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OVERVIEW.

WHAT IS IT ?

The ULD Management System, as the name implies, is an automated tracking and control system designed to replace the manual procedures currently followed by Airlines to keep track of their stock of Unit Load Devices (ULD).

WHY DO WE NEED IT ?

An ever-increasing number of Airlines are using ULD equipment as an easy and efficient way to move freight on their aircraft. As a result, a need for accurate control of the movements of these units exists within the industry.

From a purely financial point of view, a stock of ULDs forms a valuable part of an Airline's assets and the loss of a unit creates expenditure which Airlines can well do without. Revenue generated by demurrage charges, but not collected owing to poor tracking of ULD transfers, also needs to be protected as a valuable source of income.

Operationally, having the right units available at the right time allows the Airline to offer maximum service to its customers.

SYSTEM FUNCTIONALITY.

ULD HISTORY

The ULD Management System is designed to operate either as a "stand-alone" function or in conjunction with the Cargo System. It allows the Airline Control Centre (ACC) and Mechanised Stations to update the database by means of mechanised CRT inputs, and has the ability to receive and interpret Teletype Messages in IATA Cargo IMP format from Non-Mechanised Stations.

This data, whether in input format or TTY format, will cover all aspects of ULD movements and will update the most important record in the system which is the ULD History.

The History record consists of a screen display listing all valid movements made by a unit. Should the logical sequence of movements be disrupted, the system will place a warning message in the History display to indicate that there is an incompatibility present. The History in question will also be placed on queue by the system to await ACC action.

Each individual unit has its own History which will record and display all the movements of that unit. Compatible movement pairs are as folllows :

Onload/Offload
The loading onto a flight, or unloading from a flight, of a unit.

Transfer In/Out
The transfer of a unit to another Airline from the Host Airline, or the transfer of a unit from another Airline to the Host Airline.

Repair In/Out
The transfer of a unit to repair or the return of a unit from repair.

Lost/Found
The recording of a unit as either being lost (untraceable) or found again after having been declared lost.

Serviceable/Unserviceable
The recording of a unit as being unserviceable, therefore not fit for the carriage of freight, or serviceable again after a possible repair.
The first three movement pairs mentioned above can be communicated to the system by non-automated stations through the following Teletypes respectively - UCM, LUC, URO/URI.

The ULD System will help the ACC in a variety of ways. Through the Queues the ACC will have ready access to TTY messages which have been rejected because of invalid format or content error, and will be able to amend and resend these messages. Incompatible ULD Histories will also be placed on Queue in order for the ACC to add the necessary movements and restore logic to the sequence of unit movements.

STANDARD STOCK CONTROL

The function of the Airline Control Centre is to monitor the movements of all ULDs and ensure that all stations on the network have the necessary stock on-hand to be able to carry on their work smoothly and efficiently.
It caters for this by means of a table within which the ACC specifies a standard stock level for each station and the acceptable deviation limits by which this stock level may rise or fall. The system automatically calculates the difference between the number of units actually available and the desired standard stock level for each station. If the deviation limits are exceeded the system will warn the ACC by means of a message on Queue.

The ACC may also add Stock Check Times to instruct the system to carry out a stock check at given times for each station on the network. The system will hold this information and compare it to the Teletype SCM which it receives from the station after a physical stock check has been carried out there. Any discrepancy found between the result of the TTY SCM and the system stock check will be placed on Queue to await ACC action.

ULD DISPLAYS

Having updated the individual ULD History, the system will update a variety of lists and displays designed to provide maximum information as quickly and accurately as possible.

Availability Display
The display of all units available at a given station. This can be a very specific display listing only units of a particular type in a particular station.

Inventory Display
The display of all units introduced into the ULD System database.

Unserviceable Display
The display of all units declared unserviceable and so not fit for the carriage of airfreight.

Handled Carriers Offload Display
The display of all foreign units used on foreign carrier flights. This is particularly useful where the Host Airline handles one or more carriers at a station

Repair Display
The display of all units declared as sent out to repair and so unavailable for use.

Repair Summary Report
The display of repair data providing a history of ULD movements in and out of repair.

Lost Display
The display of all units declared lost.

Lying Display
The display of all units which have not moved for a period of between 3 and 99 days. This list is used to ensure that all units are properly utilised.

Transfer Display
The display of all units transferred in or out of the Host Airline System.

FLIGHT MONITORING

To ensure that ULD Histories and relevant displays are correctly and promptly updated requires the ACC to monitor flights very closely. The basis of good ULD control is the timely transmission and reception of the UCM (ULD Control Message).
If such messages are not received the flights will not be updated and consequently the ULD Histories will not reflect the actual movements of the units on board.

Missing UCM Check Facility
This is the system function most useful to the ACC with regard to flight monitoring. The ACC will establish parameters within this table, on a station by station basis, specifying how many hours may elapse after departure of a flight from that station or arrival of a flight to that station, before the relevant UCM must be sent by the given station. If the UCM is not forthcoming within the allowed period of time the system will take two actions. It will automatically send a TTY requesting the missing UCM to the address or addresses (maximum 2) specified in the Missing UCM Check table, and at the same time will place the flight on the "UCM Pending" list together with an indication of which UCM is still missing for that flight. The "UCM Pending" list is accessible only to the ACC who will choose how to deal with the problem. The ACC may decide to contact the station or make the UCM input on its behalf via CRT input.

CARGO / ULD INTERFACE

There are two possible points of interface between the Cargo System and the ULD Control System. The first is Online Schedule Change. Whether the ULD System is used as a stand-alone function or in conjunction with the Cargo System, it will use the same Online Schedule Change mode to create CCT and CFM records.

The second applies when the two systems are used together by the Airline. When a mechanised UCM is sent via the ULD Control System, it effects a check to establish whether or not any ULDs have been loaded on that flight in the Cargo System. Any units which it finds already assigned to that flight will automatically be brought across to the ULD System and included in the UCM thus obviating the need for the agent to list them all again.

STATISTICS

Operationally, we see that the system is geared up for the retrieval of data in real time giving instant access to the location and availability of the Airline stock of units.

However, the system also caters for the need to build up online and offline statistical reports regarding the status of the ULD stock.
Online we have the following displays at our disposal :

Cancellation Display
The display of all ULDs which have been cancelled by the system and are awaiting the system purge.

Purge Display
The display of all ULDs purged from the system. Unlike units cancelled, the History of the unit at this stage is no longer available for display.

Usage Statistics Display
A display providing the User with a record of average system usage.

Online Statistics Display
A display providing a summary of movements for a specific ULD. This will give two separate totals :

a) an annual count showing the number of movements during the current year

b) a total count showing the number of movements made since the ULD was first introduced into the system.

The offline statistics are generated and printed in hardcopy by the system and sent to Users by SITA. These lists are generated on request and provide the following information :

a) annual counts of all ULDs cancelled and purged during the previous calendar year

b) a monthly list of all Foreign and Host carrier units purged during the previous month.

It is also possible for Users to request the generation of Offline Statistical Reports for the annual totals of permanent and cancelled ULDs.

CONCLUSION.

In conclusion, it can be said that the aim of the ULD Management System is to ensure that the right number of the right type of ULDs are in the right place at the right time.

The quick and accurate location of individual units, as well as a tight control on individual station stock levels, contributes to the smoother running of day to day business and in the long run promotes an altogether more professional and efficient Airline Cargo Operation.