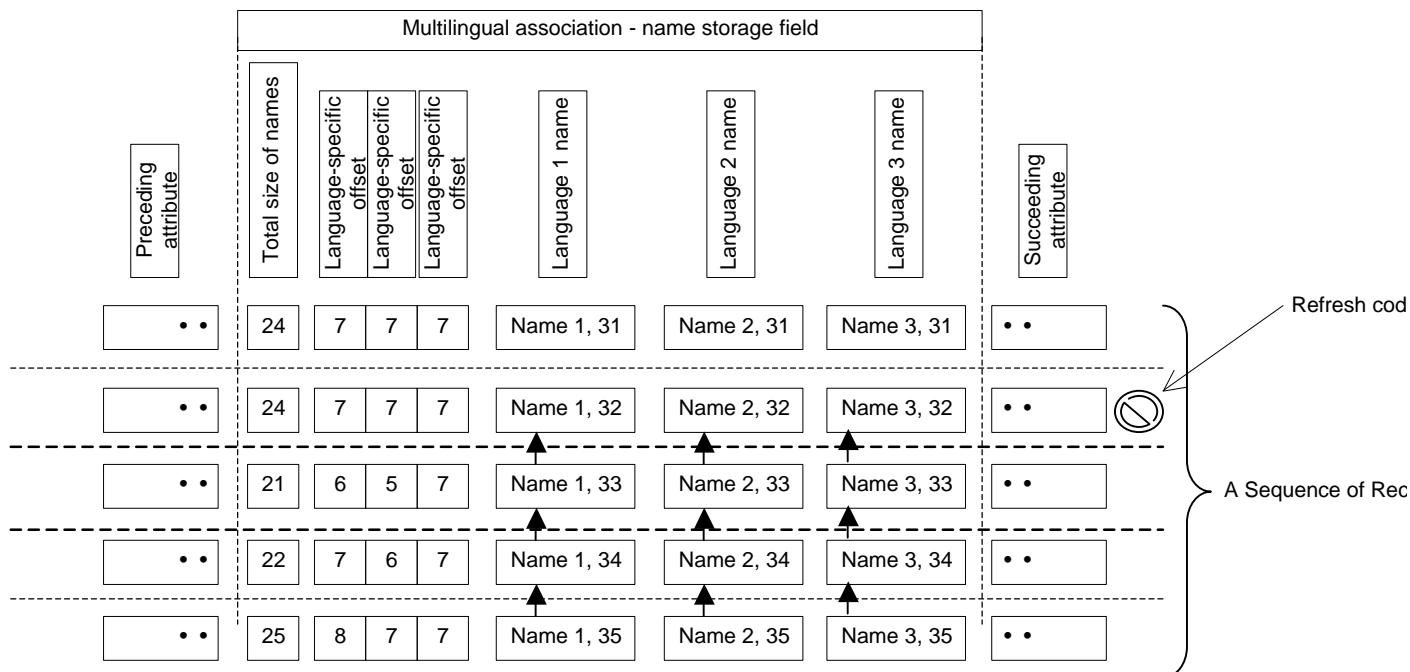
Displacement : Displacement from the beginning of the data frame of the target medium-frequency character information (0) to the data record of the target medium-frequency character.

11.A.2.16.5.1.3.3 Coding Rules for the Multilingual Representation Character String Data

To compress the character string data represented in different languages, follow the rules below:

- Compress the string of all the same languages to encode the previous line reference type.
- All the languages are simultaneously refreshed to conform to the refresh standard in ordinary and predetermined lines for the refreshing the reference.

Example:



Note: For the names in the name field, refer to the previous line specified by a language.

Note: The start location depends on the language name corresponding to the previous line.

Note: All the previous lines cannot be referenced in refresh records

11.A.2.16.5.1.4 BCD Data Compression

Definition field configuration (example)

No.	Usage	Description type	Description type declaration	Number of data items	Additional information	Comment	Classification
-	'TELE'	'VRBL•	'UH'	'UH'	'CMBD'	Telephone Number	a

'UH' configures the data count. Add 'CM' to the signature indicated in the field-type declaration, and set it as the signature in the additional information. If the 'BCD' data is compressed and represented, set 'CMBD' as shown in the example above.

11.A.2.16.5.1.4.1 Coded Language System for BCD Data

The BCD codes are placed as shown below.

0h	1h	2h	3h	4h	5h	6h	7h	8h	9h	Ah	Bh	Ch	Dh	Eh	Fh
0	1	2	3	4	5	6	7	8	9	*	Code	()	–	Termination

The BCD codes using the Bh coding are placed as shown below:

No.	Offset	Data length	Data format	Item name	Remarks	Classification
1	0	1/2	BCD	Coding-specified Code = 0xB(16)		a
2	0.5	1/2	N	Number of Previous Reference Codes	1)	a

- 1) This field describes the number of codes which reference the decoded telephone number of the previous record (2 or more are recommended).

The refresh standards for the encoded BCD data are similar to the numeric type and the string.

11.A.2.16.5.1.5. Rules for Setting Alphabetical Order Search Category Option Records

If a name that completely matches an alphabetical order search category record and the next category exists, a option record with character search key NULL is provided.

The settings available if NULL is specified as the character search key of an alphabetical order search category option record are given below.

No.	Offset	Data length	Data type	Item name	Setting	Classification
1	0	1	N	Character Search Key	NULL	a
2	1	4	D	Offset to Next Category	Invalid value	a
3	5	4	SWS	Next Category Size	Invalid value	c
4	O1	1	BR	Padding Field		c