TIS : HUMAN COMPUTER INTERFACE (HCI) GUIDE

Abstract

This document is part of the Technical Interface Specification (TIS) for Direct Trader Input (DTI) to CHIEF. It is orientated towards the view of CHIEF as seen by Trade users at the interactive screen interface as opposed to EDI. It specifies the principles and rules around which the design of the Human Computer Interface (HCI) of CHIEF is based.

Strictly, several aspects of that view are dependent upon local facilities – provided, for example, by a CSP. Nevertheless, as an aid to comprehension, illustrative screen and keyboard renditions are included, based upon a presumed 'standard' terminal.

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1. INTRODUCTION

1.1. Purpose and Scope

This document is part of the Technical Interface Specification (TIS) for Direct Trader Input (DTI) to CHIEF. It is orientated towards the view of CHIEF as seen by Trade users at the interactive screen interface as opposed to EDI. It specifies the principles and rules around which the design of the Human Computer Interface (HCI) of CHIEF is based.

That design is intended to provide a coherent and uniform view of the many facilities of CHIEF. It is also designed to be graded in use – offering considerable power to highly trained users whilst assisting those of less experience in their use of the more basic functions. The objective is an operating environment that is conducive to learning and which contributes to the speed and accuracy of the user in his job. (Throughout this document, ‘his’ is used to refer to a user without implication of gender.)

As its title implies, the HCI is specifically aimed at the human users of CHIEF – including those of both Customs and the Trade. In the case of DTI users, it is assumed that the local systems support what is essentially a ‘transparent’ mode of operation – enabling users to interact directly with CHIEF in terms of this HCI. The CSPs must themselves interact with CHIEF to support declarations and Inventory linking; these exchanges are achieved through interactive EDIFACT messages (see Reference [2]), but are of no direct interest to the human users.

The HCI relates both to the use of interactive terminals and to printed output. It is in the nature of the former that it should dominate this guide, but Section 6. describes the standards that are adopted for printed reports.

For interactive terminals, the HCI specified here is intended to be realised with Fujitsu’s ICAB-02 – the contracted screen syntax: it reflects therefore the characteristics of that syntax. It also reflects the currently contracted scenario in which dependent terminals are driven from the central CHIEF mainframe over a wide area network – taking into account such considerations as response time and context sensitivity.

There is undoubtedly scope for enhancement of the HCI described here were some of these constraints to be relaxed – for example, were the terminals to be seen as intelligent work-stations and thus able to support locally some of the facilities now being provided centrally. Such considerations are however beyond the scope of this document.

Where the terminals are indeed intelligent – for example, PCs emulating ICAB-02 and working under a local operating system – then they will often themselves use an area of the screen for the display of configuration and status details. It is assumed that this usage does not disturb the HCI described here.

The ICAB-02 syntax does not define the physical rendition (or 'look') of the terminal: that is the responsibility of individual implementations. Thus, for example, it does not define the characters to be used as field delimiters nor the means of highlighting field data; neither does it define the action of function keys. Such imprecision would not however suit a Style Guide: it would, for example, preclude the use of pictorial illustrations. Accordingly, for the purposes of those illustrations this paper assumes the features of a PC running an emulator that both supports the ICAB-02 definition and exploits the characteristics of the device.

For Customs users, printed output is produced directly by CHIEF using Fujitsu's ICAW-02 – the contracted print syntax. For Trade users, however, CHIEF outputs the data contents of reports as EDI messages (see Reference [2]) and it is the responsibility of CSPs (or trade systems) to print them in accordance with the relevant layout (specified within the standards defined here).

1.2. Intended Readership

This guide is not aimed at individual end-users – for whom the User Guides (see Reference [5]) describe the particular interfaces of each CHIEF facility. Rather it is intended for CSPs and trade software suppliers – for whom it defines the general look and feel of the transactions through which the end-users will accomplish their roles with CHIEF. The guide forms part of the Technical Interface Specification (TIS) (see Reference [1]) which fully defines the interface between CHIEF and the trade.

1.3. Structure of the Guide

Section 2. (VDU Characteristics) of this Style Guide describes the essential characteristics of the user terminal – including the broad use that is made of the display and the keyboard.

Section 3. (Basic VDU Terminal Interactions) describes the overall operating characteristics of the HCI – including session controls and introducing the nature of CHIEF transactions with Document and Error handling.

Section 4. (Common Facilities) specifies those common facilities that are generally available to the user – either free-standing or within the context of other transactions.

Section 5. (Database Update and Display) specifies the standard generic dialogues to which all CHIEF transactions adhere – described for each of Insert, Amend, Display, Delete and List.

Section 7. (Action Messages and Codes) defines the messages and codes by which the common facilities of Sections 4. and 5. are invoked.

END OF SECTION 1

2. VDU CHARACTERISTICS

Human users interact with CHIEF through Visual Display Units (VDUs). Though these typically are powerful PC-based devices (of various flavours), this intelligence cannot currently be directly exploited by CHIEF: rather it is their ICAB-02 emulators with which CHIEF interacts and it is their renditions that determine the particular 'look' presented to the user. This paper however makes certain assumptions regarding the characteristics of these terminals and their emulators for the purposes of illustrations and examples.

CHIEF makes no attempt to exploit any graphical capabilities that the terminals may possess.

2.1. Screen Characteristics

2.1.1. The Display Screen

The display screen that is available for the CHIEF HCI comprises 24 lines of 80 characters. The adoption of a 24-line display is not an ICAB-02 limit: the syntax actually supports 25; rather it is in recognition that a number of terminals connected to CHIEF via CSPs are 3270-like and thus do not support more than 24.

Allowed characters include:

a. Upper and lower case alphabetical characters – A to Z, a to z.

b. Digits – 0 to 9.

c. Punctuation and other special characters.

d. Field separator characters – with unprotected and protected fields typically separated by '[' and ']' respectively.

e. A cursor – identifying the position on the screen at which the next character will appear in response to keyboard input. This is often represented as a flashing underline symbol '_'.

f. A Start of Message (SOM) marker – identifying the point on the screen from which field data (to the current cursor position) will be transmitted in response to the user's request to SEND. This is often represented as a '|' – without taking up a character position on the screen, or as an inverse video character in the first position after the marker. With standard usage of the display area however, the SOM need not be displayed: it will have been placed (invisibly) at the start of the first unprotected field within the area of the screen currently available to the user for input. It is assumed that the user is prevented from modifying this SOM position.

The display screen normally has means of highlighting particular fields – though ICAB-02 syntax allows field attributes to be declared only in terms of their protection and steadiness characteristics: it is the responsibility of the individual terminal to interpret the 4 possible combinations of these in terms of its own attributes.

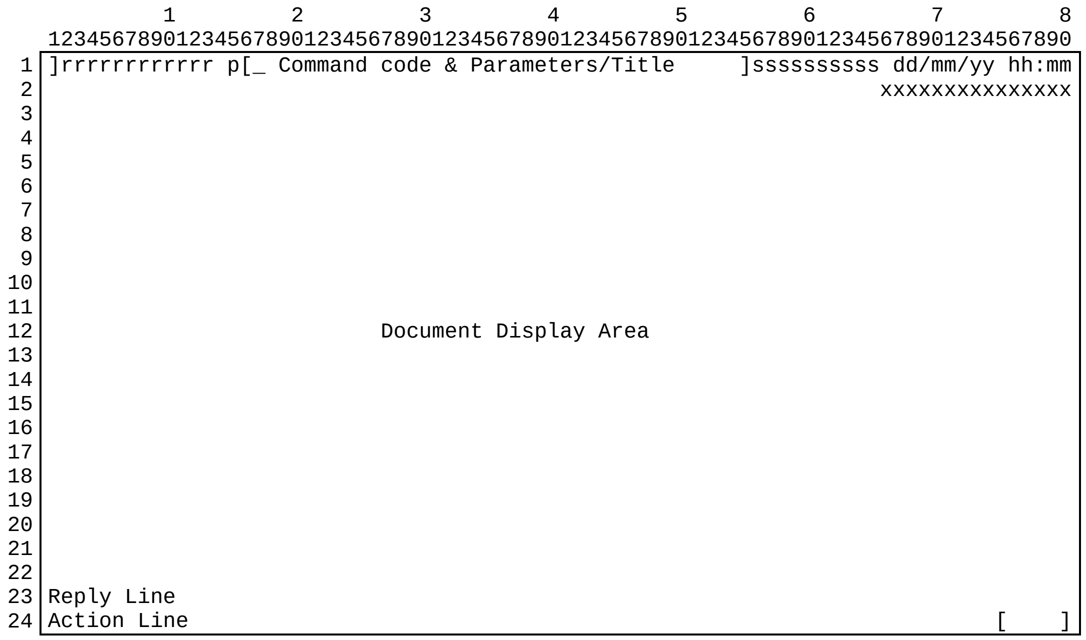
As an example, Figure 2.1 shows the ICAB-02 attributes that are set by CHIEF according to the characteristics and use of fields. A possible terminal rendition is also shown which exploits different display intensities and video modes: terminals with colour capability might be expected to adopt a different solution. (The example assumes that in addition to this rendition mapping, the emulator maintains the protection attribute declared for each field.)

ICAB-02 attributes	Terminal rendition	CHIEF use
Unprotected / Steady	High intensity / normal / unprotected	Input data
Unprotected / Flashing	High intensity / inverted / unprotected	Data in error
Protected / Steady	Low intensity / normal / protected	Backdrop data
Protected / Flashing	High intensity / normal / protected	Output data

Figure 2.1 MAPPING OF FIELD ATTRIBUTES AND RENDITIONS

2.1.2. Display Screen Areas

The total display screen is logically divided into a number of smaller areas each of which is used for its own specific purposes – as described in subsequent sections and illustrated in Figure 2.2.



```
             1         2         3         4         5         6         7         8
    12345678901234567890123456789012345678901234567890123456789012345678901234567890
  1 ]rrrrrrrrrrr p[_ Command code & Parameters/Title     ]ssssssssss dd/mm/yy hh:mm
  2                                                                  xxxxxxxxxxxxxxx
  3
  4
  5
  6
  7
  8
  9
 10
 11
 12                           Document Display Area
 13
 14
 15
 16
 17
 18
 19
 20
 21
 22
 23 Reply Line
 24 Action Line                                                            [    ]
```

Figure 2.2 AREAS OF THE DISPLAY SCREEN

2.1.2.1. Command/Status Lines (Lines 1 - 2)

The Command Lines are used to enter commands and to display status information regarding the current user and transaction.

2.1.2.1.1. Command Entry

To initiate a transaction, the user inputs an abbreviated primary command code, optionally followed by parameters. This field will subsequently be overwritten by the system with the full transaction title, which will remain protected until the transaction ends.

2.1.2.1.2. Status Information

The Status Information includes the following details:

a. Role (r..r): The current role in which the user is connected to the system (see Reference [3] for further background to the concept of a role).

b. Purpose (p): The purpose for which he is connected:

O = Operational,

T = Training.

c. Service (s..s): The service is CHIEF/IES. (This full name is used for the Imports/Exports Service to distinguish it from the Management Support Service (MSS) and other CHIEF services).

d. Date-Time: The date and time at which the screen was last updated by the system, presented in the form dd/mm/yy hh:mm.

e. Page Reference (x..x): A system generated unique page reference (to be quoted when reporting queries etc). This consists of the name of the first segment displayed on the screen together with its hierarchic position within the document's segment structure.

Line 2 contains space for future expansion, e.g. Security Caveat – "TRAINING SPECIMEN".

2.1.2.2. Document Display Area (Lines 3 - 22)

The major part of the screen is used for the display of Document data with lines 3 - 22 acting as a window upon the total information available to the user.

The amount of data returned to the user as a result of an interrogation transaction will often exceed the capacity of this area and a number of functions are provided to allow the user to move the displayed window backwards and forwards through the Document. These 'paging' functions are described in Section 4.

The area is also used in update transactions for the user to input data into pre-formatted (and unprotected) fields. Such information is input into a Document whose size may – as in the case of the output display – exceed the capacity of the area. The paging functions apply also to this input and the keyboard editing functions enable the user to manipulate the input text within the page currently on display.

Information is displayed in the data area as a number of 'fields'. Often these are labelled by the system so that the data can be readily identified and interpreted by the user. Such labelling or title information is often referred to as a 'backdrop' – to distinguish it from the field content itself. As an aid to visibility, backdrop information is often displayed on the VDU screen with a different intensity from the field contents.

The layout of fields across and down the lines of the Document Display Area is determined by the individual transaction in accordance with an overall CHIEF style. Associated fields are usually held on the same line with a number of lines grouped to represent a single occurrence of a repeating segment of data.

As explained later in Section 3.4.1., validation of the fields of a user's input may generate error and/or warning reports – in principle, one for each field in the Document, though that is unlikely. The individual fields in error are highlighted and a textual error message elaborating the condition is generally displayed on the line immediately following. In this way, Report Lines are interleaved with the Document data within the display area.

2.1.2.3. Reply Line (Line 23)

The system returns a summary reply for each user interaction giving the user guidance as to the progress of his transaction. This is in addition to any reports for individual fields and is displayed on the Reply Line. The Action Line (see below) complements this message by identifying the choices of action next available to the user.

2.1.2.4. Action Line (Line 24)

The Action Line identifies those secondary actions that are available to the user in the current circumstances of his transaction.

A number of common Action Codes are pre-defined and these are described in Sections 4. and 7. Other valid secondary commands arise from the design of each application and it is the total set of available actions that is displayed to the user.

The available commands are annotated on the Action Line with those particular to the application (e.g. VALIDATE, COMMIT) preceding those more commonly available (e.g. ABORT, RETURN). If the total string of commands is greater than can be contained within the Action Line, then the system truncates the commands until they can be fitted in the supplied space whilst maintaining their uniqueness for user selection.

The final field on the line is the Action Box and the desired command may be invoked by entering sufficient characters into this box to identify the command unambiguously, and pressing SEND. (The Action Box is the last unprotected field on the screen to make it natural for the user to ensure that his cursor is correctly positioned to ensure that all unprotected data is included in the message input in addition to the command).

There are a number of ways in which the system and terminal can make the user’s task more simple:

a. The system will generally offer a default, which the user can adopt – see Section 3.2.2.

b. The user can move the cursor to the field and enter his own choice – over-writing the default.

c. The terminal may have programmed function keys which can be used to achieve this same effect with minimum key depressions.

2.2. Keyboard Characteristics

Just as ICAB-02 does not define the actual look of the display, neither does it prescribe precise keyboard features and facilities. There are many possible keyboard implementations through which the facilities of the HCI described here may be invoked: the description and illustrative Figure 2.3 that follow broadly reflect the PC-based approach.

The keys are grouped according to their function:

– Alphanumeric keys

– Numeric keypad

– Control keypad

– Cursor control keys

– Function keys

The majority of keys have an auto-repeat feature – repeating their function so long as the key is held down. This feature is particularly useful with keys that move the cursor.

The meaning of many of the keys may be re-configured for the user of a PC-based terminal. Where the terminal is used for access to several systems concurrently, care should be taken to ensure that a consistent approach is maintained – with the same key having the same effect in each system.

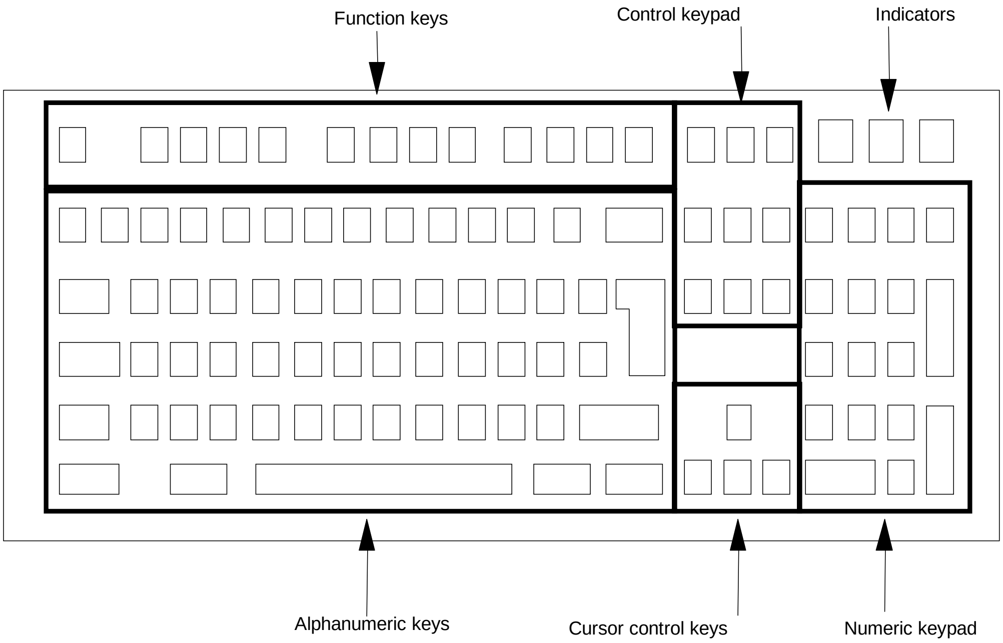


Figure 2.3 ILLUSTRATIVE KEYBOARD LAYOUT

2.2.1. Alphanumeric Keys

The alphanumeric keys include letter, numeric, punctuation and space keys – performing, for the most part, exactly like typewriter keys.

When pressed, the corresponding character appears on the screen at the current position of the cursor – which is immediately advanced. There are two important limitations:

a. If the cursor is currently in an area of the screen that is protected, the character is not inserted, neither does the cursor advance. Rather, an audible alarm is sounded.

b. It is a feature of the set-up of individual terminals and additionally the design of individual presentations, whether the user is required explicitly to move the cursor (e.g. Tab) from one input field to the next or this is automatic (auto-tab) when the current field is filled and the user continues to type, or indeed a combination of the two methods.

When depressed simultaneously with an alphanumeric key, SHIFT causes the character to be generated in upper case; it has no effect if used alone. SHIFT LOCK sets the keyboard into upper case until pressed again; a corresponding indicator is lit. (CHIEF generally accepts user input in either upper or lower case.)

The TAB key moves the cursor from one input field to the first character position in the next – working across and down the display screen. Used in conjunction with SHIFT, it operates as a BACKTAB – working in the opposite direction to TAB.

The CONTROL and ALT keys may be used in conjunction with other keys to generate ICAB-02 Action Messages – and thus to invoke system commands; neither has any effect if used alone. Used in this way, these keys supplement the Function keys of Section 2.2.5. – increasing the number of frequently used commands that may be simply invoked by the user.

The BACKSPACE key allows the user to correct typing mistakes by moving the cursor back one character position within the current input field. Some implementations additionally delete the character previously occupying that final position and shift left the remainder of the field to close up the gap (see also Section 2.2.3.). The key has no effect other than within an unprotected input field and will elicit an audible warning if otherwise used. (The user should not clear the whole screen display – though some ICAB-02 emulators permit this as a result of CONTROL + BACKSPACE).

The ENTER key is used to indicate that the current display screen contents are ready for processing – though only that data between SOM and the current cursor position is actually transmitted in response to its depression. This key is elsewhere referred to as ‘SEND’.

2.2.2. Numeric Keypad

Though numeric input may be made from the alphanumeric keys, a separate numeric keypad – laid out in the manner of a calculator – is provided for intensive figure work.

The keypad operates in this way provided that NUM LOCK is on (and its associated indicator lit). Otherwise the keys are used for other purposes – in particular providing the same functions as the equivalent keys within the Control keypad (Section 2.2.3.) and the Cursor Control keys (Section 2.2.4.).

2.2.3. Control Keypad

The keys of the Control keypad may be used for various purposes:

a. To request a print of the current screen or Document. (Section 4.8. describes in more detail the CHIEF facility to obtain a hardcopy of the Document; some terminal systems may additionally provide a local facility to produce a print of the current screen).

b. To move the cursor to the first (HOME) or last (END) unprotected field of the Document area of the display screen. (The user should not reset the SOM position – though some ICAB-02 emulators permit this as a consequence of CONTROL + HOME).

c. To page forwards or backwards within the current Document – in whole or sub-page units according to qualification by simultaneous use of the SHIFT, CONTROL or ALT keys.

d. To delete or insert a character at the current cursor position within an unprotected input field. Used in conjunction with SHIFT, CONTROL or ALT:

(1) To erase the contents of a field from the current cursor position to the end of the field.

(2) To delete the segment identified by the current cursor position. (For an explanation of Document segments see Section 3.3.).

(3) To insert further instances of segments of the same type as the segment identified by the current cursor position. Insertion can be requested either before or after the current segment or at the end of the current segment set.

The user should not erase all fields – though some ICAB-02 emulators permit this through a combination of these keys.

e. To lock the numeric keypad into numeric mode (Section 2.2.2.).

2.2.4. Cursor Control Keys

The cursor control keys are dedicated to the movement of the cursor around the screen – one character position up/down, left/right for each depression. The movement is not constrained by fields on the display screen: in particular, the cursor may be moved to a position in which characters may not be input.

2.2.5. Function Keys

The function keys may be locally programmed (e.g. by utilities available under the terminal's operating system) to generate the commands associated with those facilities of CHIEF which are regularly invoked – thereby saving user input. The interpretation of each key may be modified by the simultaneous depression of one of SHIFT, CONTROL or ALT, or by the preceding depression of ESC.

The function keys are further considered in Sections 4., 5. and 7.

2.3. Personal Identification Device (PID)

VDU terminals from which users can connect directly to CHIEF are expected to be equipped with some form of physical authentication device, which is used to assist in the process of verifying the individual user. The device (for example a magnetic stripe badge reader) must allow for continuous monitoring of the presence of the user for the duration of a signed-on session at the terminal.

Terminals connected indirectly through a CSP system may adopt a different mechanism for authentication – provided always that HMRC is satisfied as to the level of security maintained by those systems.

(Note that the ICAB-02 syntax includes the current PID value at the start of each input message. There are two implications here:

a. It is strictly a matter for the terminal and its emulator as to how this value is generated: there is no absolute requirement that it be from some external security device.

b. The removal of his PID by a user will not immediately generate such a message: it is not until the next input that the system will become aware of the user's absence or change of PID.)

2.4. Audible Warning

An audible warning is sounded whenever a significant incident occurs that warrants being brought to the user's attention. In some terminals this takes the form of a single, short sound; other realisations require that the user must acknowledge the warning to silence it.

CHIEF also uses audible warnings to reinforce its response to a number of invalid actions:

- non-supported action message (either in current context or not at all);
- corrupt screen;
- primary validation error.

END OF SECTION 2

3. BASIC VDU TERMINAL INTERACTIONS

The key principles of a user’s interaction with CHIEF may be summarised as follows:

a. The user signs-on to CHIEF to establish a session. This session persists until he correspondingly signs-off or is signed-off by the system as a result of prolonged inactivity.

b. The basic unit of work within CHIEF is a transaction. Each is initiated by a unique primary command and is based upon an associated Document that the user manipulates by means of the standard facilities described in Section 4. Each is typically concerned with the manipulation of a particular Data Object: its creation, amendment, interrogation or deletion.

c. Most transactions consist of a number of phases – each working within the context of the same Data Object and Document inherited from its predecessor. Section 5. describes the standard sequences of phases to which the majority of CHIEF transactions conform.

d. Having completed one transaction, the user generally initiates another in sequence. Under some circumstances however transactions may be ‘nested’ – with the current transaction automatically interrupted in favour of another related one. This new transaction may itself subsequently be interrupted by a yet further transaction – to an implementation-defined limit. When an inner transaction terminates, its immediately superior transaction is resumed as if the interruption had not occurred. In practice, the user need be unaware of this implementation complexity since the dialogue will appear to follow what to him is a natural sequence: thus, for example, although the Help facility of Section 4.6. is implemented as a nested transaction, this is not directly apparent to the user.

e. Where transactions are initiated in sequence, it may well occur that they are of the same type: further, much of the information to be input for the new transaction may differ little from that input for the previous one. The HCI includes mechanisms to support the user in such sequences – essentially allowing the Document contents from one transaction to be used as the starting point for the next.

f. The HCI does not however provide facilities for the user explicitly to suspend one transaction in order to start another and thus to have a number of concurrent transactions with CHIEF. Users of intelligent terminals may however use any local “windowing” facilities to establish multiple sessions with CHIEF and thus to achieve that same effect.

These principles apply in general to all transactions and to all users of CHIEF. Reflecting the intervention of their local systems however, DTI users will observe a number of minor variants:

– since the CSPs are expected to implement their own rigorous user authentication procedures and to establish automatically on behalf of their users the necessary sessions with CHIEF, DTI users do not have a direct view of the Session Control facilities of Section ;

– since the CSPs interface to CHIEF in terms of a limited set of defined EDIFACT messages (see Reference [2]), DTI users do not have access to the common Print Document facility of CHIEF described in Section 4.8.

3.1. Session Control

The view of session control described here is that of a user directly connected to CHIEF – for example, a Customs user. In the case of a DTI user, his CSP is expected to support the HCI aspects of Access Security – including signing on and off – and to forward the required authentication details to CHIEF without further user intervention.

3.1.1. Signing-On

Before invoking any of the transactions of CHIEF, the user must execute the sign-on sequence described below. Upon successful completion of this the system will have satisfied itself as to the user's authenticity and established the **'operating clearance'** for his session – thereby determining his ability to access the facilities and data of CHIEF (see Reference [3]).

Having inserted his PID, the user is asked to supply his password, desired role and intended purpose. The password value is not displayed on the VDU screen as the user enters it; if incorrect or unacceptable values are input, the system repeats the sign-on invitation – giving the user only a limited number of attempts until he is disbarred.

If the system detects no input from a terminal for a period of time (pre-defined at configuration time – typically 15 minutes), then the session is temporarily signed-off (see Section 3.1.2.).

Similarly should the system detect the removal of a badge at the HCI then the session is also temporarily signed-off (see Section 3.1.2.).

The system also provides facilities for the user to amend his password: a value that is known only to him. Passwords may be used for a limited period only. If the system detects that the user's current password has expired, then the user is forced to change his password to a valid and significantly different value before he is allowed to start his session.

(The above description of signing-on reflects a view of CHIEF as the single target of a user's attention. The strategic architecture of CHIEF envisages a world in which many systems exist on a network, to each of which the user may potentially wish to connect from his single terminal. Under such a distributed architecture, signing-on is seen as a 2-stage process: the first (Network Access) concerned with authenticating the user, the second (System Access) with connecting him to a system of his choice. System Access may be repeated at any time to vary the list of connected systems.)

3.1.2. Signing-Off

3.1.2.1. User Sign-Off

The user can terminate his session in either of two ways:

a. Full Sign-Off. If there are no current activities the user can invoke the sign-off action (see Section 7.), on completion of which a sign-on screen for the next user is issued and the original user can remove his PID.

b. Temporary Sign-Off. The terminal is put into a temporarily signed-off state should any of the following actions/events occur:

- the user removes his badge;
- the user is inactive for longer than a predefined period;
- input is received with a different badge code.

This causes the sign-on screen to be issued with all fields protected except for the password, together with an appropriate message inviting the user to re-insert his badge and/or re-input his password.

A new user must wait for Full Sign-Off to occur (as a result of the original user's continued inactivity), before he can take over the terminal.

3.1.2.2. Automatic Full Sign-Off

Once a session is in a Temporary Sign-Off state the system will automatically force Full Sign-Off after a further period of prolonged inactivity (the user's current session is then aborted).

3.1.3. Signing-On Again

When the original user returns to a terminal from which he has been temporarily signed-off and re-inserts his badge, he must re-input his password in order to re-connect to his session.

Once the user has been successfully authenticated, his screen is re-displayed and his session continues with no loss of context; it is as if he had not left the terminal.

3.2. Transactions and Phases

3.2.1. Initiation

CHIEF does not support a menu system of primary commands, tailored to the user's authorised groups of facilities from which individual transactions may be invoked by selection. Rather the user initiates a transaction by entering its unique command code within the appropriate field of the Command Line. (The system will have detected the termination of the preceding transaction and thus have unprotected this field and placed the SOM and cursor appropriately).

The command code is an abbreviated means of identifying the required transaction – up to 4 characters, as identified in Section 5. If the supplied value is valid (and permitted to the user by virtue of his operating clearance), the system overwrites the Command Entry field with the transaction's full title, otherwise an error message is displayed on the Reply Line.

Many transactions require the input of one or more parameters: for example, to identify the particular Data Object and to qualify the operation that is to be performed upon it. Parameters may be input together with the command – separated from it by a space and (where more than one parameter is required) from each other by commas.

This pre-supposes that the user needs no prompting as to the nature or sequence of the required parameters and that they can all fit within the limited size of the Command Entry field. Neither is always the case and if the system detects that not all the required parameters have been input in a Command Line, then it displays an appropriate screen for further input.

By design therefore, any parameter that can be declared in the above way is also present as a field of the Document that is associated with the transaction: the system accepts values in combination from either source. Moreover, any parameter values entered with the command code are automatically copied by the system into their corresponding Document fields.

As with any other input field, parameters have associated properties defining their type (e.g. alphabetic or numeric), permitted values and optionality and these must be correct before the transaction is allowed to proceed.

(The distinction between a parameter and any other input field can be seen to be somewhat artificial. It is however a concept worth retaining since it has some intuitive value.)

Function keys can be used to lessen the user effort of invoking a transaction – reducing the key depressions and removing the need for the user to remember the associated command code. The number of Function keys available is limited (see Section 2.) and thus it is generally the more frequently used transactions that are set up in this way. Parameters cannot be input directly in this case: where qualification of the command is required, the system therefore requires that the parameters be subsequently input via the Document fields. The full transaction title is displayed in the Command Entry field as before.

3.2.2. Continuation

Most transactions involve a number of interactions between user and system and these are referred to as ‘phases’. During the period between phase initiation and the arrival of the system response, the keyboard is locked. Any attempt(s) by the user to ‘break in’ during this locked period will be ignored by the system.

Once the system response has been received, the keyboard is unlocked and the cursor positioned in the appropriate part of the screen. Generally, if the data is protected it is positioned at the start of the Command Entry field otherwise in the first errored or unprotected field within the Document Display Area. The full rules are given below in descending order of precedence:

– first new error;

– first field of first new segment;

– first old error;

– first unprotected field in Document Display Area;

– Command Entry field;

– first Downward Selectable field;

– Action Box.

In some cases the user requires to input a substantial amount of information: for example, the several field values associated with an Entry declaration. At other times his input is more limited: for example, confirmation of an action suggested by the system. There is a range of cases between the two.

Data is entered into unprotected fields provided by the system in a format displayed in the Document Display Area of the screen – typically with instructive backdrop information to assist the user to determine the purpose of each field.

The user can move freely between the fields on display by means of the keyboard functions of Section 2. and the common facilities described in Section 4. He may also use these latter to vary the page of the Document on display and thus to access further fields.

It may be that the processing required of the system by the user in response to his input of data is unambiguous; at other times, he will need to indicate what he wishes the system to do with his input – as illustrated by the examples of Section 5. This is achieved by means of the Action Box – the final (unprotected) field on the screen. Where there can be little or no doubt as to the user's intention, the Action Box will be pre-filled with his 'default' action.

This positioning of the Action Box is deliberate and reflects the characteristic of many ICAB-02 implementations, in that the data transmitted in response to SEND is that between SOM and the current position of the cursor. By making the Action Box the final field, the user is encouraged to have moved his cursor to the end of the display – and thus to include all data within the scope of his input. Should the system receive a message that is shorter than it expects – indicating that the user has moved his cursor to a point before the end of the screen – then it responds with a full screen error message which may only be removed by hitting the refresh screen function key.

It is not always necessary for the user explicitly to position his cursor within the Action Box and input his desired action. Thus, for example:

a. The system generally offers a default and displays it within the Action Box. If he wishes to accept this, then the user need only HOME the cursor and SEND.

   Some user actions will cause this default action to be cancelled without the user having to clear the action box, e.g. Segment Insertion, Downward Selection, Help and change of a Presentation Level.

   Similarly, a primary validation error will cause the default action to be ignored, as will entry of a command in the command line.

b. Function keys can be set up on the terminal for the more frequently invoked actions – so that a single key depression can locate the cursor in the Action Box, generate the desired code and SEND the user's input.

c. Action messages (see Section 7.), are shorthand messages that inform the system to perform some action. Some of these messages are cursor sensitive e.g. Downward Selection.

Where the phase does not require that the user input data values but merely indicate the action that he requires of the system, then this is a prime candidate for assignment to a Function key – as described further in Sections 4. and 5.

3.2.3. Transaction Sequencing

Following a series of interactions, most transactions terminate naturally having completed the user's requested processing: for example, by displaying the selected information or having updated the database to reflect changes to a Data Object. The user is then free to initiate a new transaction.

There are a number of ways in which the user may influence or control this natural sequence:

a. Abort. He may decide not to continue with the current transaction and to terminate it by means of an 'Abort' command – see Section 4.

b. Nesting. It is not always necessary to complete one transaction before starting the next: a new transaction may be initiated that is based upon the current transaction which is itself thereby temporarily interrupted whilst the new transaction is processed. Upon completion of this new transaction, the original transaction is resumed – as if it had not been interrupted. It is not always possible for the system to detect when the new transaction has terminated and the user may therefore be required to indicate this by means of the Return command of Section 4. (The 'Help' transaction of Section 4. provides a good example of nesting. It can be invoked during any transaction to provide explanatory information regarding the fields currently on display. The output of Help text will naturally over-write the current display, but this will be reinstated once the Help transaction is terminated. The user must invoke Return to indicate that he has finished browsing the pages of Help and would like to return to the original transaction).

c. Sequence. There are two particular situations in which the system is able to assist the user to carry out a sequence of related transactions:

(1) Following the Display of a Data Object, the user may determine that he wishes next to Amend (or Delete) it. As a matter of design, the system will generally identify the Amend (and Delete) as a valid Next Action following the final phase of the Display transaction – allowing the user to invoke it through the Action Box without the need to re-identify the Data Object. (Section 5. elaborates this facility).

(2) Where the user is engaged in declaring to the system a number of Data Objects of the same type, much of the input data is likely to be the same between one transaction and the next. In such circumstances, the system will re-present to the user the Document upon which his previous transaction was based – with input fields unprotected in order that they may be amended as required. (Section 5. also includes further details of this facility).

In simplifying the task for the user who requires to carry out such sequences, the system must nevertheless allow him the choice of invoking some unrelated transaction. Therefore to continue the sequence, the user need only select the appropriate Action Box code and SEND; to invoke an unrelated transaction, he must invoke the Return command of Section 4.2. to open the Command Line.

If the Application wishes to terminate completely, offering no further user actions, then no Document data will be displayed and the Command Line will be opened automatically.

3.2.4. Session Variables

A field may be declared to have an associated 'Session Variable' – a means of carrying forward its value output from one transaction as input in another. In this way, values set earlier in a session may be included in a subsequent transaction as defaults or even without the user's knowledge.

Session variables are private to each user session and are initialised as null values at the start of the session – though the act of signing-on may in fact immediately cause certain variables to be given contextual values. All values are lost when the session terminates – whether as a result of the user signing off or system failure. Whilst the session is active they may be repeatedly over-written by the output in successive transactions – except those established by the system at sign-on which will remain unchanged throughout the session.

Session Variables are the mechanism by which contextual data elements are established for a role (e.g. EPU-NO, PAY-AGNT-TURN).

3.3. Documents

3.3.1. Document Structure

The amount of information that user and system need to exchange varies from transaction to transaction. Sometimes it will fit naturally within the capacity of the display area of a single screen; at other times it will not. The architecture of CHIEF generalises this situation by introducing the term 'Document' to refer to the total information content of a transaction. The HCI user views his screen as a 'window' onto this Document: he has available facilities which enable him to control that part of the Document that is currently on display – referred to as the current 'page'.

In a number of cases there is little structure to the information to be displayed: it consists of a number of fields whose sequence is somewhat arbitrary. For example, when signing-on, the user must supply his password, desired role and intended purpose: there is little significance in the order of the associated fields.

Some information however is highly structured – with recurrent elements of data each potentially giving rise to subordinate sets of information, and so on. Since this structure is an essential part of the interpretation of the information, it is important that it should be reflected in the user presentation through the HCI. As an example, a Customs Entry includes certain information relating to the Consignment as a whole, together with details for each Commodity, each of which in turn has a number of associated Tax details.

Each Document is therefore defined to have a structure in terms of its constituent 'segments'. Segments not only represent groups of logically associated data, they potentially own other segments. Where several instances of the same type of segment occur they are said to form a 'segment set' which may either be subordinate directly to the Document itself or to a segment in another segment set. Figure 3.1 depicts the general Document structure which is illustrated by the examples of subsequent sections and their figures.

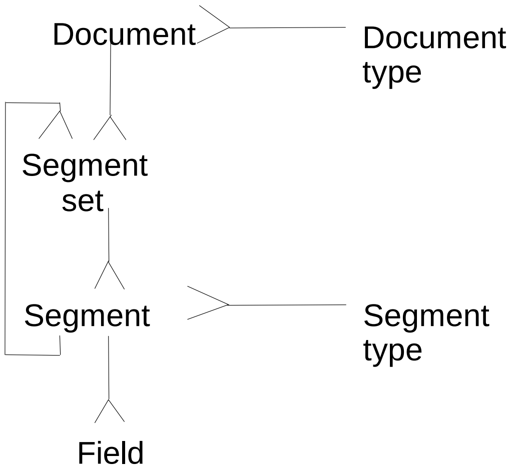


Figure 3.1 GENERAL DOCUMENT STRUCTURE

Though the segment types of which a Document is comprised are pre-defined, there remains considerable flexibility in the actual content of a particular Document. It is not essential for each segment type to occur on each occasion and the number of occurrences of a segment within a set may vary between considerable limits. As an example, the Document representing a Customs Entry may be declared to contain between 1 and 99 Commodity segments, each in turn having between 1 and 19 Tax segments. Individual Entries will have their own peculiar number of Commodity segments each varying in the number of associated Tax segments.

3.3.2. Document Handling

Through the HCI the user may manipulate both the structure and display of a Document – largely by means of the Common Facilities described in Section 4. A typical scenario in the case of an update transaction is as follows:

a. The system's response to the user's command to initiate the transaction is generally a screen containing the first (or only) page of the Document. This page will have been formatted with the input fields required from the user with the cursor positioned at the start of the first unprotected field.

b. There is no validation of individual characters or fields as the user types them: it is possible, for example to key alphabetic data where numeric is required.

c. Having completed this page of input – or as much of it as he currently wants – the user may request a further page. As a by-product, the current page is transmitted to the system where its field contents are validated for form (e.g. alphabetic) and range (e.g. Jan - Dec) – but not at this stage against the system database or for credibility. If errors are detected then appropriate Report messages are displayed – in accordance with the presentation strategy described in Section 3.4.1.

d. In general – though not essentially – errors must be corrected before the user can progress to another page of the Document or forward it for processing. If all fields are valid or the user explicitly overrides any warnings, then the next page of the Document is displayed for data entry.

e. The user can continue to page forwards and backwards within the Document and to make any amendments that he considers necessary. Potentially these changes may go beyond the amendment of existing field values and extend to the Insertion and Deletion of segment occurrences. This is best illustrated by reference to the earlier example of a Customs Entry:

    (1) In presenting the user with his initial input screens, the system will have had to determine from the Document's definition how many Commodity and Tax segments to format and display. The maximum Document would inevitably extend over several screens: in view of the much lower mean values, it would generally be very sparsely used. The Document is generally defined therefore to offer the user a mean number of Commodity segments, each of which in turn will contain a mean of Tax segments.

    (2) In general, these means should be sufficient. If they are not all required on this occasion then they may be left unkeyed. It may occur, however, that further instances of certain segments are needed: for example, one Commodity may require more than the mean number of Tax segments. Section 4. describes how the user may ask the system to extend the content of the Document – reflected in the page currently on display by the inclusion of further formatted segments of the requested type and the consequential adjustment of the other segments on display.

(3) Correspondingly, the user may elect to delete a segment that is currently on display – for example, where it is desired to remove a Commodity included within an Entry in error. The segment is removed from the display and subsequent contents adjusted to close up the gap.

f. Document level validation may identify further errors – for example, cross-field failures, unsatisfied database references, incredible data. These may give rise to an equivalent number of messages (or **'Reports'**) and consequential interactions.

3.3.3. Document Presentation

Document data is presented to the user in accordance with the template associated with the Document type – defining its backdrop and the field positions for the various segments of data.

This presentation can be made sensitive to the class of the user – so that, for example, a Document may in principle be presented differently to Customs and Trade users.

In addition to displaying the data content of the various segments of the Document, the presentation can be defined to include certain static and control information as Document 'headers' and 'footers' – to appear at the start and end of the overall Document. This is in addition to any system generated status information (see Section 2.1.2.1.) which acts as a Page header and the Action/Reply lines (see Sections 2.1.2.3. and 2.1.2.4.) which act as a page footer.

It should be remembered that all Document data is displayed within the corresponding area of the overall display (Lines 3 - 22) and references here to 'pages' and 'screens' should be interpreted in that restricted context.

3.3.3.1. Segment Presentation

Documents are presented with the hierarchic structure of their segments 'flattened' out – so that subordinate segments follow their owner. Figure 3.2 illustrates this Document presentation generically whilst Figures 3.5 et seq illustrate this in the specific case of an Entry.

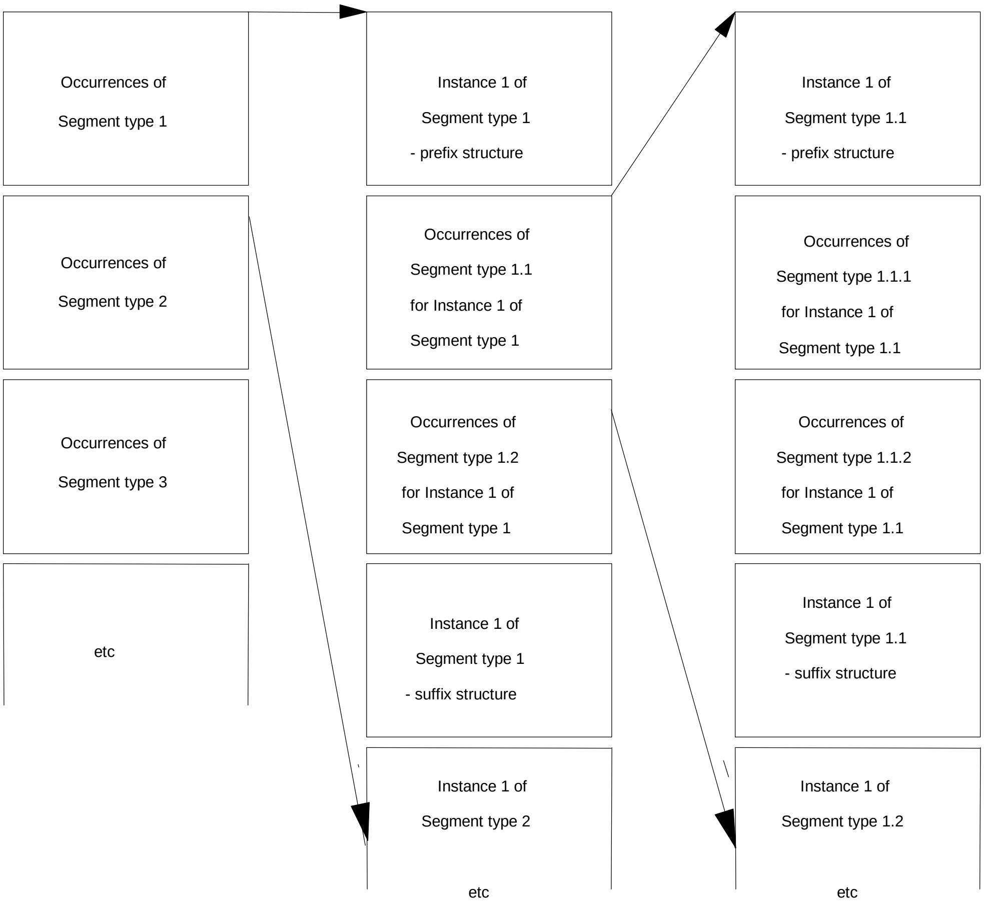


Figure 3.2 GENERIC DOCUMENT PRESENTATION

Where a segment is the only instance of its type and owns no subordinate segments, its presentation can be simply defined: it consists of a single block on the screen containing the required field values and backdrop information. Other situations are more complex: for example, there are requirements to be able to represent segments as tabular entries with columnar headings – the latter fixed on display even though the table entries themselves may extend to successive pages.

To achieve these flexible effects, the presentation rules for each segment may be declared as a composite of six basic units as illustrated in Figure 3.3 – with the display of each unit defined in terms of a rectangular block on the screen. The positioning of each individual field within a block is declared relative to the overall position of that block; that in turn may be ‘horizontally’ constrained though its ‘vertical’ placement will obviously depend upon the occurrence of other segments in the Document. The boundaries of two blocks may coincide but they may not overlap. (Note that though the ‘vertical’ placement of a block cannot be explicitly declared, it is possible to force its display to start on a new page.)

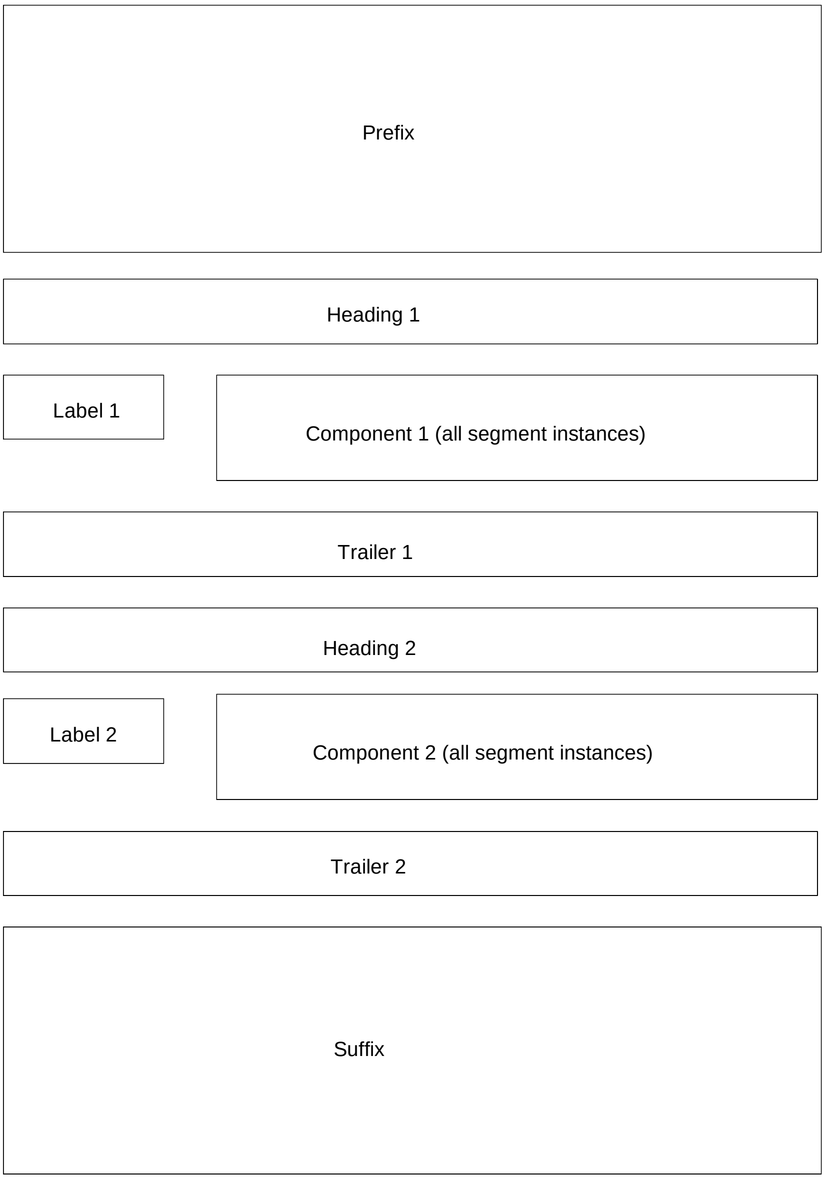

Prefix
Heading 1
Label 1
Component 1 (all segment instances)
Trailer 1
Heading 2
Label 2
Component 2 (all segment instances)
Trailer 2
Suffix

Figure 3.3 GENERIC SEGMENT PRESENTATION

The terminal user need not be aware of these component units nor of their presentation rules: he will see only the resultant effect. It is the designer of the presentation who must use them to achieve that required effect.

a. Prefix. A block of information may be declared that is to precede the display of all subordinate segments. The fields of the controlling segment itself are typically displayed here – although some may alternatively appear within other blocks (e.g. Totals may be displayed more naturally within the Trailer or Suffix blocks). The prefix is displayed once only: should the subordinate segments overflow onto further pages, the prefix is not repeated there.

b. Heading. A block of information may be declared that is to be displayed immediately above the display of the first segment of a given subordinate set. The Heading will be aligned with the Prefix. If subordinate segments have a different alignment and the Heading Block is used for column headings then allowances should be made for the different alignment. The current heading block only – which may include field data taken from the controlling segment – is repeated at the top of any subsequent pages onto which the display of the subordinate segments may overflow. The heading may have unprotected fields, however they will be displayed protected where the block is included on subsequent pages.

c. Label. A block of information may be declared that is to be displayed immediately to the left of and on the same line as the first segment of a given subordinate set. The Label is typically used to introduce and indent (but not automatically) the display of a set of subordinate segments within a table; it may include field data taken from the controlling segment and is repeated on any subsequent pages onto which the display of the subordinate segments may overflow. The label block may have unprotected fields, however they will be displayed protected where the block is included on subsequent pages.

d. Component. A conceptual block containing all of the rectangular areas used to display the individual segments of a particular subordinate set. The block is of fixed width but of variable depth according to the actual number of instances of the subordinate segments: the areas themselves repeat in a regular manner across and/or down the page – overflowing onto subsequent pages as required.

e. Trailer. A block of information may be declared that is to be displayed immediately following the last segment of a given subordinate set – typically to display summary information for the set by including field data taken from the controlling segment.

f. Suffix. A block of information may be declared that is to succeed the display of all subordinate segments – typically to display summary information for the controlling segment including field data taken from that segment.

In defining the presentation required for each type of Document, the system designer may use these several types of block in combination to achieve the desired effect – reflecting the characteristics of the information to be displayed and the user’s needs for viewing and manipulating it. Not all of the block types need be used for each presentation – indeed, certain combinations would be unusual: for example, Heading and Label blocks would not likely be used together; Trailer and Suffix blocks would not both be used were the controlling segment to own only one subordinate set.

It is only the Component block that may be split across a page boundary and in this case the break always occurs between subordinate segments – with the following provisos:

– if there is insufficient space at the bottom of a page for all instances of a subordinate segment set then a page break occurs. The continuation page has an identical layout except that there is no repetition of the Prefix;

– if there is insufficient space for even the first instance of a subordinate segment or its Label, then only the Prefix is displayed on that page.

3.4. Layout and Style

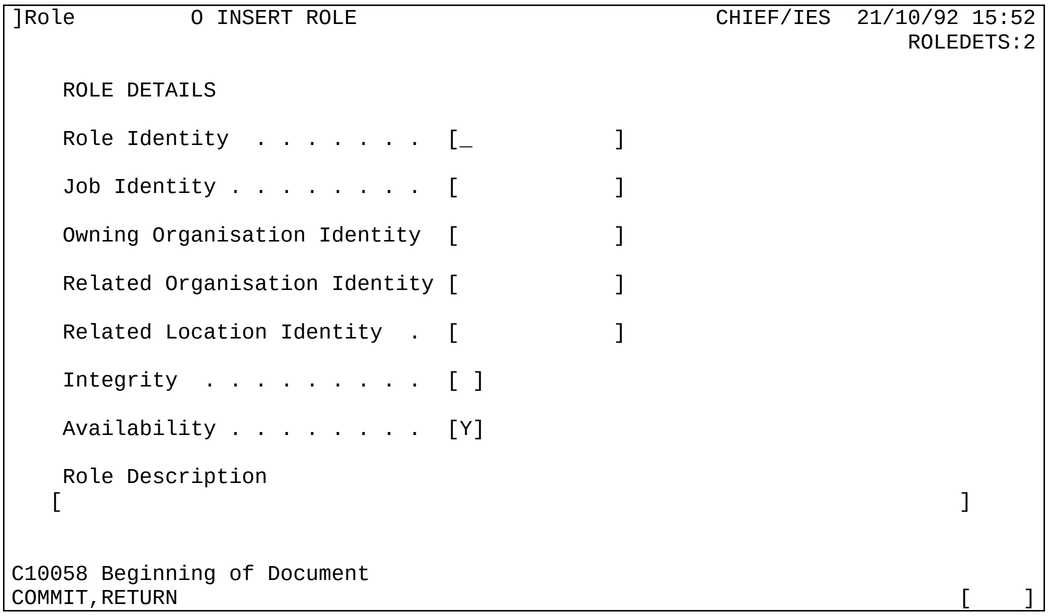
The overall guiding principle for the presentation of information to the user is that it should be both legible and comprehensible – an uncluttered layout, using alignment and indentation to reflect structure and making instructive use of backdrop text.

It is not possible to be prescriptive and to expand these principles into strict rules; a number of guidelines may however be stated. These are based upon ‘executive’ rather than intensive ‘clerical’ use of CHIEF and it is recognised that in this latter case different considerations may apply. The architecture of CHIEF however permits different styles of presentation to be defined for the same Document – sensitive to user class and thus able to accommodate these separate considerations.

a. Backdrop information should be neither too cryptic nor too verbose. It should use standard business terms and abbreviations and be sufficient to prompt the user as to the meaning of the field. It is not expected that it will instruct him in the rules for its completion: that would inevitably result in text that is too lengthy (and is the purpose of Help). The text, which may use both upper and lower case, should be located to the left of or above the field to which it applies: the overriding consideration being that there should be no ambiguity as to which field the backdrop refers.

b. Users are generally allowed to input data in either upper or lower case. For some fields the case is declared to be significant and will be retained within the system; at other times it will be automatically converted to upper case.

c. Where a Document is relatively sparse – perhaps consisting of one segment of relatively few fields – it should preferably be presented within a table. Both the input fields themselves and their associated backdrop texts should be vertically aligned with leader dots connecting each pair. (A minimum of two leader dots should be used, with a space between each dot and two spaces before the actual field). If space permits, backdrop text may also be included to the right of the field – qualifying the units or range of acceptable values. Where the fields form natural sub-groupings, the backdrop text for these should be indented by 2 characters from a group heading. Figure 3.4 illustrates these principles in practice.



```
]Role         O INSERT ROLE                         CHIEF/IES  21/10/92 15:52
                                                                  ROLEDETS:2

    ROLE DETAILS

    Role Identity  . . . . . . .  [_          ]

    Job Identity . . . . . . . .  [           ]

    Owning Organisation Identity  [           ]

    Related Organisation Identity [           ]

    Related Location Identity  .  [           ]

    Integrity  . . . . . . . . .  [ ]

    Availability . . . . . . . .  [Y]

    Role Description
   [                                                                    ]


C10058 Beginning of Document
COMMIT,RETURN                                                        [    ]
```

Figure 3.4 EXAMPLE OF A SPARSE DISPLAY

d. There should always be at least one space character between the backdrop text and the start field symbol, so that the field can, if required, be defined as downward selectable (see Section 4.4.).

e. Where the Document is more busy – comprising a number of segments, some controlling subordinate sets of further segments and each with a significant number of fields – then greater use must be made of the width of the screen. The aim should be that data relationships should be clearly apparent and that as much information as possible should be accommodated in each page – subject to the overall objective of legibility.

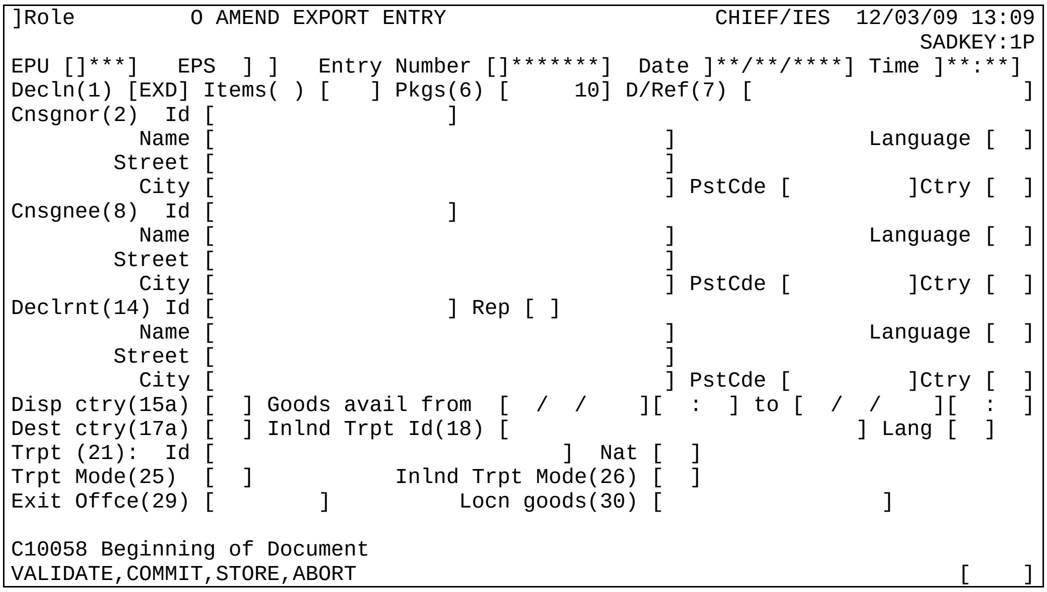
(1) There should be sufficient space between adjacent fields across a line for them to be clearly separable – though the low intensity rendition of intervening backdrop text assists in this.

(2) Backdrop text may be more terse – though not cryptic.

(3) Indentation should be used to illustrate the subordinate nature of segment sets from their controlling segment.

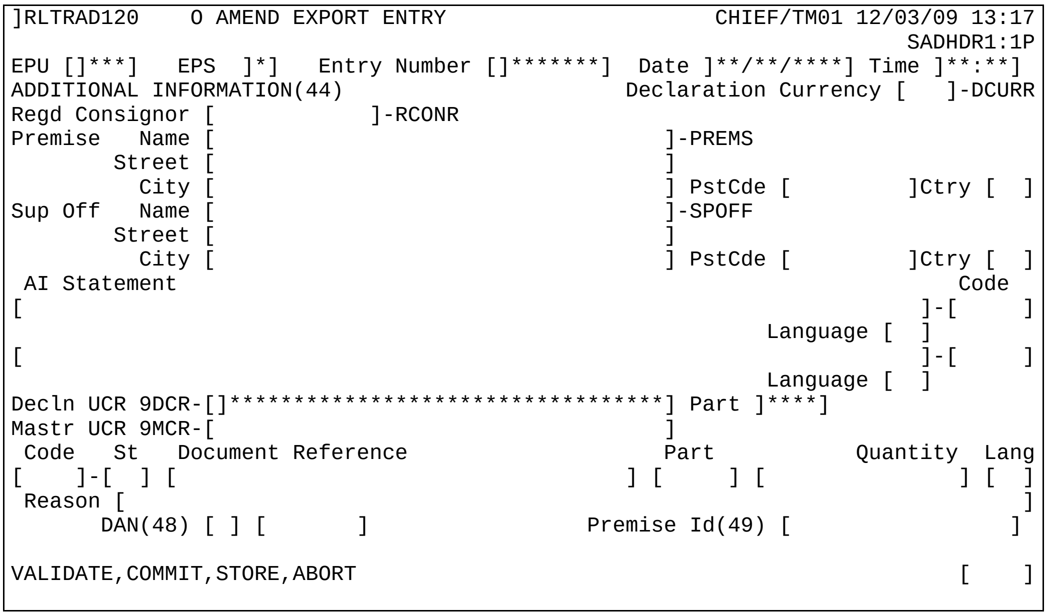
(4) Within a segment, vertical alignment of both backdrop and data remains desirable – though it cannot always be achieved where many different fields are involved. Column headings and trailers should be used wherever possible to delineate the set details and to identify or summarise the fields.

Figures 3.5 and 3.6 illustrate these points with examples based upon the amendment of an Export Entry.



```
]Role         O AMEND EXPORT ENTRY                     CHIEF/IES  12/03/09 13:09
                                                                       SADKEY:1P
EPU []***]   EPS  ] ]   Entry Number []*******]  Date ]**/**/****] Time ]**:**]
Decln(1) [EXD] Items( ) [   ] Pkgs(6) [     10] D/Ref(7) [                     ]
Cnsgnor(2)  Id [                  ]
          Name [                                   ]               Language [  ]
        Street [                                   ]
          City [                                   ] PstCde [         ]Ctry [  ]
Cnsgnee(8)  Id [                  ]
          Name [                                   ]               Language [  ]
        Street [                                   ]
          City [                                   ] PstCde [         ]Ctry [  ]
Declrnt(14) Id [                  ] Rep [ ]
          Name [                                   ]               Language [  ]
        Street [                                   ]
          City [                                   ] PstCde [         ]Ctry [  ]
Disp ctry(15a) [  ] Goods avail from  [  /  /    ][  :  ] to [  /  /    ][  :  ]
Dest ctry(17a) [  ] Inlnd Trpt Id(18) [                           ] Lang [  ]
Trpt (21):  Id [                           ]  Nat [  ]
Trpt Mode(25)  [  ]           Inlnd Trpt Mode(26) [  ]
Exit Offce(29) [        ]          Locn goods(30) [                 ]

C10058 Beginning of Document
VALIDATE,COMMIT,STORE,ABORT                                               [    ]
```

Figure 3.5 EXAMPLE OF A BUSY DISPLAY – first Page



```
]RLTRAD120    O AMEND EXPORT ENTRY                     CHIEF/TM01 12/03/09 13:17
                                                                      SADHDR1:1P
EPU []***]   EPS  ]*]   Entry Number []*******]  Date ]**/**/****] Time ]**:**]
ADDITIONAL INFORMATION(44)                      Declaration Currency [   ]-DCURR
Regd Consignor [            ]-RCONR
Premise   Name [                                   ]-PREMS
        Street [                                   ]
          City [                                   ] PstCde [         ]Ctry [  ]
Sup Off   Name [                                   ]-SPOFF
        Street [                                   ]
          City [                                   ] PstCde [         ]Ctry [  ]
 AI Statement                                                             Code
[                                                                      ]-[     ]
                                                           Language [  ]
[                                                                      ]-[     ]
                                                           Language [  ]
Decln UCR 9DCR-[]**********************************] Part ]****]
Mastr UCR 9MCR-[                                   ]
 Code   St   Document Reference                    Part           Quantity  Lang
[    ]-[  ] [                                   ] [     ] [               ] [  ]
 Reason [                                                                      ]
       DAN(48) [ ] [       ]                 Premise Id(49) [                 ]

VALIDATE,COMMIT,STORE,ABORT                                               [    ]
```

Figure 3.6 EXAMPLE OF A BUSY DISPLAY – second Page

3.4.1. Document Errors

Error conditions can arise from the following types of input:

a. Data (or parameter) failing primary validation – including failure to supply a mandatory field. Optional fields are validated if supplied – determined by a value other than blank. (Note that no distinction is drawn at the HCI between an optional field in which the user has made no input and one in which he has entered spaces. In particular therefore, if he first enters a non-space value and on a subsequent input overtypes this with spaces, the field is then considered to be not supplied.)

   Examples of such primary validation include: non-numeric quantity, date out of range or mandatory field missing.

b. Data failing secondary validation – validation of input data against the database or involving bespoke cross-field algorithms is carried out by application programs.

   Examples of such secondary validation include: input key does not exist on the database or one field invalid in the context of another field.

c. Data failing credibility checks.

The conditions of a. and b. are classified as ‘Errors’: the data is invalid and the system will not process it. The user generally is required to correct such errors before the input is submitted for further processing – though a facility is provided for him to set the input temporarily aside whilst he investigates the fault (see Section 4.2.).

The conditions of c. are regarded as ‘Warnings’: the data is valid, but suspect and the user is required to confirm his intention.

The system may also report ‘Comments’: advisory information regarding the status of the transaction or of a Data Object.

3.4.1.1. Display of Errors

The user is informed of any such errors in a standard manner – noting that it is possible for several errors of the same or different types to exist at the same time. Note however, that only one error report (the most severe one) may be displayed per field (plus one per segment), at any one time.

The Reply Line is used to summarise the overall current state of the user’s transaction.

Except in the case of simple errors of primary validation, individual Report messages are displayed for each detected error (or warning etc). To assist the user with attributing these to the corresponding fields in error, the messages are generally displayed interleaved within the Document Display Area, adjacent to the source of the fault:

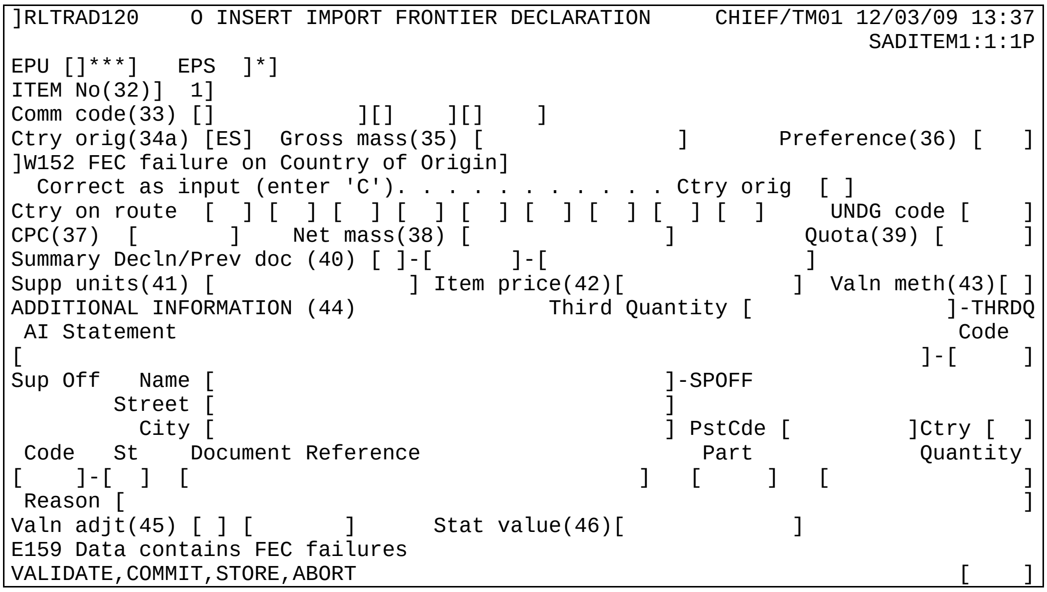
a. For a field in error, the Report line follows the Document line containing the field. The attributes of the field are amended to “data in error” and the Report is sent as “output data” (see Figure 3.1); a typical rendition might be expected to use this to highlight the field in error by means of inverse video or colour. Where the Document line contains more than one field in error, then the Report lines will follow each other in the left-to-right order of the fields. (For fields that fail simple primary validation, no Report line is output by default (but see Section 3.4.1.2.): only the attributes of the field are changed.)

b. For a segment in error – for example, where no particular field error can be pin-pointed yet together they are in error – the Report precedes the first line of the segment. The report is sent as “output data” and its text indicates the nature of the error.

For errors that are detected as a result of cross-validation between fields in different segments, the same Report may be associated with each of the fields involved. It is a user decision as to which field(s) he chooses to amend – using the paging and Next Report facilities of Section 4. where the errors are spread across more than one page of the Document.

Report messages share a common structure: an indication of their severity – comment, warning or error – followed by a unique identification number (for the report type), and the message text.

For warnings requiring acknowledgement, ie. where a positive confirmation is required from the user of his intention (see Section 3.4.1. c.), then an appropriate field is included in the report message and input of “C” (or “c”) is taken as confirmation.



```
]RLTRAD120    O INSERT IMPORT FRONTIER DECLARATION     CHIEF/TM01 12/03/09 13:37
                                                                   SADITEM1:1:1P
EPU []***]   EPS  ]*]
ITEM No(32)]  1]
Comm code(33) []           ][]    ][]    ]
Ctry orig(34a) [ES]  Gross mass(35) [               ]       Preference(36) [   ]
]W152 FEC failure on Country of Origin]
  Correct as input (enter 'C'). . . . . . . . . . . Ctry orig  [ ]
Ctry on route  [  ] [  ] [  ] [  ] [  ] [  ] [  ] [  ] [  ]     UNDG code [    ]
CPC(37)  [       ]    Net mass(38) [               ]          Quota(39) [      ]
Summary Decln/Prev doc (40) [ ]-[      ]-[                    ]
Supp units(41) [               ] Item price(42)[             ]  Valn meth(43)[ ]
ADDITIONAL INFORMATION (44)               Third Quantity [               ]-THRDQ
 AI Statement                                                             Code
[                                                                      ]-[     ]
Sup Off   Name [                                   ]-SPOFF
        Street [                                   ]
          City [                                   ] PstCde [         ]Ctry [  ]
 Code   St    Document Reference                      Part             Quantity
[    ]-[  ]  [                                   ]   [     ]   [               ]
 Reason [                                                                      ]
Valn adjt(45) [ ] [       ]      Stat value(46)[             ]
E159 Data contains FEC failures
VALIDATE,COMMIT,STORE,ABORT                                               [    ]
```

Figure 3.7 EXAMPLE OF WARNING DISPLAY

Figure 3.7 provides an example of these principles: it corresponds to the situation in which the user, having completed the second page of the SAD Entry transaction of Section 3.3.3. has requested that it be validated. The system has generated a warning that the user is required to confirm (or amend).

Note that the above is an example only; in practice it may be a business requirement that errors and ‘Acknowledged Warnings’ do not appear simultaneously on the same screen.

3.4.1.2. Error Report Configuration

The strategy described above for the display of Report messages is in fact the default of a more flexible mechanism. An action code (see Section 7.) allows the user to vary this default – and thus, for example, to display the Reports associated with failures of primary validation or to suppress those arising from secondary validation.

3.4.1.3. Corrective Actions

The user is able to attempt to correct all errors, to confirm all warnings and note all comments before re-submitting the Document for re-processing. He may however elect to correct only a few – perhaps in the expectation that this will clarify or resolve others.

If the user wishes to ignore all errors on a particular screen then the action of repeating the last action/command (without altering the screen data in any way) will force that action/command to be carried out. For example, on requesting secondary validation the screen may contain primary validation errors; if the user wishes to ignore them because he desires secondary validation on the valid segments, then he should repeat the action.

Though the system will have placed the cursor within the first field in error, all other input fields will retain their original protection attributes – lest the user determines that it is another (apparently valid) field that is causing the error.

In paging on to a subsequent part of the Document to view and amend errors there, the cursor will again be placed in the first field in error.

Having once displayed a given Report message to the user, the system will cancel it if the value in the field to which it relates is changed by the user. Thus, should the user page back to a part of the Document previously displayed, the Reports on that page may no longer be displayed (and even though the error may not in fact have been corrected by the user’s amendment). If the new value is primarily invalid then, of course, it will get flagged as an error.

Where the Document with its error reports extends to a number of pages, the user may invoke the Next Report facility of Section 4. to obtain a display of the next page containing an error – by-passing any intermediate pages that contain none.

If the user makes a request for Next Report when no further reports exist then the system generates a Reply Line message indicating the fact.

This strategy of interleaving Report messages and varying their display according to the user actions provides a flexible and effective means of viewing and correcting errors. It has the effect that the pages of a Document are not always fully predictable: indeed, the several page images will not always remain identical as the user pages to and fro amending his input.

Amendments having been made and the Document submitted for re-processing, it will always be fully re-validated: it may of course continue to contain errors – more or less than those detected last time!

3.5. System Errors

The terminal user will generally detect a failure of CHIEF by his own failure to receive a response to the latest phase of his current transaction.

In reality, this symptom may be the result of some other failure – for example of his own terminal or of the network path linking him to CHIEF; in the case of a DTI user, it may be his local CSP that has failed. Whatever the cause, there is little that he can do until the end-to-end service is restored. (In practice that is too simplistic: in the event of a local failure, he may be able to move to an alternative terminal; it may be possible to re-configure the network etc. These options are not germane here and neither are the local procedures by which he is made aware of the re-established service).

In general, the user will have been disconnected from CHIEF as a consequence of the failure and he will therefore be required to sign-on again. This will not however be necessary under all failure conditions across the network and he should therefore as a matter of habit invoke Refresh Screen (see Section 4.) and continue according to the response received from the system.

If the user had no transaction current at the time of the failure then, having re-connected, he need conduct no post-mortem and can immediately start productive work.

If, on the other hand, a transaction was outstanding, it will have been left in one of two states by the restart procedures of CHIEF:

a. Aborted. The most likely outcome is that his transaction was aborted: no amendments will have been made to the database, with the situation effectively as if he had never initiated the transaction.

b. Completed. Possibly the transaction completed successfully but the final reply failed to reach him: the database will have been successfully and consistently amended, with the situation effectively as if there had been no failure.

Upon restart, the onus is upon the user to determine which of these two situations applies – typically by interrogating the database and applying his judgement to determine whether or not the response reflects the results of his transaction. If so, he need take no further action; if not, he may re-enter the transaction.

(It is an architectural principle of CHIEF that amendments are made to the database only in the final phase of a multi-phase transaction: the above rules apply therefore even in this case. Other outputs generated by the transaction – such as print and inter-system messages – will similarly either have been aborted or completed: the system will ensure that in this latter case they reach their destination upon restart).

3.6. Training

The user view of Training is fully described in Reference [5].

END OF SECTION 3

4. COMMON FACILITIES

This Section is concerned with those facilities that are generally available within all transactions of CHIEF: it is their commonality to all business areas that contributes so much to the coherent view that the user gains of the system through the HCI.

A number of these facilities have already been introduced in earlier sections: they are summarised and consolidated here. Others will be elaborated within the context of the next section – Database Update and Display – and thus are anticipated and introduced here.

Most facilities are invoked by means of their abbreviated command entered into the Action Box: in that way they can be invoked without loss of any data keyed in by the user but not yet sent for processing.

In some cases, the nature of the facility is such that the user would not invoke it after keying in data and it may therefore safely be invoked by function key without loss of information. (The distinction arises as a characteristic of ICAB-02: user input is either of data fields from the screen transmitted as a result of pressing SEND or of a single Action Message without data – typically as a result of pressing a function key. The difference is however obscured where local terminal facilities are used to program function keys to have the effect of generating the sequences of key depressions required to place the more common commands into the Action Box from the single depression of the function key).

Section 7 specifies the codes by which the more common facilities of CHIEF are invoked.

4.1. Session Control

The user's view of Session Control has been extensively described in Section 3. A summary is appropriate here – noting that a DTI user has no direct view of the facilities:

a. The user need not be aware of any particular sign-on command: as a result of inserting his PID and sending any input (which will itself be ignored), the system returns a Sign-On screen requesting that he enter his password, nominate the role in which he wishes to operate and supply his intended purpose. The password field has attributes which prevent the characters keyed by the user being displayed on the screen.

b. Exceptions to this rule occur if the PID is not recognised or is not authorised from the location at which the user is trying to sign-on. The system will detect expired user passwords and obtain a new one before continuing.

c. At any time during his session, the user may withdraw his PID and leave his terminal un-attended. With a dependent terminal, this action will not in general be detected by the Mainframe until some local event at the terminal causes an input message to be sent in which the change of PID will be reported. Thus, unless the terminal itself reacts to the withdrawal of the PID, the current screen image will remain on display until the Mainframe is able to clear it – a potential breach of security for which local operating procedures should be devised. (This implementation upon a dependent terminal driven from a remote Mainframe is not entirely satisfactory from either the system's or the user's points of view. The user is encouraged to use the feature sparingly and only when really essential).

d. The system itself implements an 'inactivity timeout' (see Section 3.1.2.1. b.), if no input is received from the user for a specified period.

e. Permanent sign-off is achieved by means of an Action Code input via the Action Box (see Section 7.), having Returned to the Sign-On transaction.

4.2. Transaction Control

Section 3. described the user's options for terminating a transaction. In general, these options are available for any CHIEF transaction – unless there are business reasons why a particular choice should not be supported under certain circumstances. (Where such a constraint applies, the option will not generally be offered to the user via the Action Line and any attempt to invoke it will be unsuccessful.)

In common with all standard facilities, the user selects his desired option either through the Action Box or via a function key:

a. **Commit**. The user having entered all of the data that he requires, can ask the system to update the database by invoking Commit – as an Action Box command, typically made in conjunction with the final page of data input. The system will always validate the user's data and may in fact detect errors – resulting in the output of Document Reports and further interactions with the user for correction before another Commit command. Commit may be seen therefore as the user saying "I'm happy if you are". If the system is happy also, then it will update the Data Object in the database to reflect the current state of the user's Document, protect the display of that Document and terminate the transaction with a confirmatory Reply message. The system may offer the user via the Action Line the opportunity to invoke a further transaction based upon the same Data Object: an offer that need not of course be taken up.

b. **Store**. It may be that the user finds himself unable to complete his input for the time being: he is perhaps uncertain of some input data and wishes to check it off-line or he is unable to resolve and correct errors reported by the system. Under such circumstances he may request the system to Store his Document in its current state – to be regained and further processed later. (There are housekeeping functions to ensure that a stored Document does not remain unused beyond a reasonable time). The command is invoked via the Action Box – possibly in conjunction with data input – and requires no parameters: the system will allocate an internal reference and append the Document to a queue of other stored Documents. The system will protect the display of the Document and output a confirmatory message to the Reply Line – including the reference allocated to the stored Document. (Section 4. describes the means by which the same or another authorised user may regain the Document for further processing). Some types of transaction, such as those for declaring entries, restrict the use of Store so that is can only be used if a validation error means that the entry can not be commited.

c. **Abort**. The user may find himself in the situation in which he wishes he had never started the transaction: he has perhaps started to amend the wrong Data Object or has got himself in to a muddle from which the easiest way out is to start again! Under such circumstances he may request the system to Abort his current transaction. The command cannot be used to interrupt a phase that is currently processing: the user must await the system’s response to that phase before inputting the command. The system will abandon the current transaction: no updates will be made to the database and any system resources claimed by the transaction will be released – including the current Document. The system will clear the document area, output a confirmatory message to the Reply Line and the cursor will be placed in the Command Entry field for input of the next command.

d. **Return**. The user can invoke Return to indicate that he has finished with a Display transaction. The command is not available in the context of transactions which update the database: like Abort, it cannot be used to interrupt a current phase. There are two situations to be distinguished:

(1) If the transaction was nested within another – for example in the case of Help – then it is terminated and the original transaction re-started with its Document Display Area and cursor reinstated to the image that existed immediately prior to the nesting. The user may continue the original transaction as if the nested transaction had not been invoked – though hopefully wiser with the information it supplied!

(2) If the transaction was not nested then it is simply terminated and the cursor placed in the Command Entry field for input of the next command.

e. **Exit**. The user can invoke Exit to indicate that he has finished with a series of nested display transactions in a single action in preference to a series of successive Returns (though the latter option remains should the user wish to view again intermediate displays). The command is not available in the context of transactions which update the database: like Abort and Return, it cannot be used to interrupt a current phase. This action becomes available as a result of Downward Selection (see Section 4.4.) – it is not a synonym for Return in simple Displays. Like Return, Exit is displayed to the Action Line whenever it is available; where the user performs a series of Downward Selections without other intervening actions (other than Paging or Scrolling) then Exit returns the user to the point from which the selections started. Should the user invoke another secondary in a sequence of Downward Selections (e.g. to Amend an object) then Exit ceases to be available until the secondary finishes (ie. Return again becomes valid). If in this latter sequence the user starts another sequence of Downward Selections, before Exit (and Return) becomes again available, then this creates a separate Exit 'stack' which would return the user to the intervening secondary from which another Exit would return to the original transaction.

A number of other related facilities are better described in detail within the next Section but are introduced here for the sake of completeness.

f. **Validate**. During his data input phases, the user may not be fully satisfied as to the completeness of his data but would nevertheless like to establish the system's view of the validity of his efforts to date. He can achieve this by invoking Validate via the Action Box – again, typically in conjunction with a page of data input. The user is effectively asking "What do you think of it so far?" to which the system response will be a Reply Line answer – together with Document Reports for any errors which it has detected.

g. **Revert**. The ability of a user to store the image of a Document representing the current state of an intended change to a Data Object has already been described; Section 4.7. will discuss the corresponding ability to restore that Document image and to pursue the change through to completion. The user may in fact continue a sequence of storing and restoring the Document over an extended period – corresponding perhaps to his progressive resolution of a number of problems. It may occur however that he determines that the changes to date are ill-conceived: either that the Data Object should not now be amended or that the changes would better be applied by starting again from the accepted version. The scope of Abort is limited to a single transaction: it cannot be used to discard the sequence of transactions through which the user has arrived at the current situation. That is the purpose of the Revert command. It reverts back to the last 'committed' version of the data object and presents this view to the user for subsequent processing by the current transaction.

h. **Cancel**. Cancel works in a similar way to Revert, in as much as it reverts back to the last 'committed' version of the data object if any 'stored' versions exist, but then terminates the current transaction.

4.3. Document Control

When a Document is displayed to the user, the system takes account of a number of criteria in determining the initial contents of the Document Display Area. In particular, it is influenced by:

- the presentation rules defined for the particular type of Document and the class of the current user;

- its current contents;

- the existence of any errors within those contents;

- the known characteristics of the terminal (ie the size of the display area).

This is true both for Documents that contain data to be displayed to the user (Display, Amend or Delete transactions) and for those that are essentially empty (Insert) – though obviously in this latter case the majority of fields (other than parameters supplied with the command) are either null (for user input) or set to some default value.

Beyond this initial display (and subject to the Document's protection level) the user is able to manipulate it:

- to vary the data that he is viewing;

- to add and remove segments;

- to facilitate the handling of errors.

The facilities that support these manipulations are described in detail in the sections that follow.

4.3.1. Display Windows

The Document Display Area of the user's terminal can be viewed as either a movable window onto the total contents of the Document (Paging and Scrolling), or, for large and/or complex documents, as a number of representations of sub-sets of the Document data (Multiple Presentations) which may themselves be paged and/or scrolled. It is the purpose of the commands described in the section below to enable the user to control that movement.

The rules for the initial display position of the window on the Document are as follows in descending order of precedence:

- at the beginning of a segment explicitly marked as the point to start the display from by the Application;

- at the beginning of the first segment containing a report, ie. Error, Warning or Comment;

- at the beginning of the Document.

4.3.1.1. Paging and Scrolling – Common Features

The general form of the paging/scrolling command concatenates three pieces of information:

a. Direction. The window may be moved forward or backwards towards the end or start of the Document. Both '+' and '>' imply forward movement, '-' and '<' backward movement. (The rationale for two values for each will become apparent later). The window may also be directly positioned by means of '=' (scrolling only). This indicator is mandatory for all paging and scrolling commands.

b. Amount. The window may be moved backwards and forwards in single or multiple units ('amount'). For direct positioning, 'amount' specifies the particular point to which the window should be moved. If no value is specified 1 is assumed; the maximum value is 99, a value of 0 represents no movement.

c. Units. The window may be moved in physical pages (P) or scrolled in logical units relating to the segments (S) of the Document. If no value is specified, 'P' is assumed.

Some examples will help to illustrate the general form of the command:

+1P : go forward one page. (Abbreviates to +);

-2P : go back two pages. (Abbreviates to -2);

>P : go to end of Document. (Abbreviates to >);

<P : go to start of Document. (Abbreviates to <);

<4P : go to the fourth page. (Abbreviates to <4);

=3S : go to the third segment.

If the user makes a request which would take the window beyond the bounds of the Document or of the current segment set then CHIEF will generate a Reply Line message indicating that no more data exists, and the window will remain unmoved.

The display windowing commands are entered via the Action Box in order that they may be used in conjunction with data input – so that the user may amend or supply data currently on display and at the same time request that the display be moved. Under most circumstances, the default offered to the user is '+'.

This will be the first opportunity that the system has had to validate the data just keyed in by the user and it may transpire that errors are found. The system strategy is as follows:

d. The current page is re-displayed with appropriate Report messages – in accordance with the presentation strategy of Section 3.4.1.1. (Note that the inter-leaving of these Reports with the Document data will generally result in fewer lines of Document data now being displayed).

e. The user may elect to amend one or more of the fields now highlighted in order to correct the error: he may alternatively not wish to do so – perhaps in the expectation that he will eventually store the Document with its errors for later correction.

f. The system will accept a repetition of the command that caused the page to be input (e.g. '+') as indication of the user's intent to ignore the errors – except that if the user has made some amendments, these will be validated and, if in error, the original page will be re-displayed again together with its latest Report messages.

g. The user may of course subsequently re-position his window to encompass fields that he previously passed over and now make any desired amendments.

Some examples will help to clarify this: based loosely upon the structure of an Entry, but consciously deviating from the style considerations and examples discussed in Section 3. to illustrate better the matters under consideration here.

Figure 4.1 is used as the starting point for these examples. It depicts a situation in which the current Document Display Area includes segments from both the second and third Commodities – typically displayed with summary details of the Consignment at the top of the page, though these are not shown in the figure. For the second Commodity, all but the first Tax segment are on the current page; for the third Commodity, only the first of three Tax segments is currently displayed.

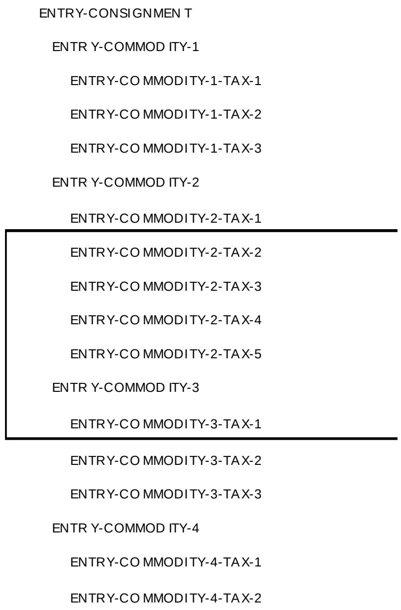


Figure 4.1 STARTING POSITION FOR PAGING/SCROLLING EXAMPLES

4.3.1.2. Paging

At its most simple, a ‘page’ corresponds to the capacity of the Document Display Area – so that, for example, a request to display the next page (+1P) moves the window 20 lines further down the Document. In practice, this simple view is disturbed by the presence of errors in the Document and by the more powerful presentation rules:

a. Document Reports are displayed interleaved with the lines of the Document. If the user makes an amendment to a field in error and then pages on, the report is deleted – so that should he subsequently return to that page, the report is no longer displayed.

b. Page ‘headers’ and ‘footers’ may be declared – to be displayed at the top and bottom of each Page.

c. The presentation rules also permit the declaration of a heading block (see Section 3.3.3.1.) – to precede the display of all subordinate segments and to be displayed at the head of all subsequent pages onto which those subordinates overflow.

This latter facility in particular results in less than 20 lines being ‘turned’ in response to a user request: to the user’s view, the upper part of his display remains static whilst the lower part moves on.

The direction indicators ‘>’ and ‘<’ may be used to move immediately to the start or end of the Document.

Setting aside these complexities for the moment, Figures 4.2 and 4.3 show the results of paging forward and backward one page from the starting point of Figure 4.1.

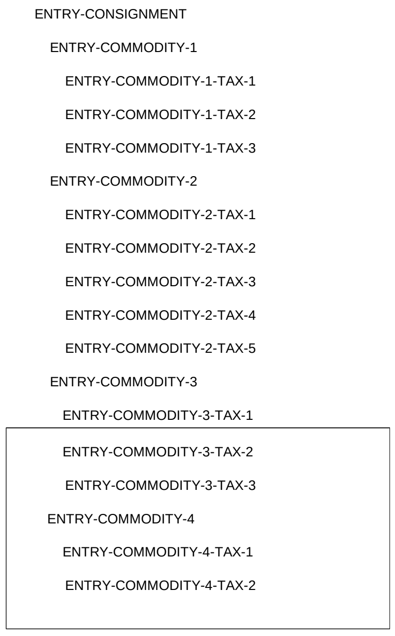
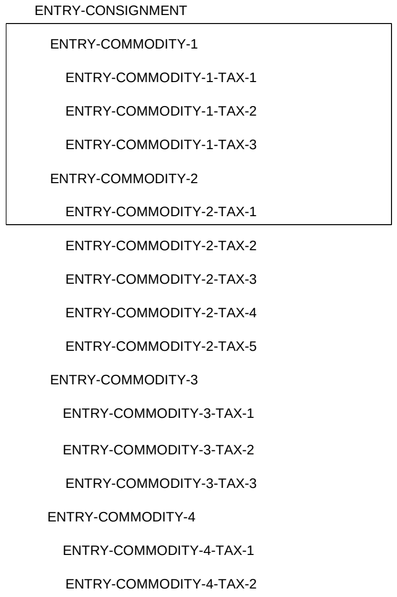


Figure 4.2 RESULT OF COMMAND +1P



```
ENTRY-CONSIGNMENT
  ENTRY-COMMODITY-1
    ENTRY-COMMODITY-1-TAX-1
    ENTRY-COMMODITY-1-TAX-2
    ENTRY-COMMODITY-1-TAX-3
  ENTRY-COMMODITY-2
    ENTRY-COMMODITY-2-TAX-1
    ENTRY-COMMODITY-2-TAX-2
    ENTRY-COMMODITY-2-TAX-3
    ENTRY-COMMODITY-2-TAX-4
    ENTRY-COMMODITY-2-TAX-5
  ENTRY-COMMODITY-3
    ENTRY-COMMODITY-3-TAX-1
    ENTRY-COMMODITY-3-TAX-2
    ENTRY-COMMODITY-3-TAX-3
  ENTRY-COMMODITY-4
    ENTRY-COMMODITY-4-TAX-1
    ENTRY-COMMODITY-4-TAX-2
```

Figure 4.3 RESULT OF COMMAND -1P

No example is illustrated of a user request to advance directly to a particular page, but this is a supported facility.

4.3.1.3. Scrolling

The scrolling of segments is also subject to the same disturbances as paging, including the display of error Reports and the presence of invariant heading information. There is a further factor also to be considered in the case of Documents having a more complex structure including a hierarchy of subordinate segments: the system must be able to deduce the user's intentions from a combination of his command and the window that he has currently on display. (As an example, in Figure 4.1, the user might wish to advance the display to see the next Tax segments of COMMODITY-3; he might alternatively wish to move on to COMMODITY-4).

Scrolling is always in terms of the segment that is currently displayed at the top of the display window. The movement at the bottom of the display window will be determined from the size of items displaced/gained at the top of the display window, and those gained/displayed from the foot of the window.

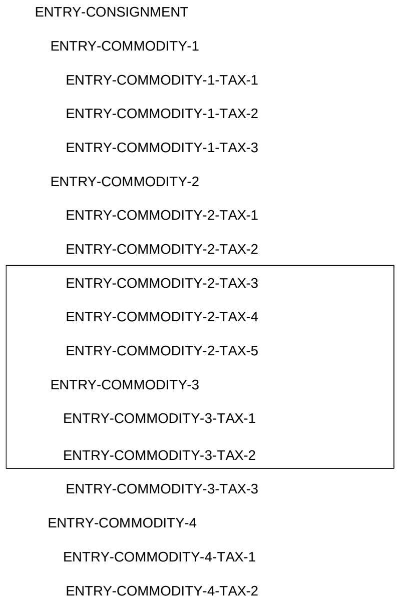
Where a Document has segment sets at different levels (see Section 3.3.1.), then the system interprets the user's scrolling commands in terms of the segment that is currently at the top of the display window, regardless of the direction of movement.

a. '>' and '+' are both used to scroll forward: the former to move to the point following the end of the current set, the latter to move forward one 'display unit' (typically one segment).

b. Correspondingly, '<' and '-' are used to scroll backwards.

c. Direct positioning (=) only operates at the first (outer) level of segments.

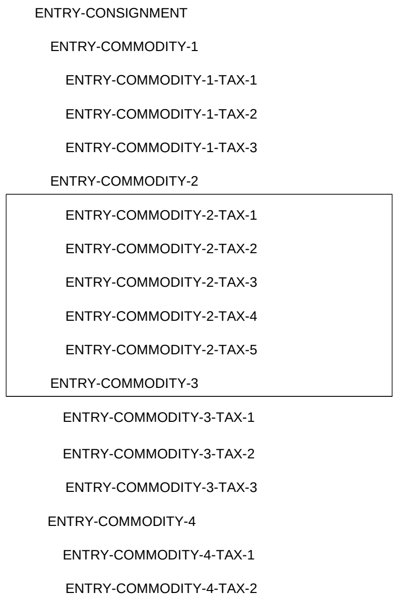
The result of scrolling forward and backward with these commands from the initial situation of Figure 4.1 is illustrated in Figures 4.4 - 4.7.



```
ENTRY-CONSIGNMENT
  ENTRY-COMMODITY-1
    ENTRY-COMMODITY-1-TAX-1
    ENTRY-COMMODITY-1-TAX-2
    ENTRY-COMMODITY-1-TAX-3
  ENTRY-COMMODITY-2
    ENTRY-COMMODITY-2-TAX-1
    ENTRY-COMMODITY-2-TAX-2
    ENTRY-COMMODITY-2-TAX-3
    ENTRY-COMMODITY-2-TAX-4
    ENTRY-COMMODITY-2-TAX-5
  ENTRY-COMMODITY-3
    ENTRY-COMMODITY-3-TAX-1
    ENTRY-COMMODITY-3-TAX-2
    ENTRY-COMMODITY-3-TAX-3
  ENTRY-COMMODITY-4
    ENTRY-COMMODITY-4-TAX-1
    ENTRY-COMMODITY-4-TAX-2
```

Figure 4.4 RESULT OF COMMAND +1S

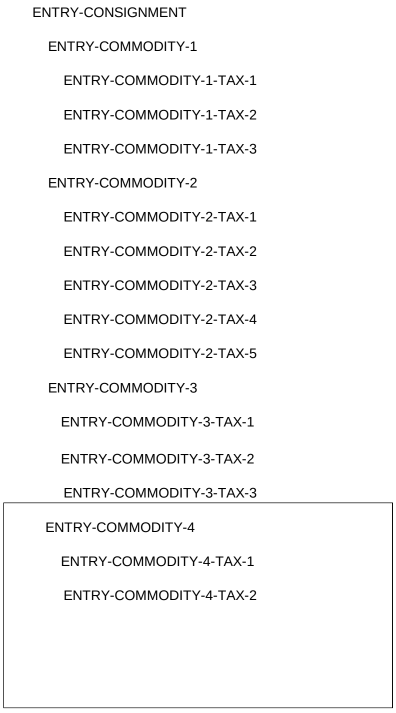
The system scrolls forward one (level 2) segment, bringing ENTRY-COMMODITY-3-TAX-2 into the current display.



```
ENTRY-CONSIGNMENT
  ENTRY-COMMODITY-1
    ENTRY-COMMODITY-1-TAX-1
    ENTRY-COMMODITY-1-TAX-2
    ENTRY-COMMODITY-1-TAX-3
  ENTRY-COMMODITY-2
    ENTRY-COMMODITY-2-TAX-1
    ENTRY-COMMODITY-2-TAX-2
    ENTRY-COMMODITY-2-TAX-3
    ENTRY-COMMODITY-2-TAX-4
    ENTRY-COMMODITY-2-TAX-5
  ENTRY-COMMODITY-3
    ENTRY-COMMODITY-3-TAX-1
    ENTRY-COMMODITY-3-TAX-2
    ENTRY-COMMODITY-3-TAX-3
  ENTRY-COMMODITY-4
    ENTRY-COMMODITY-4-TAX-1
    ENTRY-COMMODITY-4-TAX-2
```

Figure 4.5 RESULT OF COMMAND -1S

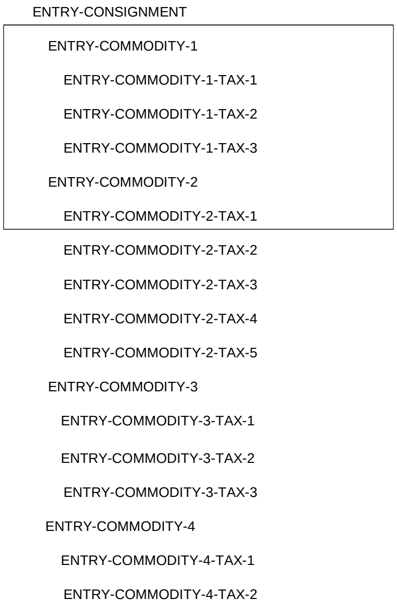
The system scrolls backward one (level 2) segment, bringing ENTRY-COMMODITY-2-TAX-1 into the current display.



```
ENTRY-CONSIGNMENT
  ENTRY-COMMODITY-1
    ENTRY-COMMODITY-1-TAX-1
    ENTRY-COMMODITY-1-TAX-2
    ENTRY-COMMODITY-1-TAX-3
  ENTRY-COMMODITY-2
    ENTRY-COMMODITY-2-TAX-1
    ENTRY-COMMODITY-2-TAX-2
    ENTRY-COMMODITY-2-TAX-3
    ENTRY-COMMODITY-2-TAX-4
    ENTRY-COMMODITY-2-TAX-5
  ENTRY-COMMODITY-3
    ENTRY-COMMODITY-3-TAX-1
    ENTRY-COMMODITY-3-TAX-2
    ENTRY-COMMODITY-3-TAX-3
  ENTRY-COMMODITY-4
    ENTRY-COMMODITY-4-TAX-1
    ENTRY-COMMODITY-4-TAX-2
```

Figure 4.6 RESULT OF COMMAND >2S

The system scrolls forward two (level 1) segments, bringing ENTRY-COMMODITY-4 to the start of the current display.



```
ENTRY-CONSIGNMENT
  ENTRY-COMMODITY-1
    ENTRY-COMMODITY-1-TAX-1
    ENTRY-COMMODITY-1-TAX-2
    ENTRY-COMMODITY-1-TAX-3
  ENTRY-COMMODITY-2
    ENTRY-COMMODITY-2-TAX-1
    ENTRY-COMMODITY-2-TAX-2
    ENTRY-COMMODITY-2-TAX-3
    ENTRY-COMMODITY-2-TAX-4
    ENTRY-COMMODITY-2-TAX-5
  ENTRY-COMMODITY-3
    ENTRY-COMMODITY-3-TAX-1
    ENTRY-COMMODITY-3-TAX-2
    ENTRY-COMMODITY-3-TAX-3
  ENTRY-COMMODITY-4
    ENTRY-COMMODITY-4-TAX-1
    ENTRY-COMMODITY-4-TAX-2
```

Figure 4.7 RESULT OF COMMAND <1S

The system scrolls backward one (level 1) segment, bringing ENTRY-COMMODITY-1 to the start of the current display.

As an example of direct segment positioning, note that the result of the command =4S will always be that illustrated in Figure 4.6 – regardless of the starting point.

4.3.1.4. Multiple Presentations

In a large Display type transaction, for example, there may be many representations of the data within it's Document that it wishes to offer the user at a particular time. In these circumstances separate presentations, ie. 'Display Modes', may be defined for the Document, specifying the segments and fields that are to be included and the protection that is to be applied, and the user may then choose to view those presentations in which he is most interested.

These presentations are sequenced from 1 through 10, with 1 as the initial or default view. The user is able to switch between these different presentations by Action Message (0 through 9 – where 0 maps to mode 10) (see Section 7.) without further involving the application. These actions are cursor sensitive: the nearest segment identified by the cursor position is used to determine the content of the first screen to be displayed in the new presentation.

Further Action Messages allow 'stepping up or down' presentation levels, one at a time (see Section 7.). An attempt to switch or step to a level that does not exist will result in an appropriate Reply Line message being generated; the current presentation remaining unchanged.

(For an example of Multiple Presentations in use the reader should look at the CHIEF Imports transactions LIEV/DEVD).

4.3.2. Segment Handling

In addition to the facilities just described to control the Document window currently on display, the user additionally has facilities to control the actual occurrence of segments within a Document.

The background to this has already been discussed in Section 3.3.2. As the user determines that he requires less or more segments than those currently on display, he may mark a particular segment with his cursor and request that the system delete it or insert additional segments of the same type. (Any unprotected location within the segment is sufficient to identify it uniquely to the system).

The commands are invoked by appropriate Action Messages (see Section 7.), rather than through the Action Box in order that the cursor may be left free to identify the required segment. Three function keys are used for segment insertion – allowing the new occurrence(s) to be inserted either before or after the marked segment or at the end of the segment set.

Where the business requirement exists, certain transactions can be constrained to not allow these facilities, or to enforce that segments are always inserted as the last member of the set regardless of the current cursor position.

The declaration of the presentation rules for each type of segment contained in the Document includes the number of additional segments to be inserted in response to such a request from the user – up to some maximum limit. The new segments are formatted in accordance with the presentation rules for segments of that type. The current page will be re-displayed with the segments inserted at the specified point and the subsequent segments consequently moved down (and possibly off) the page.

Should the user not require to use all of these new segments, there is no need for him explicitly to delete them: the system is able to detect that he has input no data to them. (This situation is no different from that which originally pertained: the user need not have used all of the segments originally on offer. When the Data Object is subsequently presented as a result of a later transaction, only those segments that contain data entered by the user will be displayed).

It will allow insertion up to the maximum number of occurrences defined for the segment. If no more occurrences of the marked segment can be inserted in response to a user's request, then a Reply Line error response is displayed. (In practice, the limits will have been set sufficiently high for this not to occur naturally: a more probable explanation is that the user has marked a non-recurring segment with his cursor!)

4.3.3. Error Control

A number of facilities were described in Section 7. by means of which the user can control the display of Document Report messages; for completeness, these are summarised below:

a. **Next Report**. An Action Box command which causes the Document window to be moved forward to display the next page containing a field (or whole segment) in error. The offending segment is displayed at the top of the new page and the cursor is positioned in the field in error – or within the confirmatory box of the Report if it corresponds to a warning requiring the user's confirmation.

b. **Re-display with Reports**. An Action Box command which causes the current page to be re-displayed with Report messages displayed that may previously have been cancelled.

c. **Refresh Screen**. A function key which causes the system to refresh the current (whole) screen image. The command has a number of uses including:

- to regain a display that may have been lost by local action or corruption. (Note that under certain circumstances – e.g. if SOM has been moved – the system may itself detect that the current screen has become corrupt and display a full screen error message where the user is invited to hit the refresh screen function key);

- for a user to establish the current status of an unattended terminal – in particular to determine whether or not it is reserved for another user or is free for his own use. If free, the user will be invited to sign-on, otherwise he will be informed of its non-availability – in line with Section 3.1.

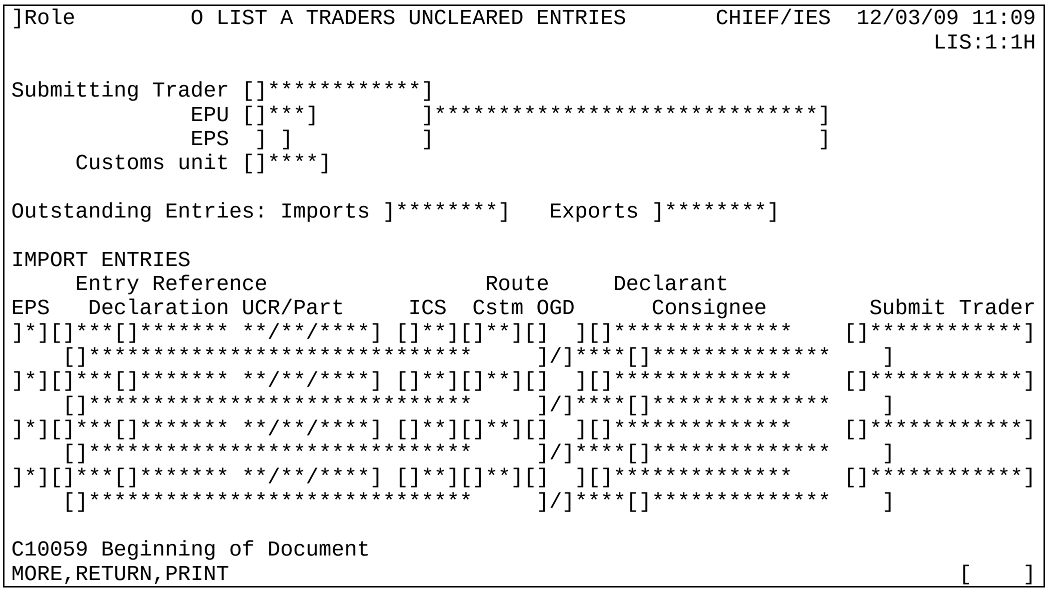
4.4. Downward Selection

Having viewed a screen, for example a list or summary, the user will often wish to expand or seek further information about a particular item on that screen. A facility at the HCI enables the user to initiate a new activity by ‘Downward Selection’ from a field of the Document on display. This causes the appropriate transaction and parameters to be generated and processed.

To activate Downward Selection the cursor is positioned over the item and the appropriate Action Message (see Section 7.) invoked.

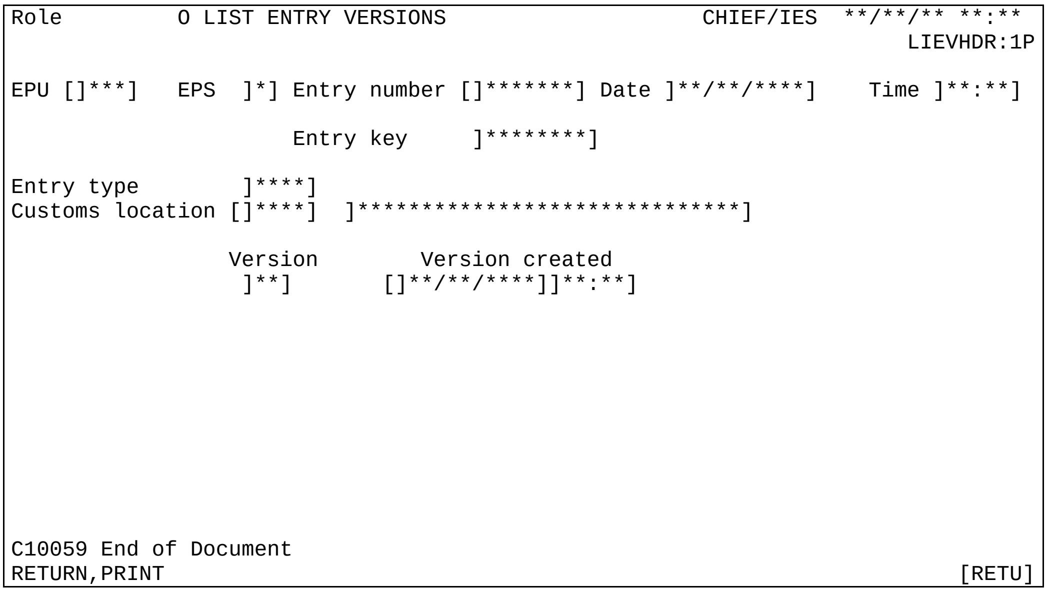
Selection is possible on both protected and unprotected fields. In the former case, an additional ‘start unprotected steady’ marker is placed in front of the field so that it can be unambiguously identified, (through the ICAB-02 protocol), if the cursor is after the start unprotected character and before the next start unprotected character.

Not all fields are selectable in this way and the system generates a warning response to the Reply Line if the user makes an unsupported request.



```
]Role         O LIST A TRADERS UNCLEARED ENTRIES       CHIEF/IES  12/03/09 11:09
                                                                        LIS:1:1H

Submitting Trader []************]
              EPU []***]        ]******************************]
              EPS  ] ]          ]                              ]
     Customs unit []****]

Outstanding Entries: Imports ]********]   Exports ]********]

IMPORT ENTRIES
     Entry Reference                 Route     Declarant
EPS   Declaration UCR/Part     ICS  Cstm OGD      Consignee       Submit Trader
]*][]***[]******* **/**/****] []**][]**][]  ][]**************    []************]
    []******************************     ]/]****[]**************    ]
]*][]***[]******* **/**/****] []**][]**][]  ][]**************    []************]
    []******************************     ]/]****[]**************    ]
]*][]***[]******* **/**/****] []**][]**][]  ][]**************    []************]
    []******************************     ]/]****[]**************    ]
]*][]***[]******* **/**/****] []**][]**][]  ][]**************    []************]
    []******************************     ]/]****[]**************    ]

C10059 Beginning of Document
MORE,RETURN,PRINT                                                         [    ]
```

Figure 4.8 EXAMPLE OF SELECTABLE DISPLAY



```
Role         O LIST ENTRY VERSIONS                    CHIEF/IES  **/**/** **:**
                                                                      LIEVHDR:1P

EPU []***]   EPS  ]*] Entry number []*******] Date ]**/**/****]    Time ]**:**]

                      Entry key     ]********]

Entry type        ]****]
Customs location []****]  ]******************************]

                 Version        Version created
                  ]**]       []**/**/****]]**:**]











C10059 End of Document
RETURN,PRINT                                                              [RETU]
```

Figure 4.9 EXAMPLE OF THE RESULT OF DOWNWARD SELECTION

Downward Selection is an example of a nested transaction (see Section 7.) on completion of which Return may be used to regain the original display. Downward Selection may also be actioned from a transaction that was itself entered via Downward Selection.

4.5. System Messages

A number of circumstances within CHIEF give rise to the need for a short message to be displayed to one or more terminal operators for their information or as a request for their action.

It is undesirable that such messages should be output in an uncontrolled manner – the user could be confused by a rapid succession of messages: worse, their unsolicited display would cause the cursor to be re-located and thus annoyingly disturb any data entry in which he was currently engaged.

Responsibility for the display of system messages to Trade users lies with the CSPs – from the message text and addressing information output by CHIEF in the form of an EDI message; it is thus beyond the scope of the CHIEF HCI.

For Customs users the Action Line is used to indicate the existence of a System Message, with **‘SysMsg’** included within the set of available next actions. By using the appropriate action code the user may request that the message be displayed on the Reply Line.

If this is the only message awaiting the user’s attention then the prompt is immediately cleared as a result of the message being displayed and the cursor replaced as it was positioned on the last output to the user. If further messages exist, the prompt remains on display and the messages can be displayed in sequence by repeatedly invoking the same function.

The message itself remains on display until the Reply Line is naturally over-written as a result of the user's next action.

The system message prompt is always incorporated into the user's natural dialogue: it is not output other than as part of the system's reply to a transaction input. Should the user be inactive for a prolonged period, then any system messages will be queued pending his next input – possibly a Refresh Screen to regain the display following a security 'clear screen' (see Section 3.1.2.2.).

System messages are queued (and displayed) in the sequence that they are generated by the system: the contents of the queue are lost as a result of the user requesting a full sign-off.

4.6. Help

The CHIEF system holds Help information relating to a variety of topics – ranging from descriptions of its various facilities down to the meaning of the individual fields of a Document.

Transactions are provided through which this information may be browsed and maintained.

Access to Help information is also provided on the basis of the user's current transaction context. Thus, for example, assistance regarding an (input) field currently on display may be obtained by positioning the cursor in the field and invoking Help through an Action Message (see Section 7.). The system responds with a display of the Help information associated with the field. If this exceeds the capacity of a page, the user can browse its several pages in the normal way before indicating his intention to return to the original transaction by invoking Return (see Section 4.2.).

It is possible to structure Help so that relationships can be established between topics. Any topic may be nominated as the starting point with subsequent exploration within the hierarchy of related topics. This is achieved by using Downward Selection (see Section 4.4.) in the appropriate manner.

4.7. Restore

As described in Section 4.2., when a user elects to terminate his transaction by storing the current Document, the system automatically adds an entry to his queue of all such stored Documents.

A transaction is provided for the user to list a summary of his Documents currently stored. As a result of Downward Selection from an entry, the transaction which originally stored the Document is automatically restored – allowing the user to continue the original dialogue, including further amendments to the Document as required.

The restored transaction can be terminated (as before) by any of Abort, Cancel, Commit or Store. Return may then be used to re-display the queued Documents and a further Return to terminate the List transaction.

4.8. Hardcopy

A user (other than a DTI user – see Section 3.) may request that the system produce a printed image of his current Document by means of a corresponding Action Box command.

The command is not valid in all circumstances: for example, it is not permitted to produce a hardcopy output of data that has not yet been validated by the system. Most transactions however terminate with a protected Document on display and may be printed in this form. (This applies equally to transactions terminated by Commit or Store; in this latter case therefore, the user is able to obtain a hardcopy image of the Document including its associated error reports).

Note that some intelligent terminal systems may support their own local facility to produce hardcopy of the current screen contents.

4.9. Queueing

There are several business and system circumstances under which an event occurs that requires the subsequent attention of a user. Some of these can simply be notified to the user as a System Message (see Section 4.5.); others demand a more formal regime.

The system supports a number of Queues – each defined for a specific functional purpose and associated either with a nominated role or declared for public use. CHIEF applications may append an item to a particular Queue. Facilities are provided to display a summary of its contents from which, with Downward Selection, the user is able to display and potentially manipulate details of the underlying objects.

Some examples will help to illustrate the point:

a. The queue of Entries associated with a particular role which have been stored with Document errors (see Section 4.7.) and thus require to be restored and corrected.

b. The queue of Data Objects which are updated under ‘2-Stage Release’ operation and thus require to be confirmed (see Section 5.).

c. The queues of Export reminders which require to be followed up.

d. The queues of outstanding hardcopy or housekeeping activities.

END OF SECTION 4

5. DATABASE UPDATE AND DISPLAY

This Style Guide is dedicated to the objective of presenting each user with a coherent and effective operating method across the full range of facilities offered by the system. Earlier sections have described the fundamentals of the HCI and identified those common facilities that are generally available to the user at any time; this section is concerned with establishing the standards to which each individual transaction should conform in its interactions with the user.

Essentially, this involves the specification of generic profiles for the dialogues associated with each of the basic types of transaction of CHIEF. By conforming to these profiles, individual transactions naturally adopt their characteristics and are readily recognised by the user as belonging to the same ‘family’.

Earlier sections have revealed the considerable degree of flexibility that CHIEF offers the user in conducting his dialogue with the system. It would not be possible to legislate here for all possible combinations of circumstance and the generic profiles therefore exclude a number of considerations including:

- terminal functions;
- security factors;
- error conditions;
- common facilities.

5.1. Command Codes

Transactions are generally designed to operate upon only one Data Object at a time – though this does not of course inhibit their consequential updating of and cross referencing to other Data Objects. The type of Data Object being operated upon is typically reflected in the primary command code by which the transaction is invoked: the object’s individual identity by means of parameter(s).

Command codes are therefore of up to 4 characters – the first identifying the transaction type, the remainder the Data Object type.

5.2. Transaction Types

There are five basic types of interactive transaction recognised by CHIEF:

a. Insert (I): to create a new Data Object (for example, an Entry or Tariff) but not to add data to an existing Data Object – that is Amend.

b. Amend (A): to change details relating to an existing Data Object – including the addition of new data (e.g. additional Commodity segments for a Consignment).

c. Display (D): to display the details of an existing Data Object.

d. Delete (X): to remove a Data Object from operational use – though not necessarily remove from the database (e.g. it may still be available for display as it was at a date-time before deletion).

e. List (L): to provide a sequenced list of Data Objects satisfying some specified criteria.

f. Query (Q): to initiate a background report transaction, (type ‘R’), with a valid set of search criteria.

Transactions of type I, A and X are classed as update transactions, D, L and Q as displays.

There are two further transactions recognised by CHIEF which occur within a non-interactive environment:

g. Batch (B) : to run a batch process.

h. Report (R) : to produce a report.

5.3. Parameters

The manner in which the user can declare the parameters upon which he wishes his transaction to operate has already been described in Section 3.2.1.: they may either be input initially with the command code or supplied subsequently as fields of the Document associated with the transaction.

Display and Delete transactions do not naturally have a phase involving the user input of data: it is more natural therefore in these cases for the user to identify the Data Object as a parameter at the time of the initial command. If he does not, however, he will be asked to input the values by means of the parameter fields of the associated Document as an additional interaction.

5.4. Insert

In response to the user’s Insert command, the system displays the associated Document through whose fields he is to input the data that is to be associated with the Data Object. The system offers sensible default values to the user wherever possible – though these may be overridden at the user’s discretion.

For most ‘Referential’ data-objects an initial parameter screen is displayed which allows the data-object’s parameters to be entered. After successful validation by the Application the rest of the Document is displayed unprotected for user input with the parameter field(s) displayed protected.

For other data-objects, e.g. Entries, then initially all input fields of the Document are displayed unprotected. In most cases, one of these fields corresponds to what will become the Data Object’s primary key – though not always (e.g. for a DTI Entry the key is allocated by the system). As with any other field, it will be subject to type and range checks; it will also be verified for required uniqueness at the time that the user requests that his Document be Validated (or Committed) – though it will remain unprotected (and thus amendable) right up to the final phase of the Insert transaction.

In both cases the transaction terminates with the user asking either to Store his Document or to Commit the Data Object. These commands are sufficient confirmation of the user’s intention not to require a further explicit confirmatory phase.

5.5. Amend

An Amend transaction follows the same broad dialogue as Insert – except that the system response to the initial command is not of an essentially empty Document but rather of one that reflects the current state of the Data Object. Since the user may not change the primary key of the Data Object, that field at least is protected; others may also be protected where the business requirement is that they may not be changed.

The system verifies the user's authority to change the Data Object during this initial phase and 'reserves' it for his exclusive amendment.

It is possible that the user is amending a Data Object following a previous attempt that was terminated by storing the amended Document (it is immaterial whether or not the earlier attempt was by the same or a different user, or whether or not the current user was aware of the earlier attempt when he initiated the transaction). In such circumstances, it is the stored Document image that is now displayed for Amendment – together with an advisory message on the Reply Line. The user may elect either to continue his amendment from this state or instead to Revert (see Section 4.) to the previously committed version of the Data Object as a better basis for his amendment.

5.6. Display

The Data Object will be displayed as a fully protected Document. If the transaction is nested (e.g. Help) then the user will need to invoke Return (see Section 4.2.) in order to terminate it and continue with his original activity.

5.7. Delete

The system does not immediately delete a Data Object in response to the user's command but rather displays it (as a fully protected Document) and requests that he should confirm his intention. (The system will also have verified the user's authority to carry out the deletion).

The request is issued as a Reply Line message to which 'Commit' is taken as confirmation. If the user decides that he does not wish to delete the Data Object after all, then he should Abort the transaction (see Section 4.). The transaction terminates naturally in either case.

There are several business interpretations for Delete according to the type of the Data Object and its current status (e.g. set status to cancelled). Where a particular implementation is visible to the user the details are given in the User Guides (see Reference [5]).

5.8. 2-Stage Release

Certain types of data object are considered to be particularly sensitive – e.g. that Reference data which is fundamental to the processing of all Entries – and changes to these objects are therefore subject to "2-Stage Release".

2-Stage Release applies equally to Insert, Amend and Delete transaction types. It involves the input of changes by one user with separate confirmation by another before they become effective. (Note that the second (supervisory) user often has authority to make the whole change without separate confirmation. In such cases the dialogue is identical to a normal Insert, Amend or Delete transaction.)

As a result of the first (clerical) user's input, the Document reflecting the intended changes may be 'stored' privately for subsequent reworking, or 'committed' to a queue of other changes awaiting confirmation.

To confirm the change, the supervisor operates from the queue of changes pending confirmation, restoring each in turn as described in Section 4. and taking the Commit action, possibly making amendments to the data during the process.

5.9. Secondary Transactions

The above descriptions of generic dialogues relate to the primary forms of the basic transaction types of CHIEF: invoked as free-standing transactions to operate upon a nominated Data Object.

Section 3.2.3. however introduced the concept of transaction sequences: the ability for a user to 'chain' one transaction from another:

- to operate upon the same Data Object;
- to minimise the keying of information that is little changed between transactions operating upon different instances of the same type of Data Object.

To the user, these facilities appear as commands that may be invoked through the Action Box following the final phase of a transaction. Some examples will help to clarify the options:

a. Having Displayed a particular Data Object, the user can elect to Amend or Delete it by entering the corresponding command code via the Action Box: he has no need to identify the Data Object since this is already known to the system. The Document that the user was viewing as a result of his earlier Display transaction will be refreshed – lest the Data Object has since been updated. It will also be presented in the protection mode appropriate to the new transaction.

b. Each of Insert, Amend, Display and Delete terminates with a protected Document on view: the user is able to Insert another instance of the same type of Data Object by entering the appropriate command code via the Action Box. As a result, the Document is re-presented with all of its input fields unprotected; fields that correspond to parameter fields will have been cleared, others will be unchanged.

(Note that, though the system may make the user the offer of such secondary transactions, there is no implied guarantee that he will be permitted to execute them – it is possible that he lacks the necessary authority or that the condition of the Data Object itself has changed since the initial transaction).

5.10. List

List operates as a display transaction – though its output is not of an individual Data Object but rather of a list of those that satisfy the criteria specified by the user.

Data Objects are typically listed as individual segments of a subordinate set of the Document – displayed below a prefix block summarising both the selection criteria and the content of the list. Each segment identifies a Data Object which may be selected for secondary processing by ‘Downward Selecting’ the object (see Section 4.4.).

The List transaction definition identifies the default secondary transaction (this may have been amended by an earlier application process), and having selected the required Data Object, CHIEF invokes the transaction with appropriate parameters.

5.11. Data Object Generations

None of the above descriptions of generic dialogues takes account of the possible existence of more than one Generation of a Data Object. Many Data Objects may have historic and current generations, some may also have future generations.

The majority of operational users need not be aware of such complexities: the system will ensure that their view is only of Data Objects that are current and the generic dialogues therefore apply as documented. Other users however are concerned with such distinctions:

a. Transactions which maintain Reference data generally permit amendment – and thus the creation of a new generation – to be based upon a nominated previous generation of the data object.

b. Some transactions provide a summary list of the generations of a data object, with downward selection to a particular generation to display the object as at that time.

c. Audit transactions similarly provide a summary list of the generations of a data object, but are orientated towards the display of the ‘fingerprint’ information – the “who” and “when” of changes. The business values of the object – the “what” – may be obtained by appropriate downward selection.

END OF SECTION 5

6. HARDCOPY/PRINTING

As noted in Section 1., CHIEF handles differently reports destined for Customs and Trade users.

For Customs, reports are presented directly by CHIEF using Fujitsu's ICAW-02 print syntax. For the Trade however, reports are output as EDI messages, with presentation the responsibility of the CSPs. In either case, the standards defined in this section should be used.

6.1. Paper/Frame Size

Customs are committed to using standard 80 column wide character printers at all print locations. All reports therefore should be designed for A4/8 inch size paper, except where this is not achievable or there is definite requirement for the larger format, e.g. Bulk reports for central production and subsequent distribution – which may be designed around a 132 column layout.

All print layouts must therefore be designed in 'frames' that are 80 columns by 66 lines, or 132 columns by 66 lines. No other frame sizes will be supported.

Many printed reports are retained on CHIEF for later on-screen browsing by permitted customs staff whenever they require. For this reason, an 80 column print layout has obvious advantages over 132 column.

Reports which are produced on Trade printers and are also copied to a Customs unit as formatted data (ICAW) should exclusively be designed in 80 column frame size, so that similarity between the Trade and Customs report layouts can be preserved. Operational (Management Information) reports may use either frame size but should only use the wider format when:

- multiple columns are required on the report which cannot be compressed into 80 columns and,

- the report is destined for printing at a location which is exclusively reserved for similar reports (thus avoiding the need to switch the printer configuration between 80 and 132 column modes).

6.2. Layout

The recommended formats for reports are presented using techniques and conventions described below. The example layouts are often indicative of the presentation for a family of reports and may include fields that are only output to Customs or are not included for a particular entry type or method of declaration.

For reports to be printed at outstation locations, the formats are designed for printing at 10 characters per inch and 6 lines per inch. To allow adequate white space at the edges of a page, the print area will be 64 lines of 74 characters.

For an A4 page (approx 70 lines by 82 columns) this leaves the following white space:

top	0.5 inch (3 lines)

left	0.6 inch (6 characters)
right	0.2 inch (2 characters)
bottom	0.5 inch (3 lines)

For 11 inch by 8 inch stationery the white space is:

top	1/3 inch (2 lines)
left	0.5 inch (5 characters)
right	0.1 inch (1 character)
bottom	none

Each page has a fixed header and footer layout. Blocks of information (e.g. an item) are to be output on the same page. Within this constraint, each page should be filled.

A schematic local report layout is shown in Fig 6.1. The formatting requirements are specified by characters in a control column to the right of the page layout, as follows:

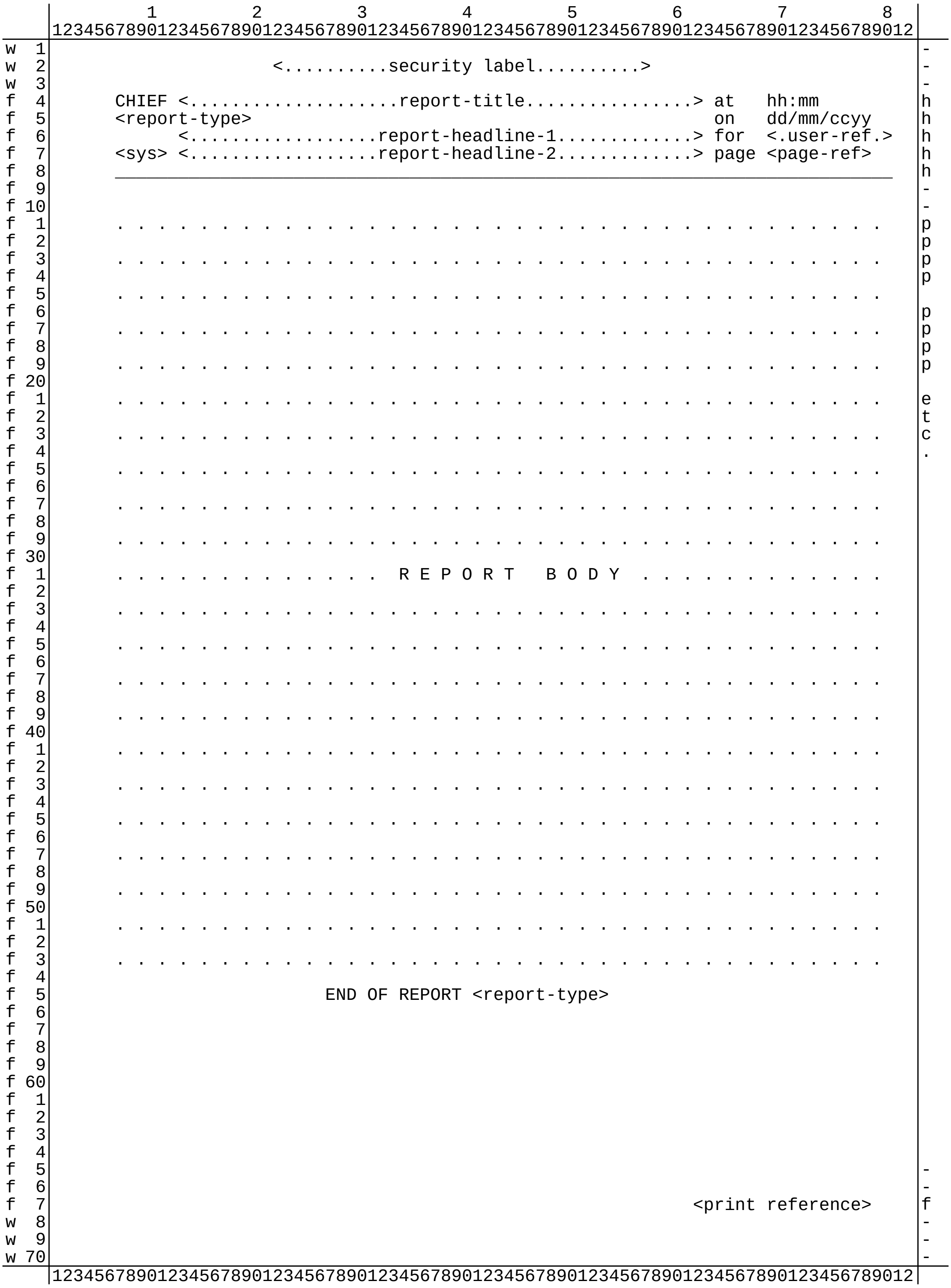
‘h’ header line;

‘f’ footer line;

‘-’ mandatory blank line between groups;

‘p’ block of lines to be output on the same page;

‘t’ title to be repeated on the next page before the next occurrence of the associated block of lines.



```
    |         1         2         3         4         5         6         7         8  |
    |1234567890123456789012345678901234567890123456789012345678901234567890123456789012|
w  1|                                                                                  |-
w  2|                     <.........security label.........>                           |-
w  3|                                                                                  |-
f  4|      CHIEF <....................report-title................> at   hh:mm         |h
f  5|      <report-type>                                            on   dd/mm/ccyy    |h
f  6|            <..................report-headline-1............> for  <.user-ref.>  |h
f  7|      <sys> <..................report-headline-2............> page <page-ref>    |h
f  8|      ──────────────────────────────────────────────────────────────────────────  |h
f  9|                                                                                  |-
f 10|                                                                                  |-
f  1|      . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .   |p
f  2|                                                                                  |p
f  3|      . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .   |p
f  4|                                                                                  |p
f  5|      . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .   |
f  6|                                                                                  |p
f  7|      . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .   |p
f  8|                                                                                  |p
f  9|      . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .   |p
f 20|                                                                                  |
f  1|      . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .   |e
f  2|                                                                                  |t
f  3|      . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .   |c
f  4|                                                                                  |.
f  5|      . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .   |
f  6|                                                                                  |
f  7|      . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .   |
f  8|                                                                                  |
f  9|      . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .   |
f 30|                                                                                  |
f  1|      . . . . . . . . . . . . .  R E P O R T   B O D Y  . . . . . . . . . . . .   |
f  2|                                                                                  |
f  3|      . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .   |
f  4|                                                                                  |
f  5|      . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .   |
f  6|                                                                                  |
f  7|      . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .   |
f  8|                                                                                  |
f  9|      . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .   |
f 40|                                                                                  |
f  1|      . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .   |
f  2|                                                                                  |
f  3|      . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .   |
f  4|                                                                                  |
f  5|      . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .   |
f  6|                                                                                  |
f  7|      . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .   |
f  8|                                                                                  |
f  9|      . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .   |
f 50|                                                                                  |
f  1|      . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .   |
f  2|                                                                                  |
f  3|      . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .   |
f  4|                                                                                  |
f  5|                          END OF REPORT <report-type>                             |
f  6|                                                                                  |
f  7|                                                                                  |
f  8|                                                                                  |
f  9|                                                                                  |
f 60|                                                                                  |
f  1|                                                                                  |
f  2|                                                                                  |
f  3|                                                                                  |
f  4|                                                                                  |
f  5|                                                                                  |-
f  6|                                                                                  |-
f  7|                                                             <print reference>    |f
w  8|                                                                                  |-
w  9|                                                                                  |-
w 70|                                                                                  |-
    |1234567890123456789012345678901234567890123456789012345678901234567890123456789012|
```

Figure 6.1 SCHEMATIC LOCAL REPORT LAYOUT

The following fields are generated by the formatting routine:

CHIEF The System Identity.

hh:mm The document time.

dd/mm/ccyy The document date.

<page ref> The page reference is used to number the pages of a report from 1.

The end of a document is identified by printing:

END OF REPORT <report-type>

after the last line of text.

In addition the last page of the document can be identified by 'last' following the page number.

<print reference> The print driver can add a reference for the output document. This could be used to ensure all prints are output (e.g. sequential numbering of documents on the printer) or to enable local reprints (e.g. from a spool file) to be generated.

<print reference> can be below the last printed line on the page rather than fixed position at the bottom of the page.

<security label> Text strings printed in the <security label> depend upon the Service Name **and** the Integrity. The following table defines the strings to be output.

NB. Only operational reports from the Live CIES service will have a blank <security label>.

Service Name	Integrity	Security Label
CHIEF/CIES	Operational	`blank`
CHIEF/CIES	Training	'TRAINING SPECIMEN'
aaaaaaaaaa	Operational	'aaaaaaaaaa TEST SPECIMEN'
aaaaaaaaaa	Training	'aaaaaaaaaa TRAINING SPECIMEN'
<null>	Operational	'UNKNOWN SERVICE TEST SPECIMEN'
<null>	Operational	'UNKNOWN SERVICE TRAINING SPECIMEN'

e.g.

CHIEF/HMUT	Operational	'CHIEF/HMUT TEST SPECIMEN'

The report body should be formatted to be easily readable, ie. uncluttered, information should be structured in discernible blocks and columns where appropriate, data presented in columns correctly aligned. Given that many of the reports are viewable on a terminal then the standards applying to screen presentation design should be followed where practicable.

Column headings should be meaningful, appear in lower case with upper case initial letters and align with the appropriate column.

Block headings should similarly be meaningful and appear in upper case. They will generally appear on an otherwise unoccupied line, and should be preceded by at least one blank line.

Layouts for 132 column reports follow similar principles as for 80 column design for header, body and footer content, though obviously allow for greater space and flexibility in the design of columns and descriptive report text.

The following variable fields are generated by the Application:

<report-headlines> These fields can supply additional header information when required, e.g. Entry No/Version No, Consignment.

<report-title> This field is the title of the report, centralised, e.g. ‘CUSTOMS EXAMINATION ADVICE’.

<report-type> This field indicates the report type identifier of the report, e.g. ‘E1’.

<sys> Identifies Inventory system; the system in which the consignment identified by ‘consignment reference’ is controlled.

<user-ref> This field provides some form of user/agent/location reference.

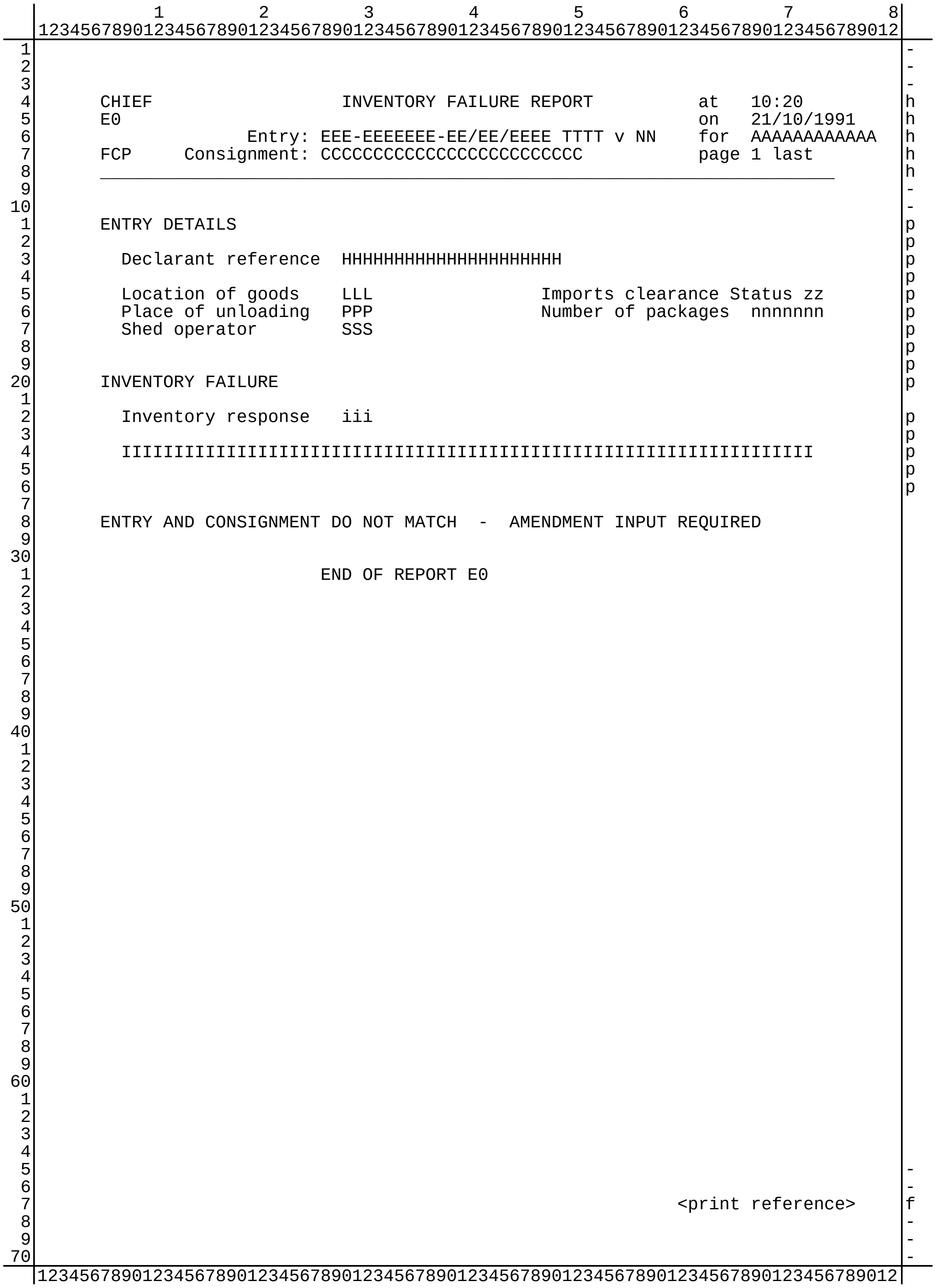
Figs 6.2 and 6.3 show examples of Import report formats.

Many reports contain optional information and repeated information (e.g. many items). The example formats show column positions but not line positions on a page – the backdrop is not generated for optional fields that are not present and any blank lines which result are removed.

The position of the variable data is indicated on a format by a character filling the space. Where the resulting field will have structure (e.g. ‘/’ within a date), this is shown but such structure may well be in the data and not have to be produced by the formatting routine.

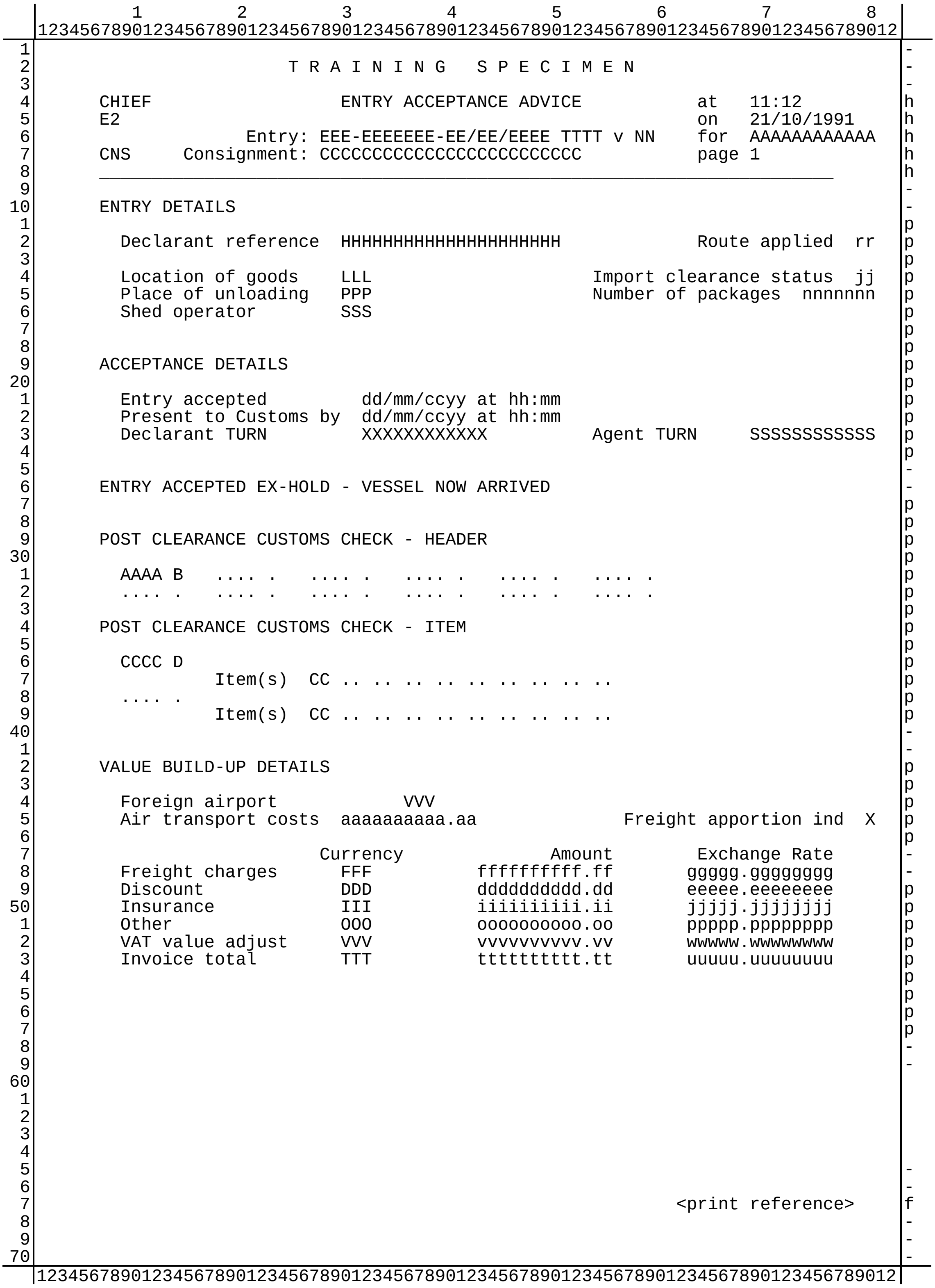
Repetition of data elements is indicated by filling the display positions with ‘.’s.

Variable length character elements are space filled to the right; numeric values are spaced filled on the left, particularly maintaining decimal point alignment.



```
                                                                                   -
                                                                                   -
                                                                                   -
      CHIEF                  INVENTORY FAILURE REPORT          at   10:20          h
      E0                                                       on   21/10/1991     h
                    Entry: EEE-EEEEEEE-EE/EE/EEEE TTTT v NN    for  AAAAAAAAAAAA   h
      FCP     Consignment: CCCCCCCCCCCCCCCCCCCCCCCCC           page 1 last         h
      ______________________________________________________________________       h
                                                                                   -
                                                                                   -
      ENTRY DETAILS                                                                p
                                                                                   p
        Declarant reference  HHHHHHHHHHHHHHHHHHHHH                                 p
                                                                                   p
        Location of goods    LLL               Imports clearance Status zz         p
        Place of unloading   PPP               Number of packages  nnnnnnn         p
        Shed operator        SSS                                                   p
                                                                                   p
                                                                                   p
      INVENTORY FAILURE                                                            p

        Inventory response   iii                                                   p
                                                                                   p
        IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII         p
                                                                                   p
                                                                                   p

      ENTRY AND CONSIGNMENT DO NOT MATCH  -  AMENDMENT INPUT REQUIRED


                           END OF REPORT E0

































                                                                                   -
                                                                                   -
                                                             <print reference>     f
                                                                                   -
                                                                                   -
                                                                                   -
```

Figure 6.2 INVENTORY FAILURE REPORT (E0)



```
                                                                                   -
                        T R A I N I N G   S P E C I M E N                          -
                                                                                   -
      CHIEF                  ENTRY ACCEPTANCE ADVICE           at   11:12          h
      E2                                                       on   21/10/1991     h
                    Entry: EEE-EEEEEEE-EE/EE/EEEE TTTT v NN    for  AAAAAAAAAAAA   h
      CNS     Consignment: CCCCCCCCCCCCCCCCCCCCCCCCC           page 1              h
      ______________________________________________________________________       h
                                                                                   -
      ENTRY DETAILS                                                                -
                                                                                   p
        Declarant reference  HHHHHHHHHHHHHHHHHHHHH             Route applied  rr   p
                                                                                   p
        Location of goods    LLL                     Import clearance status  jj   p
        Place of unloading   PPP                     Number of packages  nnnnnnn   p
        Shed operator        SSS                                                   p
                                                                                   p
                                                                                   p
      ACCEPTANCE DETAILS                                                           p
                                                                                   p
        Entry accepted         dd/mm/ccyy at hh:mm                                 p
        Present to Customs by  dd/mm/ccyy at hh:mm                                 p
        Declarant TURN         XXXXXXXXXXXX          Agent TURN     SSSSSSSSSSSS   p
                                                                                   p
                                                                                   -
      ENTRY ACCEPTED EX-HOLD - VESSEL NOW ARRIVED                                  -
                                                                                   p
                                                                                   p
      POST CLEARANCE CUSTOMS CHECK - HEADER                                        p
                                                                                   p
        AAAA B   .... .   .... .   .... .   .... .   .... .                        p
        .... .   .... .   .... .   .... .   .... .   .... .                        p
                                                                                   p
      POST CLEARANCE CUSTOMS CHECK - ITEM                                          p
                                                                                   p
        CCCC D                                                                     p
                 Item(s)  CC .. .. .. .. .. .. .. .. ..                            p
        .... .                                                                     p
                 Item(s)  CC .. .. .. .. .. .. .. .. ..                            p
                                                                                   -
                                                                                   -
      VALUE BUILD-UP DETAILS                                                       p
                                                                                   p
        Foreign airport            VVV                                             p
        Air transport costs  aaaaaaaaaa.aa              Freight apportion ind  X   p
                                                                                   p
                           Currency              Amount        Exchange Rate       -
        Freight charges      FFF          ffffffffff.ff       ggggg.gggggggg       -
        Discount             DDD          dddddddddd.dd       eeeee.eeeeeeee       p
        Insurance            III          iiiiiiiiii.ii       jjjjj.jjjjjjjj       p
        Other                OOO          oooooooooo.oo       ppppp.pppppppp       p
        VAT value adjust     VVV          vvvvvvvvvv.vv       wwwww.wwwwwwww       p
        Invoice total        TTT          tttttttttt.tt       uuuuu.uuuuuuuu       p
                                                                                   p
                                                                                   p
                                                                                   p
                                                                                   p
                                                                                   -
                                                                                   -





                                                                                   -
                                                                                   -
                                                             <print reference>     f
                                                                                   -
                                                                                   -
                                                                                   -
```

Figure 6.3 ENTRY ACCEPTANCE ADVICE (E2, E2AMD, E2XH, E2R)

END OF SECTION 6

7. ACTION MESSAGES AND CODES

This section defines the action messages and codes that are associated with the various common facilities of Sections 4. and 5. As explained in Section 3.2.2., these are prime candidates for assignment to Function keys – so that the corresponding facilities may be simply invoked by a single key depression.

7.1. Action Messages

Action messages are part of the ICAB-02 syntax; as specified in Reference [4], they consist of ESC followed by a single character identifying the required action. Figure 7.1 defines the characters recognised by CHIEF.

Character	Facility	Section Reference
A	Insert Segment After	4.3.2. Segment Handling
B	Insert Segment Before	4.3.2. Segment Handling
D	Delete Segment	4.3.2. Segment Handling
E	Insert Segment at end of set	4.3.2. Segment Handling
H	Help	4.6. Help
P (1)	Refresh Screen	4.3.3. Error Control
Q (1)	Abort	4.2. Transaction Control
R (1)	Return	4.2. Transaction Control
S	Downward Select	4.4. Downward Selection
X	Exit	4.2. Transaction Control
0-9	Switch to alternate Presentation	4.3.1.4. Multiple Presentations
+	Step up one Presentation level	4.3.1.4. Multiple Presentations
-	Step down one Presentation level	4.3.1.4. Multiple Presentations

Figure 7.1 ACTION MESSAGES

Notes:

(1) All action messages incur screen content validation except those marked (1). The basic rule is that if the action message is cursor sensitive then screen validation is performed.

7.2. Action Codes

Action codes do not form part of the ICAB-02 syntax: rather they are defined character sequences input via the CHIEF Action Box as outlined in Section 3.2.2. Figure 7.2 defines the codes recognised by CHIEF.

Code	Facility	Section Reference
ABOR	Abort	4.2. Transaction Control
CANC	Cancel	4.2. Transaction Control
COMM	Commit	4.2. Transaction Control
E (1)	Next Report	4.3.3. Error Control
EXIT	Exit	4.2. Transaction Control
M (2)	Re-display with Reports	4.3. Document Control
P (2)	Paging	4.3.1. Display Windows
PRIN	Print Document	4.8. Hardcopy
RETU	Return	4.2. Transaction Control
REVE	Revert	4.2. Transaction Control
S (3)	Scrolling	4.3.1. Display Windows
SIGN	Sign-Off	3.1.2. Signing-Off
STOR	Store	4.2. Transaction Control
SYSM	System Message	4.5. System Messages
VALI	Validate	4.2. Transaction Control

Figure 7.2 ACTION CODES

Notes:

(1) The code must be prefixed by a symbol to qualify the direction in which the Document should be scanned to display the next Report:

+ forwards from the current position (ie Next)

- backwards from the current position (ie Prior)

> last in Document

< first in Document

(2) The code must be prefixed by '+' or '-' to switch on and off the display of Reports; the effect of the command persists for the duration of the user's current session. The code may be further qualified by a single digit suffix to control the level at which it is to operate:

1 Acknowledged warnings

2 Primary validation errors

3 Secondary validation errors

4 Warnings not requiring acknowledgment

5 Warnings requiring acknowledgment

6 Comments

If no suffix is specified, then all but level 5 are assumed.

The default settings for these levels, which may be reverted to by prefixing the code with ‘=‘, are as follows:

1	ON
2	OFF
3	ON
4	ON
5	ON
6	ON

(3) The “Direction” and “Amount” prefixes allowed with the scrolling and paging codes are specified in Section 4.3.1.

END OF SECTION 7

8. GLOSSARY AND REFERENCES

8.1. Glossary

See USM 102 – CHIEF GLOSSARY AND ABBREVIATIONS

8.2. References

Ref No.	Title	Document reference
1.	TIS: OVERVIEW	DES 110
2.	TIS : ELECTRONIC DATA INTERCHANGE (EDI) SPECIFICATION	DES 150
3.	TIS : SYSTEM CONNECTION AND SESSION CONTROL	DES 111
4.	NOT USED	
5.	CHIEF GENERAL CONCEPTS USER GUIDE	USM 101

END OF SECTION 8

9. DOCUMENT CONTROL

9.1. Document History

Issue No.	Date of Change	IC No.	Details of changes
3.2	20/10/95		Incorporates further minor changes (screen layout sizes) to facilitate conversion to Electronic Documentation.
3.3	10/08/2001		Conversion to Word97. Minor corrections and clarifications.
3.4	13/05/2009		Changes as sidelined to bring document up to date and consistent with othe documents.
3.5	07/12/2009		Removed BT logo and BT specific details

9.2. Revision Record

Revision Number	Date	Name	Signature

The above table is to be used for recording the incorporation of minor revisions into the document; that is, revisions issued as changed pages only. This page must be retained in the document until such time as the complete document is re-issued.

9.3. Configuration Management

9.3.1. Document Configuration

a) Title:	TIS : HUMAN COMPUTER INTERFACE (HCI) GUIDE
b) Reference:	DES 214
c) Privacy marking:	X<>
d) Status:	Agreed for Use
e) Owner	Jenny Arentsen
f) Change Authority:	CHIEF Document Controller
g) Location of master copy: **Paper:** **Electronic:**	 CHIEF Library System: http://aspireportal/sites/CHIEFTRANS/Knowledge%20Management%20%20Transfer Directory: \Redocumentation Project\TIS\ Filename: DES214 - HCI Guide.doc Format: Word 2003
h) Suggested Distribution:	Project Library HMRC for onward distribution to the Trade

9.3.2. Document Signatories

Approver: **Signature:** **Name:**	 Jenny Arentsen	**Author:** **Signature:** **Name:**	 Pradeep Agarwal
Date :		**Date :**	

END OF DOCUMENT