9-1997

# A Comparison of the Military's Organic Movement and Commercial Express Carriers

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AFIT/GTM/LAL/97S-1

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THESIS

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THESIS

Presented to the Faculty of the Graduate School of

Logistics and Acquisition Management

Air Force Institute of Technology

Air University

Air Education and Training Command

In Partial Fulfillment of the

Requirements for the Degree of

Master of Science in Transportation Management

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September 1997

## Acknowledgments

*The foolishness of God is wiser than men.* 1 Cor 1:25

*The simplest truths are the greatest, and so are the greatest men.* - J.C. and A.W. Hare

We are indebted to our thesis advisors, Dr. William Cunningham and Major Kevin Moore, for their advice, direction and guidance throughout this research project. We would also like to thank Mr. Greg Holevar, Captain Lori Bass, and Mr. John Rhodes at HQ AFMC for their enthusiastic assistance and guidance which made this project worthwhile. We are also grateful to Mr. Kevin Gorman at Federal Express who always delivered

I (Travis) must give thanks to God for getting me through the difficulties in the last 15 months. Thank you for your grace and patience. To Michelle, my wife of over 12 years, who shares with me the true love and support that most people dream about. You have graciously put up with so much; thank you. Megan and Zachary, how could a man ever be so blessed to have two wonderful children like you. Thank you for being patient with me--the evenings and weekends are now again yours. To my best friend James, your encouragement has been a blessing. I thank you for the time you spent programming so I could spend it with my family. Kirk-O, not only a partner, but a friend, may the Lord bless you. You challenged and encouraged me. I shall always try to keep things simple—thank you.

I (Kirk) would like to thank my family and friends for their unending support during the last 15 challenging months. Special thanks goes to TravO, a friend and confidant, who always brought his special voodoo magic to problems. Most importantly, thanks to my parents, my heroes, who taught by example and not by words. I am indebted to them for all that I am and all that I will ever be.

Travis E. Condon

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## Abstract

The DoD has begun outsourcing airlift in order to expedite high priority cargo movement. However, are commercial express carriers more expedient in the cargo delivery than the Air Force organic transportation system? Although anecdotal evidence suggests commercial carriers are faster, little empirical research has been conducted on this subject.

This study compares the military's organic transportation system with Federal Express in the delivery of high priority cargo to Spangdahlem Air Base, Germany. The Large Sample Test of Hypothesis was used to determine if there was a significant difference between the cargo transit times of the two.

The mean delivery time for the military's organic transportation system from CONUS to Spangdahlem was 6.24 days, while Federal Express' mean delivery time was 2.71 days.

The primary conclusion drawn from this research is that Federal Express is indeed able to transport small items (weighing less than 150 pounds) to Spangdahlem AB, Germany faster than the military's traditional organic transportation system. A secondary conclusion taken from this research is that every segment of the pipeline except the actual flight time between CONUS and Europe all take significantly longer for the military system than for the commercial system.

# A COMPARISON OF THE

# MILITARY'S ORGANIC MOVEMENT

# AND COMMERCIAL EXPRESS CARRIERS

## I. Introduction

### Military Logistics Philosophy

The Department of Defense (DoD) logistics system, designed decades ago to support a global conflict with the Soviet Union and Warsaw Pact nations, is a slow, complex, and costly enterprise. It has been estimated to cost the American taxpayers approximately $40 billion annually (Crock, 1995:98). This logistics arrangement, termed *mass logistics paradigm* by Girardini et. al, utilized three mechanisms for providing logistics support: 1) *functional bureaucracies*, 2) *large inventories*, and 3) *special management actions* (Girardini and others, 1995:18). With the end of the Cold War, the drawdown in military personnel, declining military budgets, and the emphasis on responding to two major regional contingencies, DoD's logistics system must now support a smaller, highly mobile, high-technology force with more flexible and responsive processes at a lower total cost. In response, the 1996 edition of the DoD Logistics Strategic Plan included the need for a restructured logistics system and stated two desired outcomes of restructuring logistics: "better, faster, and more reliable, and

highly mobile response capability and a leaner infrastructure that better balances public/private capabilities" (Logistics Strategic Plan, 1996:15).

## Air Force Lean Logistics

The Air Force logistics community has taken numerous steps to achieve a more flexible and responsive logistics system and has grouped them under the term "Lean Logistics" and more recently "Smart Logistics" (Viccellio, 1996). Lean Logistics is an Air Force program that seeks to improve operational capability by adopting state-of-the-art business practices for all logistics processes. The objective of Lean Logistics is to "maximize operational capability by using high velocity, just-in-time processes to manage mission and logistics uncertainty in-lieu of large inventory levels--resulting in shorter cycle times, reduced inventories and cost, and smaller mobility footprint" (Lean Logistics Master Plan v4.0, 1996:2).

Much of the focus on Lean logistics has been in reducing the reparable/serviceable pipeline. A recent GAO study reports the Air Force has approximately $33 billion in reparable inventory (GAO, 1996:29). A 1990 Air Force Logistics Command analysis suggests that a one-day reduction in the pipeline could reduce inventory costs by $16 to $25 million annually (Hill, Rexroad, and Moulder, 1990:20).

## Logistics Pipeline

Integral to all successful military operations is the establishment of a logistics pipeline. Air Force Doctrine Document 40 states:

> Successful sustainment of forces requires a logistics pipeline to link a weapon system with its associated resources. This link makes it possible to sustain weapon systems with the resources needed for continuous operation as well as for retrograde movement. (Logistics, 1994:8)

A logistics pipeline is composed of many steps depending on the type of material being requisitioned, its source, and its destination. For high priority aircraft replacement parts, most originate from depots or other Air Force bases and are airlifted via organic military airlift or commercial airlift to the destination. Several organizations may get involved depending on the route of the material. The originating and terminating Traffic Management Offices, supporting ground transportation, and AMC aerial port organizations may contribute to the movement of the requisitioned item. If commercial airlift is used, the item may move from the source to the destination without any military organization involvement. A combination of these two modes is possible as well.

**Prioritization**

The Air Force currently utilizes the Uniform Materiel Movement and Issue Priority System (UMMIPS) as the established priority for order and ship pipeline time from the depot to base level organizations. Department of Defense Materiel Management Regulation, DoD 4140.1-R describes the UMMIPS process. The UMMIPS establishes these time standards in calendar days for each segment of the pipeline. Priority designators are determined from the Force/Activity Designator (FAD) code assigned to the requesting unit (Tables 1 and 2) and the Urgency of Need Designator (UND) specified by the requester (Table 3). Priority designators are consolidated into priority groups (Table 4) and time standards are given for each priority group in each segment of the pipeline (Table 5).

The UMMIPS first establishes prioritization on the priority group and then on the age of the requisitions within each group. The oldest requisition within the highest priority group has priority.

Table 1 - Force Activity Designator (FAD) Assignment Authority

| PRECEDENCE RATING | FORCE ACTIVITY DESIGNATOR CODE | ASSIGNMENT AUTHORITY |
|---|---|---|
| 1-1 THRU 1-20 | I* | JCS |
| 2-1 THRU 7-20 | II | HQ USAF |
| 8-1 THRU 13-20 | III | HQ USAF |
| 14-1 THRU 19-20 | IV | HQ USAF |
| 20-1 THRU 25-20 | V | HQ USAF |

Table 2 - Force/Activity Designator (FAD) Codes

| I | II | III | IV | V |
|---|---|---|---|---|
| COMBAT | COMBAT | DEPLOY | ACTIVE & | OTHER |
| | READINESS | READINESS | RESERVE | |

Table 3 - Urgency of Need Designators (UND)

| A | B | C |
|---|---|---|
| CANNOT | MISSION | FIRM |
| PERFORM | CAPABILITY | RQMT & STOCK |
| MISSION | IMPAIRED | REPLENISHMENT |

Table 4 - UMMIPS Priority Matrix

| FAD | A | B | C |
|---|---|---|---|
| I | 1 | 4 | 11 |
| II | 2 | 5 | 12 |
| III | 3 | 6 | 13 |
| IV | 7 | 9 | 14 |
| V | 8 | 10 | 15 |

| ←PRIORITY→ | |
|---|---|
| Priority Groups | |
| Priorities 1 - 3 | Group 1 |
| Priorities 4 - 8 | Group 2 |
| Priorities 9 - 15 | Group 3 |

# Table 5 - UMMIPS Time Standards in Calendar Days
## (Adapted from DoD 4140.1-R, DoD Materiel Management Regulation, 1993)

| | | TP-1 | | | | | TP-2 | | | | | TP-3 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Priority Designator Edit Requirements | | (PD 01-08) | | | | | (PD 01-08) (PD 01-15 for 444) | | | | | (PD 01-15) | | | | |
| **PIPELINE SEGMENT (Note 1)** | | **RDD OF 999,N__, E__** | | | | | **RDD OF 444,555,777** | | | | | **Blank RDD** | | | | |
| A. Requisition Submission | | 1 | | | | | 1 | | | | | 2 | | | | |
| B. Passing Action | | 0.5 | | | | | 1 | | | | | 1 | | | | |
| C. ICP Availability Determination | | 1 | | | | | 1 | | | | | 1 | | | | (Note 3) |
| D. Depot Storage Site and/or Base Processing and Packaging | | 1 | | | | | 1 | | | | | 5 | | | | |
| E. Transportation Hold and CONUS Intransit | | 1 | | | | | 4 | | | | | 10 | | | | (Note 4) |
| Area (Note 2) | CONUS | 1 | 2 | 3 | 4 | CONUS | 1 | 2 | 3 | 4 | CONUS | 1 | 2 | 3 | 4 | |
| F. POE and/or CCP processing and intransit to carrier | N/A | 1 | 1 | 1 | 3 | N/A | 1 | 1 | 1 | 3 | N/A | 10 | 10 | 10 | 21 | (Note 4) |
| G. Intransit Overseas | N/A | 1 | 1 | 2 | 3 | N/A | 1 | 1 | 2 | 3 | N/A | 10 | 15 | 25 | 30 | |
| H. POD Processing | N/A | 1 | 1 | 1 | 1 | N/A | 1 | 1 | 1 | 2 | N/A | 3 | 3 | 3 | 5 | |
| I. Intra-theater Intransit | N/A | 1 | 1 | 1 | 1 | N/A | 1 | 1 | 1 | 1 | N/A | 5 | 5 | 5 | 5 | |
| J. Receipt take-up by Requisitioner | .5 | .5 | .5 | .5 | .5 | 1 | 1 | 1 | 1 | 1 | 3 | 3 | 3 | 3 | 3 | |
| K. Total Order and Ship Time | 5 | 9 | 9 | 10 | 13 | 9 | 13 | 13 | 14 | 18 | 22 | 50 | 55 | 65 | 83 | |

NOTES:

Required Delivery Date (RDD):

- -- 999 Indicates expedited handling requirements for non mission capable supply (NMCS) overseas or CONUS customers deploying overseas within 30 days
- -- N__ Indicates expedited handling due to NMCS requirement CONUS customer
- -- E__ Indicates expedited handling due to anticipated NMCS requirement CONUS customer
- -- 555 Indicates exception to mass requisition cancellation, expedited handling required
- -- 777 Indicates expedited handling required for other than the above reasons
- -- 444 Indicates handling service for customers collocated with the storage activity or for locally negotiated arrangements
- -- Specific date indicates handling to meet that date of delivery
- -- Blank RDD indicates routine handling

(1) Pipeline standards for materiel delivered exclude weekends and holidays except for segments D and E for requirements with RDDs 999, N__, or E___. Storage activity and transportation managers may combine the times for segments D and E as long as the combined time is not exceeded. The pipeline time standards are service level targets; they shall be met or improved upon whenever physically and economically feasible.

(2) Areas:

1. To Alaska (Elmendorf only), Hawaii, N. Atlantic, Caribbean, or Central America
2. To U.K. and Northern Europe
3. To Japan (Yakota only), Okinawa, Korea (Osan only), Philippines, Guam and Western Mediterranean
4. Hard lift areas and all other destinations not included in 1-3 (e.g. S. America, Eastern Mediterranean, Africa, Diego Garcia, etc) as determined by USTRANSCOM

(3) For manually submitted requisitions or requisitions requiring manual review, 1 day for PDs 01-08 and 3 days for PDs 09-15.

(4) Combine segments E and F as a single segment when a SEAVAN is loaded at source or when cargo is moved breakbulk to POD.

(5) Measurement of intra/inter-service lateral support or redistribution begins at C or D installation level).

DoD organizations, as in the commercial sector, have several options when deciding on the most appropriate mode of transportation to meet the UMMIPS time standards, maintain mission readiness, and limit logistics costs. Military organizations located overseas have relied on Air Mobility Command to move priority cargo in the past. However, with the global expansion of express commercial airlift services, they may begin to utilize this resource.

**Air Mobility Command (AMC) vs. Commercial Airlift**

There exists a big difference between AMC airlift and commercial airlift. AMC airlift is centered around channel service. "A channel is a regularly scheduled mission over a fixed route with capacity available to all customers" (Air Mobility Master Plan, 1997:2-12). A monthly schedule is published for both passenger and cargo channel missions. A priority system is used to allocate airlift resources because demand exceeds AMC capabilities.

Express commercial carriers (i.e. FedEx, UPS), on the other hand, are more responsive to customer demands and are able to adjust flight schedules and airlift capabilities on a daily basis if necessary. According to Bill Endres, Program Management Advisor for Federal Express, Federal Express is able to fly an additional aircraft with only a few hours notice, if necessary to ensure the on time arrival of cargo. Thus, commercial express carriers have structured their business practices to ensure speedy, reliable, and flexible delivery.

The capabilities of the express commercial carriers have led to some observers to suggest that airlift of high priority cargo might be outsourced to the private sector. They

claim this strategy might reduce the logistics pipeline and lead to lower inventories and lower overall logistics costs. Normally, the organic transportation system is referred to as the Defense Transportation System (DTS). Air Force Policy Directive 24-2, Preparation and Movement of Air Force Materiel, defines the DTS as:

> an integrated system associated with the movement of Department of Defense (DoD) owned or controlled materiel. It is comprised of DoD personnel, facilities, equipment, documents, systems, and those commercial applications and resources operating under the control or visibility of DoD.

Given this definition of the DTS includes commercial carriers and the objective to solely evaluate the organic transportation efficiency, the DTS will not be compared to Federal Express, but the comparison will be organic movements, excluding commercial air, to Federal Express pipeline times. No commercial carrier data was included in the organic analysis of the transportation pipeline.

**Outsourcing**

The push to outsource, or have the private sector perform certain tasks instead of the government using in-house personnel or resources, is not new to the U.S. Government or the DoD. During World War II, the Department of War (now DoD) took over certain capabilities that had previously been performed by the private sector. The Navy Sea-Bees is one example (Bejtlich and Hickman, 1996:11). The first Office of Management and Budget Circular A-76 was published in 1955 which supported privatization efforts. Outsourcing gained momentum during the Reagan administration as a way to reduce the size of government, cut costs, and increase efficiency as declining defense budgets after

the Vietnam War forced officials to examine alternatives to reduce costs (Brandt, 1996:3).

Converting jobs currently performed by government employees to hiring the private sector to accomplish certain tasks has been shown to save money. One GAO report in 1994 found that a civilian employee costs about $15,000 less per year than a military person of a comparable grade (GAO, 1994:4). The DoD calculates a savings of approximately $9,600 per position (Thompson, 1995). The Army has on occasion cut costs by 30% after initiating outsourcing actions (POM FY 98-03:1). A Pentagon study of 235 initiatives between 1980 and 1982 indicate that contracting out services saved approximately 22% (Perritt, 1990:58).

There have been several examples of successful outsourcing initiatives in the recent past. For example, flight line maintenance of trainer aircraft has been privatized at Vance Air Force Base since 1960. Privatization has saved approximately 27% compared to other pilot training bases (DoD Congressional Report, 1989:43). Another example of successful outsourcing of noncombatant support operations is the contract the Army has established with the Brown and Root Services Corporation to run base camps, cook food, wash uniforms and entertain soldiers. Brown and Root has successfully worked in Somalia, Zaire, Italy, Saudi Arabia, and Bosnia. Army surveys from soldiers in Haiti indicate the soldiers were very pleased with the services provided by Brown and Root (Mathews, 1996:19).

Though there have been numerous examples of successful integration of the private sector into the DoD, there have also been numerous problems. One prime example was the attempt to privatize aircraft maintenance at Columbus AFB. Before

privatization, aircraft readiness rates were at 80%. One year later and after privatization, readiness rates stood at 33% (101st Cong., 1989:57). The Navy has also experienced problems with outsourcing in the U.S. Naval Air Force, Pacific Fleet (COMNAVAIRPAC). This command has experienced cost growth problems, lack of contract authority and control of resources, and reduced flexibility (Snyder, 1995:32-37).

**Overview**

In March, 1994 18 F-15C/D aircraft were transferred from Bitburg Air Base (AB), Germany to the 52nd Fighter Wing at Spangdahlem AB, Germany. During the transfer, Spangdahlem received and loaded the Mission Change Data (MCD) to support the 18 aircraft. Just prior to the transfer (February, 1994), Bitburg maintenance personnel filled the benchstock supplies for these aircraft to 200% to handle the initial parts requirements after relocating to Spangdahlem. This excessive benchstock allowed maintenance personnel to maintain a satisfactory Mission Capable Rate through 1994. In December, 1994, Spangdahlem met the Air Force standard of Total Not Mission Capable Supply (TNMCS) rate of 8 percent. However, as the benchstock began running out, TNMCS rates began rising and by December, 1995, the TNMCS rate for Spangdahlem had risen to 16.9 percent.

Numerous factors were found that contributed to the high TNMCS rates at Spangdahlem AB, including incomplete demand data at the time of the MCD, insufficient re-supply of expendable assets, high operations tempo, and heavy deployment taskings (McGovern, 1995).

After numerous meetings, Process Action Teams, and correspondences, one of several suggestions to improve the TNMCS rate was to begin shipping all high priority cargo to Spangdahlem via express air carriers. As Major General Rondal H. Smith, Warner-Robins Air Logistics Center Commander, stated in his letter to the Defense Logistics Agency on 12 January, 1996, "every day we shave off Spangdahlem's ship time improves overall mission capability and reduces TNMCS rates." The Defense Logistics Agency agreed to test the idea by allowing all high priority cargo (IPG 01-02 with RDDS 999/MICAP/777 and RDD less than 21 days) to be shipped via commercial air carriers from 1 May, 1996 through 30 September, 1996.

**Specific Problem**

With fewer defense dollars, it is imperative the Air Force reduce overall logistics costs while maintaining appropriate levels of mission capability. The scope of this research will exclude discussion of transportation costs and focus only on delivery time (the time between when an order leaves the consignor and when it is received by the consignee). The decision to send high priority cargo on commercial carriers to Spangdahlem could lead to tremendous changes within the Air Force on how cargo is shipped throughout the world. With this in mind, the effectiveness of the commercial carriers must be compared with the Air Force transportation system to ensure transit times are reduced by utilizing commercial carriers.

**Objectives**

Two objectives will be addressed in this thesis in an effort to determine effects of the Defense Logistics Agency (DLA) test run. The first objective is to determine if

commercial express carriers are indeed able to transport cargo to Spangdahlem AB quicker than the traditional Air Force process. The second objective, if commercial carriers are faster, is to ascertain which portions of the Air Force transportation pipeline cause the delays when compared to the equivalent portions of the commercial carrier pipeline. The result of meeting these objectives will provide information that can be used when deciding if commercial carriers should be used to transport cargo to all Air Force bases around the world and which portions of the Air Force transportation system should be improved to make it more competitive with the commercial carriers

## Research Scope

This research will be limited to analyzing the transit times of the various portions of the transportation pipeline between supply points in the U.S. and Spangdahlem AB, Germany for high priority cargo. Because the impetus of this study is the lengthy transit times of high priority cargo destined for Spangdahlem AB and not the expense of the transportation, costs will not be addressed in this study.

Data will be collected for the five months prior to the beginning of the test and for the five months of the test. Transit times for engines, hazardous cargo, and classified material will not be analyzed since these were not shipped via express carriers. This analysis focuses on the transit time of high priority cargo, as seen from the customer perspective, and not the cost of the transportation. Thus, costs will not be addressed in this study.

# II. Data Collection

## Introduction

This chapter focuses on the methodology used to collect the required data for analysis. Data were gathered from several sources including the Air Force Traceability and Cargo (ATAC) system and various Federal Express sources. Data from these sources were used to conduct the analysis.

## Organic Data

The primary source of data collection for the organic data was from the official ATAC system. Due to the nature, scope and limitations of this study, the only data selected for analysis were high priority cargo destined for Spangdahlem Air Base, Germany.

In order to compare commercial transportation with organic transportation, data from the 5 month period prior to the activation of sole commercial service for high priority items were collected. The time period for organic data collection was 1 Dec 95 through 30 Apr 96.

Since the focus of the thesis is with high priority cargo destined for Spangdahlem Air Base, Germany, only cargo identified as 777 and 999 priority codes were used. (See Notes to Table 5 for priority code definitions.)

The ATAC system provided the following information for the organic portion of our data collection:

Table 6 - Organic Data Provided From ATAC System

| | |
|---|---|
| 1. | Document Identifier Codes (DICs) |
| | a. AS1 Record<br>b. TX1 Record<br>c. TXA/D Record<br>d. TK7 Record<br>e. TK1/2 Record<br>f. TK6 Record<br>g. D6S Record |
| 2. | Document Number |
| 3. | Consignor Department of Defense Activity Address Code (DoDAAC) |
| 4. | Consignee DoDAAC |
| 5. | Aerial Port of Embarkation (APOE) |
| 6. | Aerial Port of Debarkation (APOD) |

NOTE: The 6 categories listed in Table 6 are defined in Appendix D.

During the collection of organic data, it was found that DICs provide duplicate dates for receipt and shipment to and from the APOE. Items 1-3 below identify the different DICs that produce APOE receipt dates and items 4-6 below identify the different DICs that produce APOE ship dates.

1. TXA/D receipt at APOE
2. TK7 receipt at APOE
3. TK1/2 receipt at APOE
4. TK7 ship from APOE
5. TXA/D ship from APOE
6. TK1/2 ship from APOE

Multiple DICs for the same date (APOE receipt) prompted a call to Headquarters Air Mobility Command (HQ AMC). Per telecon with Capt Richard Moon, Cargo Channel Systems Director, the three documents serve three different purposes as already explained above. The TK7 provides trailer data, the TK1/2 provides advanced

notification, and the TXA/D record provides the actual receipt/shipment date. Per recommendation of Capt Richard Moon and for the purposes of analysis in this thesis, the TXA/D record will be used to determine the actual APOE receipt/shipment date for each document number (Moon, 1997).

Due to the limited scope of the study, certain types of material were excluded from the analysis. The types of material excluded were hazardous material, classified material, and aircraft engines because commercial carriers were not carrying this material for the time of the study.

After collecting the data, an Ada program was designed to put the organic data into a format that could be easily analyzed.

In the original form, each Document Number contained approximately 5-9 different lines for each DIC and many times, there were duplicate DICs. In the event of a duplicate DIC providing the same information, the DIC that had the greatest date was selected in order to give the customer the benefit of not accounting for this shipment until the last possible recorded date. The original format from the ATAC system was not in any form that could be efficiently analyzed. It was imperative to transform this data and have each document number on one line with the corresponding dates of the shipment pipeline in separate columns on the same line for easy analysis. It should be noted that with the exception of the AS1 and D6S dates, all other dates contained an alpha value as the first digit. For example, if it was supposed to be the 353 date, then is was shown as E53. This alpha value represented a particular hour of shipment. For example the letter A represented the time 0001-0100, the letter B, 0101-0200, the letter C 0201-0300, ....all the way through the letter Z with the exception of letters I and O which are not used in

this system, 2301-2400 (DoD 4500.32-R, Vol I:F-7-2, 1987) (Howard, 1997). This was a further hindrance to quick data analysis as each alpha value had to be converted into the appropriate numeric value in order to perform calculations and analysis. The appropriate numeric value was determined by using an Ada program that took the TX1 date and the D6S date and determined the appropriate first numeral. For example, if the TX1 date was 253 and the D6S date was 284 and another record assigned to the same document number showed a value of E68, then the numeral 2 was assigned in place of the E.

During collection of organic data many incomplete and inaccurate data records were found. To conduct a complete analysis, any DIC that had any of the following errors was excluded:

1. Conflicting APOEs - The APOEs within the same document number conflicted
2. Missing AS1 Ship Dates
3. Missing TX1 Ship Dates
4. Missing APOD Receipt Dates
5. Missing APOD Ship Dates
6. Missing D6S Receipt Dates
7. Illegal Flow—dates from shipment to final receipt were not sequential

Out of 9819 lines of data, 1287 different document numbers were produced. Only 545 document numbers did not contain any of the errors listed above to exclude them from analysis. This demonstrates that of all the records received, only 42% of all document numbers met the criteria to be used in the analysis.

The reasons for rejection and the number rejected for each reason are as follows:

Table 7 - Organic Data Rejection

| | |
|---|---|
| Total Records Read | 9819 |
| Total Resulting Groups of Document Numbers | 1287 |
| Unusable Groups: | |
| Conflicting APOEs | 109 |
| Missing AS1 Dates | 237 |
| Missing TX1 Dates | 308 |
| Missing APOD Receipt Dates | 16 |
| Missing APOD Ship Dates | 0 |
| Missing D6S Dates | 0 |
| Illegal Date Flow | 72 |

Poor data recording and management not only impacts the ability to analyze and improve a given area, but may have an effect on exercises, operations, and actual deployments. In fact, during DESERT STORM, data management had many significant impacts as recently noted in the book So Many, So Much, So Far, So Fast:

> Lack of document discipline and slow, partial, inaccurate, and generally lackadaisical data entry were also major impediments to intransit visibility in the DTS, all of which stemmed from the same problem that had created the multitude of service transportation systems that could not talk to each other: nobody in the DoD had control or oversight of the ITV process. (Matthew, et al, 1995:10)

**Commercial Data**

Commercial data were collected in order to compare transportation pipeline times between the organic transportation system and Federal Express. Federal Express was chosen to represent commercial carriers because they transport a majority of commercially carried cargo bound for Spangdahlem. Table 8 contains the percentage of cargo shipped by carrier.

Table 8 - Percentage of Commercial Cargo Carried to Spangdahlem

| | |
|---|---|
| Federal Express | 55% |
| DHL | 19% |
| Emery | 19% |
| Burlington | 7% |

The percentages for each carrier were obtained from a ten month period in 1996 - January through March and June through December. Data for the months of April and May were not available (Bass, 1997). It was assumed that 10 months of data would adequately represent the commercial carriers serving Spangdahlem AB, Germany.

ATAC could only provide commercial carrier data on the initial ship date and final receipt date. Because this lack of data would not allow us to compare equivalent segments of the organic pipeline to the commercial pipeline and because the data in ATACS was only 42% accurate, it was decided to obtain the necessary data directly from Federal Express. In the attempt to obtain data from the five month test period from Federal Express, Mr. Bill Endres, the Program Management Advisor for Federal Express, was contacted. He stated the data for shipments drop off their system after about 30-60 days. Since the test period was much older than 60 days from the date of request, the data were not available (Endres, 1997).

In order to fully analyze Federal Express shipment times, Federal Express provided three sources of data:

1. Actual Data
2. Flight Schedule
3. Estimated Pipeline Segment Averages

Federal Express provided shipment data for the month of February 1997 to represent the total pipeline time for the commercial carrier. February 1997 was chosen as this was the most current information available at the time of request. The flight schedule (Appendix C) and estimated pipeline segment averages were used to calculate average duration for each segment of the transportation pipeline.

The February 1997 report provided the following categories of information:

Table 9 - Federal Express Information Categories

| | |
|---|---|
| 1 | Origination |
| 2 | Origination Zip Code |
| 3 | Tracking Number |
| 4 | Date Shipped |
| 5 | Delivery Date |
| 6 | Delivery Time |
| 7 | Number of Delivery Days |
| 8 | Number of Type Packages |
| 9 | Shipment Weight |
| 10 | POD Recipient Name |
| 11 | Document Number |

This report showed that 280 items were shipped to Spangdahlem during February 1997. Of these 280 items, six were excluded because the packages did not have a POD and 106 more excluded from the time calculations for the reasons listed in Table 10.

Table 10 - Exception Codes for Federal Express Cargo

| EXCEPTION CODE | TOTAL NUMBER | DEFINITION |
|---|---|---|
| 3 | 3 | Incorrect Recipient Address |
| 8 | 15 | Recipient Not In/Business Closed |
| 14 | 2 | Shipment Returned to Sender |
| 17 | 31 | A Future Delivery Was Requested |
| 24 | 30 | Recipient Was Unavailable - Delivery Delayed |
| 42 | 3 | Holiday - Business Closed |
| 49 | 1 | Recipient Address Was Out of FEC Primary Delivery Area |
| 50 | 1 | Improper or Missing Regulatory Paperwork |
| 52 | 16 | Held package "cleared after sort down" |
| 55 | 3 | Package Held For Inspection by Federal or State Agency |
| 60 | 1 | Still in Bond Cage Pending Regulatory Clearance |
| **TOTAL** | **106** | |

Of the 280 packages shipped via Federal Express, 168 met their delivery criteria and were included in their analysis. However, on occasion, numerous packages where shipped under the same tracking number. Thus, only 144 separate tracking numbers were used in our analysis.

# III. Methodology and Data Analysis

## Introduction

This chapter focuses on the methodology used to analyze the data and the results of that analysis. First, organic U.S. Air Force overall shipment time between origin and Spangdahlem AB, Germany was compared with Federal Express overall shipment time.

After comparing the overall shipment times, each segment of the transportation pipeline was compared for differences between the two transportation providers in order to determine where significant differences exist.

## Comparison of Shipment Times

Using the data provided by Federal Express (Appendix B) (February 1997) and Air Force organic data (Appendix A) the following descriptive statistics were derived:

Table 11 - Total Transit Time

| | MEAN | MEDIAN | MODE | STANDARD DEVIATION | VARIANCE | # OF OBSERVATIONS |
|---|---|---|---|---|---|---|
| ORGANIC | 6.86 ( $\bar{x}_1$ ) | 6 | 5 | 6.21 ($s_1$) | 38.56 ( $\sigma_1^2$ ) | 545 |
| FEDERAL EXPRESS | 2.77 ( $\bar{x}_2$ ) | 3 | 2 | 1.11 ($s_2$) | 1.24 ( $\sigma_2^2$ ) | 144 |

NOTE: Because Federal Express does not deliver on Saturday or Sunday, weekends were not included in their transit time calculations. In order to accurately account for total shipment time from the customer's perspective, the appropriate number of days were added to each shipment total delivery time when weekends were involved.

In order to determine the possibility of outliers in the data, the frequency distributions for FedEx and organic shipments were created in Table 12.

Table 12 - Frequency Distribution of FedEx Shipments

| # DAYS | FEDEX | % | CUMUL. | ORGANIC | % | CUMUL. |
|---|---|---|---|---|---|---|
| 1 | 1 | 0.7% | 0.7% | 0 | 0.0% | 0.0% |
| 2 | 68 | 47.2% | 47.9% | 13 | 2.4% | 2.4% |
| 3 | 51 | 35.4% | 83.3% | 14 | 2.6% | 5.0% |
| 4 | 20 | 13.9% | 97.2% | 76 | 13.9% | 18.9% |
| 5 | 1 | 0.7% | 97.9% | 125 | 22.9% | 41.8% |
| 6 | 1 | 0.7% | 98.6% | 121 | 22.2% | 64.0% |
| 7 | 1 | 0.7% | 99.3% | 80 | 14.7% | 78.7% |
| 8 | | | 99.3% | 34 | 6.2% | 85.0% |
| 9 | | | 99.3% | 16 | 2.9% | 87.9% |
| 10 | | | 99.3% | 23 | 4.2% | 92.1% |
| 11 | 1 | 0.7% | 100.0% | 14 | 2.6% | 94.7% |
| 12 | | | | 6 | 1.1% | 95.8% |
| 13 | | | | 4 | 0.7% | 96.5% |
| 14 | | | | 1 | 0.2% | 96.7% |
| 15 | | | | 0 | 0.0% | 96.7% |
| 16 | | | | 3 | 0.6% | 97.2% |
| 17 | | | | 0 | 0.0% | 97.2% |
| 18 | | | | 2 | 0.4% | 97.6% |
| 19 | | | | 1 | 0.2% | 97.8% |
| 20 | | | | 1 | 0.2% | 98.0% |
| 21 | | | | 3 | 0.6% | 98.5% |
| 22 | | | | 1 | 0.2% | 98.7% |
| 23 | | | | 2 | 0.4% | 99.1% |
| 24 | | | | 2 | 0.4% | 99.4% |
| 33 | | | | 1 | 0.2% | 99.6% |
| 81 | | | | 1 | 0.2% | 99.8% |
| 104 | | | | 1 | 0.2% | 100.0% |
| **TOTAL** | **144** | **100.0%** | | **545** | **100.0%** | |

Noting the significant variance attributed to the overall organic shipment times (Table 11) and dispersed frequency distribution in Table 12, a Box and Whisker Plot and Stem and Leaf Plot were used to determine any probable outliers for possible elimination from the statistical tests for both the organic and Federal Express data. Based upon the Box and Whisker Plot and the Stem and Leaf Plot, the data selected for elimination from the organic shipment times as probable outliers were total shipment times of 20 or greater and the data selected for elimination from the Federal Express times as probable outliers

was the 11 day shipment time. The outliers for each system were selected for elimination because they were not regular occurrences and did not indicate a constant problem. After removal of the probable outliers from the organic and Federal Express data, 97.8% of the original organic data and 99.3% of the Federal Express data will still be intact for statistical analysis.

After removal of the probable outliers from the organic and Federal Express data, the following descriptive statistics were derived:

Table 13 - Total Transit Time After Removal of Outliers

| | MEAN | MEDIAN | MODE | STANDARD DEVIATION | VARIANCE | # OF OBSERVATIONS |
|---|---|---|---|---|---|---|
| ORGANIC | 6.24 ( $\bar{x}_1$ ) | 6 | 5 | 2.39 ($s_1$) | 5.72 ( $\sigma_1^2$ ) | 533 |
| FEDERAL EXPRESS | 2.71( $\bar{x}_2$ ) | 3 | 2 | .88 ($s_2$) | .77 ( $\sigma_2^2$ ) | 143 |

According to the Central Limit Theorem:

> If a random sample of $n$ observations is selected from a population (any population), then, when $n$ is sufficiently large, the sampling distribution of $\bar{x}$ will be approximately a normal distribution. The larger the sample size, $n$, the better will be the normal approximation to the sampling distribution of $\bar{x}$ . (McClave and Benson, 1994:282).

McClave and Benson further state that in most real-life applications, the shape of the population distribution will not be known and an $n \geq 30$ is required to invoke the Central Limit Theorem. Given this Theorem, and the large sample sizes (shown in Table 13) the assumption of $\bar{x}_1$ and $\bar{x}_2$ each having approximately normal sampling distributions is met and the Large-Sample Test of Hypothesis for $\mu_1 - \mu_2$ can be used to test the differences in means.

The Large-Sample Test of Hypothesis will be used on the data before removal of any outliers and then used again after the outliers are removed. The following Large-Sample Test of Hypothesis for $(\mu_1 - \mu_2)$ was used for statistical analysis.

The two tailed test was conducted as follows:

Ho: $(\mu_1 - \mu_2) = Do$

Ha: $(\mu_1 - \mu_2) \neq Do$

where $D_o$ = hypothesized difference between the means is zero.

Test Statistic: $z = (\bar{x}_1 - \bar{x}_2) - D_o / \ \sigma_{(\bar{x}_1 - \bar{x}_2)}$

where $\sigma_{(\bar{x}_1 - \bar{x}_2)} = \sqrt{\sigma_1^2 / n_1 + \sigma_2^2 / n_2}$

Rejection Region: $z < -z_{\alpha/2}$ or $z > z_{\alpha/2}$

Inserting the values from Table 11 into the test statistic formula results in a test statistic of 14.51. Given this result, $H_o$ is rejected and it must be concluded that the average total shipment times between the organic system and Federal Express are different at a .01 $\alpha$ level of significance. Additionally, after removal of the probable outliers, the re-computed test statistic was 27.81 (Table 16). Given this result, $H_o$ is rejected and it must be concluded that average total shipment times are still significantly different after the removal of the probable outliers.

**Comparison of Pipeline Segments**

After determining a significant difference between movement times of Air Force organic movement and Federal Express, the next step was to determine which segments

of the transportation pipeline exhibited statistical differences between the two carriers. The segments of the organic transportation pipeline and the Federal Express pipeline are shown in Table 14.

Table 14 - Pipeline Segments

| Segment | 1 | 2 | 3 | 4 | 5 | Total |
|---|---|---|---|---|---|---|
| **Organic** | Depot ship to APOE Receipt | APOE Receipt to APOE Ship to APOD | APOE Ship to APOD Receipt | APOD Receipt to APOD Ship | APOD Ship to Final Receipt | Total Ship Time |
| **Federal Express** | Origination to Receipt at MEM Hub | MEM Receipt to MEM Ship to FRA | MEM Ship to FRA Receipt | FRA Receipt to FRA Ship | FRA Ship to Final Receipt | Total Ship Time |

Further comments on analysis will be limited to the data without the outliers (Table 16). The descriptive statistics for all five segments of the organic pipeline were determined based on the data from ATAC as stated in chapter 2. However, for the Federal Express pipeline, these parameters were available for only the total ship time. For segments 1, 2, 4, and 5 the average for each segment was calculated by Mr. Kevin Gorman, Government Sales Executive, Federal Express Corporation. Refer to Table 15 for estimates of each pipeline segment. The average for segment 3 of the Federal Express pipeline was taken as the total time from Federal Express' flight schedule (Appendix C) for transit from the Memphis, Tennessee hub to the Frankfurt, Germany hub.

Because of our data collection limitations, variance was only obtained from the total shipment time data. In order to ensure a good test of the means between the organic segments and the Federal Express segments, two tests for each segment were performed.

The first test (Test 1 - Table 16) used zero (0) as the variance for Federal Express in the denominator. By using zero for the Federal Express variance, the denominator is smaller and may drive the test to statistical significance. In the second test (Test 2 - Table 16), the variance of Federal Express' total pipeline (.77 as shown in Table 16) was assigned to each segment. By putting the total variance into each segment of the pipeline, the maximum possible variance attributable to the system was put in each segment as if each segment individually caused all the variance in the total system. If the results of Test 1 and Test 2 are the same, then it can be concluded that the variance of the Federal Express pipeline had no effect on the comparative analysis. Additionally, if by using zero in Test 1 for the variance in the Federal Express segment and the results are not statistically significant, then Test 2 will not be performed as the test will produce results that are even less statistically significant.

Applying the same test statistic as was used in the total shipment time comparison with the same confidence level ($\alpha = .01$), each of the segments were tested to determine if there was a statistical difference of the averages. Table 16 indicates the descriptive statistics and the Test 1 and Test 2 z-scores for the overall shipment time and each individual segment.

Table 15 - Computations on Total Transit and Segment Times Before Removal of Outliers

| SEGMENT | | 1 | 2 | 3 | 4 | 5 | Total |
|---|---|---|---|---|---|---|---|
| ORGANIC | MEAN | 1.81 | 2.01 | 0.43 | 0.39 | 2.22 | 6.86 |
| | STD | 1.62 | 1.29 | 1.02 | 0.51 | 5.84 | 6.21 |
| | VAR | 2.62 | 1.66 | 1.04 | 0.26 | 34.09 | 38.56 |
| | MODE | 1 | 2 | 0 | 0 | 1 | 5 |
| | MEDIAN | 1 | 2 | 0 | 0 | 1 | 6 |
| FEDERAL EXPRESS | MEAN | 0.2708 | 0.1875 | 0.50 | 0.2917 | 0.3333 | 2.77 |
| | STD | | | | | | 1.11 |
| | VAR | | | | | | 1.24 |
| | MODE | | | | | | |
| | MEDIAN | | | | | | |
| TEST 1 | Test Statistic | 22.20 | 33.02 | -1.60 | 4.50 | 7.54 | 14.51 |
| TEST 2 | Test Statistic | 13.29 | 16.88 | -.68 | 1.03 | 7.07 | 14.51 |
| CRITICAL VALUE | | ± 2.57 | ± 2.57 | ± 2.57 | ± 2.57 | ± 2.57 | ± 2.57 |
| SIGNIFICANT | | Yes | Yes | No | Yes/No | Yes | Yes |

Table 16 - Computations on Total Transit and Segment Times After Removal of Outliers

| SEGMENT | | 1 | 2 | 3 | 4 | 5 | Total |
|---|---|---|---|---|---|---|---|
| ORGANIC | MEAN | 1.74 | 1.96 | 0.41 | 0.39 | 1.73 | 6.24 |
| | STD | 1.35 | 1.16 | .90 | 0.51 | 1.71 | 2.39 |
| | VAR | 1.83 | 1.36 | .81 | 0.26 | 2.94 | 5.72 |
| | MODE | 1 | 2 | 0 | 0 | 1 | 5 |
| | MEDIAN | 1 | 2 | 0 | 0 | 1 | 6 |
| FEDERAL EXPRESS | MEAN | 0.2708 | 0.1875 | 0.50 | 0.2917 | 0.3333 | 2.77 |
| | STD | | | | | | 1.11 |
| | VAR | | | | | | 1.24 |
| | MODE | | | | | | |
| | MEDIAN | | | | | | |
| TEST 1 | Test Statistic | 25.07 | 35.09 | -2.31 | 4.45 | 18.81 | 27.81 |
| TEST 2 | Test Statistic | 15.65 | 19.90 | -1.08 | 1.28 | 13.37 | 27.81 |
| CRITICAL VALUE | | ± 2.57 | ± 2.57 | ± 2.57 | ± 2.57 | ± 2.57 | ± 2.57 |
| SIGNIFICANT | | Yes | Yes | No | Yes/No | Yes | Yes |

NOTE: Segments 1 through 5 do not add up to total time because the first five segments are estimated averages while the total ship time was derived from the February 1997 shipment data provided by Federal Express. The sum of the averaged segment times of 1.5833 (Table 16 values for segments 1-5) do not equal the 2.71 obtained from actual overall shipment time data because the estimated averages do not include weekends and do not account for the variance that undoubtedly occurs.

The results of Test 1 indicate the difference between the segment and total shipment time means of each system were statistically significant with the exception of segment 3. The results of Test 2 indicate the difference between the segment and total

shipment time means of each system were statistically significant with the exception of segments 3 and 4.

## Limitations

The results presented have many limitations that must be addressed. When comparing the organic data to the Federal Express data, the organic data was given in whole days whereas the Federal Express data was given in hours and then converted to a fraction of a day. The process of converting the Federal Express time to days helps to ensure an accurate accountability of each part of the day, whereas the organic data is given only in "full" days. In the organic system, if a package was received a few minutes after midnight, an entire day would be added to the delivery time instead of only a few minutes.

Another limitation of the data is that the February 1997 data from Federal Express provided only 143 total shipments which were used to determine the descriptive statistics. Additionally, the tests would have been more credible if the actual data for each segment of the Federal Express pipeline could have acquired.

# IV. Conclusions and Recommendations

## Introduction

The purpose of this chapter is to discuss the conclusions drawn from the analysis of the Spangdahlem Air Base delivery time data. Included in this chapter is a brief synopsis of the research, a general review of the research findings, a discussion of research implications, and a list of suggested areas for further research.

## Research Synopsis

The primary purpose of this research was to determine if commercial carriers deliver military cargo originating in the Continental United States (CONUS) to Spangdahlem Air Base, Germany faster than the military's own organic transportation system. The second objective, if commercial carriers are faster, was to determine which portions of the military's transportation pipeline causes the delay in delivery time. Data for the military transportation system were collected from the Advanced Traceability and Cargo (ATAC) system, and data representing commercial carrier services was provided by representatives from FedEx. The evaluation of the two service providers was accomplished by statistically analyzing the mean delivery times and then comparing the mean time for each of the five pipeline segments for the military system with the estimated times for the commercial carrier.

## Summary of Findings

During the time periods evaluated, the mean delivery time for the military's organic transportation system from CONUS to Spangdahlem was 6.24 days, while FedEx's mean delivery time was 2.71 days. Statistical analysis using the standard *z* statistic indicated a significant difference between the two mean delivery times at an $\alpha$ level of .01. The two-tailed test showed mean delivery time of the military transportation system was significantly larger than that for FedEx. Further statistical analysis of each segment of the transportation pipeline revealed that only the flight times between the CONUS APOE and the Europe APOD were not statistically different for the two systems. Every other segment, including the time to get the cargo to the APOE, the time at the APOE, the time at the APOD, and the time to transport the cargo from the APOD to Spangdahlem was statistically larger for the military's organic transportation system.

## Discussion of Segments

Segment one, from the depot to the APOE was significantly larger for the organic transportation system than for the commercial system. Since commercial express carriers provide this transportation in the military's organic system, the comparison is the time it takes FedEx (or other carrier) to transport the item from the depot to their Memphis hub and the time it takes the carrier to transport the item from the depot to Dover AFB, Delaware - the Air Force APOE for this study. As stated earlier, the average for FedEx for this segment was .2708 days and 1.74 days for the organic system. It should not be surprising that the organic system takes longer for this segment realizing that FedEx would transport the item to their hub (also their APOE) in Memphis and then continue its

movement to Dover. Thus, FedEx has as an obvious time advantage during this segment. When moved commercially to Germany, this segment would be complete when it arrived in Memphis. According to Andy Figueroa, AFMC Transportation Combat Readiness Branch Chief, 1.74 days average for this segment is not unreasonable. After a Material Release Order (MRO) is released at the depot, the transportation department at the depot prepares the item for shipment and places in the FedEx (or other carrier) bin. The carrier representative then comes by and picks up the cargo for onward movement. This pickup could occur on the same day if the MRO was released early enough in the day, which is often the case, since express carriers schedule several pickups from the depots daily. When this happens, the item would be delivered the next day at Dover, AFB; thus incurring a one day delivery period. However, if the MRO was released late in the day, the item would not be picked up until the following day. It would then not be delivered to Dover until the second day after the MRO; thus incurring a two day delivery period. Another consideration for this segment period is the inclusion of weekends. As stated earlier, FedEx and other carriers do not deliver on weekends. Thus, an item picked up on Friday will not be delivered until Monday. This commercial practice obviously increases the average time for this segment. According to Mr. Figueroa, the depot ships the items as soon as possible after receiving the shipment notice without regards to flight schedules at the APOE.

One way to reduce this segment for the organic system would be to only release items for shipment at the depot so that it could be picked up by the express carrier that day and delivered the next day. However, since this is only a time accounting tactic, this would not affect the overall shipment time from the customer's perspective.

Segment two of the pipeline consists of the port hold and handling time at the APOE - Dover AFB aerial port for the organic system and Memphis, TN for FedEx. This segment is also statistically longer for the organic system; taking about two days at Dover and about 4.5 hours at Memphis. AMC's records confirm our findings by indicating that Dover's port hold time for high priority items during 1996 was 48.5 hours. Currently, one C-5 and one KC-135 fly daily channel missions from Dover AFB, Delaware to Ramstein AFB, Germany. According to Lt Col Bellacicco, aerial port operations officer at Dover AFB, the aerial port receives about one thousand packages from express carriers daily. The small express packages, generally delivered by 12:30 p.m. to the port, are immediately in-processed and placed on pallets for loading on a KC-135 that departs at 4:45 p.m. However, large and outsized priority cargo cannot be placed on a KC-135 because of the cargo hold size restrictions of the aircraft. Large items such as an F-15 wing may sit 3-4 days in the port waiting for space on a C-5 aircraft. Another problem that extends port hold time, according to the operations officer is the unreliability of the C-5. Too many times, cargo is delayed at the port simply because the aircraft breaks and cannot be transported until the aircraft is repaired. Beginning on 10 June 1997, the C-5 was replaced with the more reliable, yet smaller, C-17 to lessen this problem.

Thus, according to Lt Col Bellacicco, the large port hold time is in part due to the large items that FedEx refuses to carry and must sit around until space on a large military aircraft is available. One way to reduce this segment for the organic system would be to schedule both the KC-135 and the C-5 or C-17 after the FedEx delivery each day. Then, the high priority items could be immediately placed on a departing aircraft that day.

Segment three consists of the actual flight time between Dover AFB and Ramstein AFB, Germany. There is no significant difference at the .01 $\alpha$ level between the commercial system and the military organic system unless all the variance for the commercial system is placed in this segment. Since this is unrealistic, it will not be addressed.

Segment four is the port hold time at APOD. For the organic system, it consists of the time from aircraft block time (when the aircraft officially lands) to the time of inputting information into the Consolidated Aerial Port System (CAPS). For FedEx it is the time between check-in of the package until it is released for movement to Spangdahlem. The Ramstein port hold time is significantly different from the commercial hold time at Frankfurt International Airport only when all of the variance of the commercial system is placed in this segment. Since this is not realistic, there may not be a significant difference between the two systems for this segment.

Segment five of the system is the transportation time between the Aerial Port of Debarkation (Ramstein for the organic system and Frankfurt International Airport for the commercial system) and the Spangdahlem AFB Supply office. Once again, the organic system is significantly longer than is the commercial system. The cargo is trucked from the APOD to Spangdahlem for both systems. The drive is approximately four to six hours. The commercial system reasonably averages about eight hours for this segment. However, the organic system averages about 1.73 days. For the organic system, the Army's 28$^{th}$ Transportation Battalion picks up a truckload every day from the aerial port and delivers the cargo to the Spangdahlem Supply office (Little, 1997). One possible

cause of delay is that if there is more than one truckload of cargo, the excess cargo may have to wait one or more days to be delivered to Spangdahlem. Another possible cause of the large average segment time is that cargo may arrive after the truck departs to Spangdahlem. Thus the cargo would wait one day awaiting transportation. These two possibilities could combine to create this large average segment time. The obvious solution to this problem is to schedule the departure of the truck after the aircraft have arrived and downloaded. Additionally, if one truck cannot handle all of the Spangdahlem cargo, then arrange for an additional truck to carry the additional cargo. In the future, when a credible intransit visibility system is implemented DoD wide, the Army will be able to schedule the necessary number of trucks in advance and provide better service.

**Conclusions Drawn From Research**

The primary conclusion drawn from this research is that the commercial carriers are indeed able to transport small items (weighing less than 150 pounds) to Spangdahlem AB, Germany faster than the military's traditional organic transportation system. A secondary conclusion taken from this research is that every segment of the pipeline except the actual flight time between CONUS and Europe all take significantly longer for the military system than for the commercial system.

**Discussion of Research Implications**

This comparison of the military's organic transportation system with commercial express package carriers may be stacked against the organic system because commercial express carriers have designed their business processes to ensure quick delivery of small packages. However, the Air Force's transportation system is designed to transport troops

and cargo in support of a war effort. Except for extraordinary circumstances such as during Desert Shield/Storm when the Air Force implemented Desert Express to transport high priority items to the Southwest Asia, the Air Force transportation system is not designed to provide express delivery of high priority items. In short, the Air Force has not been asked to provide the same level of service as commercial express carriers. A more meaningful comparison would be to redesign the Air Force process, establish an organic express delivery service, and compare this capability to commercial carrier performance.

One recent Air Mobility Command initiative, labeled World Wide Express (WWX), is an attempt to take advantage of commercial carriers' swift delivery system by contracting out the movement of all high priority cargo originating and/or terminating at overseas bases, weighing less than 150 pounds, and meeting the appropriate size dimensions to members of the Civil Reserve Air Fleet (CRAF). Phase II of this plan would allow commercial carriers to deliver all cargo meeting the above specifications weighing less than 1000 pounds (Curtis, 1997).

Although this plan would allow for faster delivery of high priority cargo than is currently available using the current military system and may lead to higher aircraft mission capable rates in the short-term, the long-term implications are uncertain. Will the carriers that transport the military's cargo in peace time continue to provide the same level of service during war? Will the carriers, some of whom are actually logistics managers, begin to operate the military's base level logistics operations as outsourcing expands? Will Air Mobility Command continue to fly normal channel missions to overseas bases if the majority of cargo is being shipped via commercial air carriers?

Since the organic capability is already available (in the form of C5s, C141s, C17s, etc.), this plan will inevitably increase transportation costs to the Air Force. The channel missions and training missions will continue to fly, but the DoD will be paying to have much of the cargo transported by commercial carriers even though there may be capacity available on organic aircraft.

One area of the military transportation system that needs improving is the information/data systems. The output from ATAC contained codes in both the column headings and in the data that required extensive deciphering using DoD regulations and knowledge from experienced transportation personnel. The meaning of many of these arcane codes were unknown to many transportation personnel. Additionally, the ATAC output contained unnecessary data that only complicated data analysis. For example, ATAC provided the expected receipt date at a location, another date indicating cargo trailer information, and finally the actually receipt date. Data analysis could be much easier if only the information required could be produced. Another major problem with the DoD transportation information systems is the reliability of data collection. Much of the data collection is still accomplished by manual input. These antiquated methods lead to mistakes and omissions in the data. More than 50% of the cargo data collected for this research analysis could not be analyzed because of errors in the data.

The DoD is currently undertaking a major project to improve this problem by implementing the Global Transportation Network (GTN). GTN, in addition to improving in-transit visibility within the DoD transportation system, will also improve the accuracy and reliability of data. The continued support of Lean Logistics and adopting best

business practices will eventually improve data reliability as the DoD expands the use of bar codes and bar code readers to automatically collect and record cargo data.

## Recommendations for Further Research

During the course of this narrowly defined research project, numerous possibilities for further research were identified. The following suggestions provide additional research topics that could prove useful to the transportation community.

Transportation Costs. Depending on the size and weight of the item and the distance to be carried, commercial carriers may charge less than AMC. Thus, military units wanting to use commercial carriers claim they will incur less cost and faster service by contracting out airlift services. However, in light of the fact the Air Force has already incurred the fixed costs of owning its fleet of cargo aircraft, overall cost to the DoD of paying commercial carriers for capability that the Air Force already maintains should be analyzed.

Effect of Outsourcing Peace Time Airlift on Aircraft Utilization. In the past, aircraft utilization has been a prime indicator of the efficiency of AMC and thus has been monitored closely for every mission. As outsourcing becomes more prevalent in the U.S. military, more peace time airlift will be contracted out. The impact of outsourcing airlift on the utilization rate of Air Force cargo planes should be analyzed.

Effects of World Wide Express (WWX) on Air Mobility Command. The World Wide Express plan has potentially far-reaching effects on Air Mobility Command. World Wide Express is expected to move approximately 40% of the cargo now being transported by AMC (Curtis, 1997). With a reduction in their workload, how will

AMC's capacity be affected? How will manning be affected? What will be the effect on transportation costs for cargo moved by AMC? How will this affect AMC's ability to provide airlift during war? The WWX concept provides numerous opportunities for further research.

Transportation Time Outliers. Due to the scope of this research effort, the cause of the 12 outliers in this study were not determined. However, the understanding of outliers is often a productive effort that reveals problems in the system. Further research to discern the source of these outliers might present crucial information to improve the organic transportation system.

Improvement of Transportation Information Systems. This research project uncovered considerable difficulties for the authors when trying to collect usable data. The assistance of a computer programmer was needed to extract the data from the ATAC system as well as to write a computer program to organize the data into a usable and meaningful format. In comparison to the simple and clear report from FedEx, the military information system is outdated and wasteful. The Global Transportation Network project should ensure clear and meaningful outputs.

# Appendix A. Organic Data

| DOC NUMBER | CONSINGOR DODAAC | APOE | AS1 SHIP DATE | TX1 SHIP TO APOE | REC AT APOE | SHIP FROM APOE | TK6 APOD REC DATE | TK6 APOD SHIP DATE | D6S REC DATE | Diff AS1 and TX1 | TX1 to APOE | APOE rec to APOE Ship | APOE Ship to APOD Rec | APOD Rec to APOD Ship | APOD Ship to D6S Rec | TX1 Ship to D6S Rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FB562152370193 | FB44 | DOV | 242 | 245 | 245 | 248 | 248 | 249 | 349 | 3 | 0 | 3 | 0 | 1 | 100 | 104 |
| FB562160299515 | FB48 | DOV | 36 | 36 | 37 | 39 | 39 | 40 | 117 | 0 | 1 | 2 | 0 | 1 | 77 | 81 |
| FB562160510593 | SW32 | DOV | 55 | 56 | 57 | 59 | 59 | 59 | 89 | 1 | 1 | 2 | 0 | 0 | 30 | 33 |
| FB562153120059 | SW32 | DOV | 315 | 316 | 335 | 338 | 339 | 339 | 340 | 1 | 19 | 3 | 1 | 0 | 1 | 24 |
| FB562160369505 | FB44 | DOV | 37 | 37 | 38 | 40 | 41 | 41 | 61 | 0 | 1 | 2 | 1 | 0 | 20 | 24 |
| FB562153120071 | SW32 | DOV | 314 | 315 | 318 | 320 | 320 | 320 | 338 | 1 | 3 | 2 | 0 | 0 | 18 | 23 |
| FB562160180089 | SW35 | DOV | 30 | 23 | 32 | 43 | 43 | 44 | 46 | -7 | 9 | 11 | 0 | 1 | 2 | 23 |
| FB562153100025 | SW35 | DOV | 317 | 313 | 320 | 329 | 329 | 330 | 335 | -4 | 7 | 9 | 0 | 1 | 5 | 22 |
| FB562160049530 | FB48 | DOV | 9 | 5 | 11 | 13 | 25 | 25 | 26 | -4 | 6 | 2 | 12 | 0 | 1 | 21 |
| FB562160199518 | SW31 | DOV | 23 | 24 | 33 | 42 | 42 | 43 | 45 | 1 | 9 | 9 | 0 | 1 | 2 | 21 |
| FB562160539507 | FB44 | DOV | 53 | 53 | 55 | 58 | 58 | 58 | 74 | 0 | 2 | 3 | 0 | 0 | 16 | 21 |
| FB562160829601 | FB66 | DOV | 82 | 82 | 83 | 86 | 87 | 87 | 102 | 0 | 1 | 3 | 1 | 0 | 15 | 20 |
| The data above are the 12 outliers selected for elimination from the analysis as indicated in the thesis text. | | | | | | | | | | | | | | | | |
| FB562160580155 | SW32 | DOV | 62 | 62 | 65 | 67 | 67 | 67 | 81 | 0 | 3 | 2 | 0 | 0 | 14 | 19 |
| FB562151300006 | SW32 | DOV | 342 | 343 | 346 | 348 | 348 | 348 | 361 | 1 | 3 | 2 | 0 | 0 | 13 | 18 |
| FB562153349500 | SW05 | DOV | 334 | 334 | 335 | 337 | 337 | 338 | 352 | 0 | 1 | 2 | 0 | 1 | 14 | 18 |
| FB562160099561 | FB28 | DOV | 9 | 9 | 10 | 13 | 25 | 25 | 25 | 0 | 1 | 3 | 12 | 0 | 0 | 16 |
| FB562160370253 | SW32 | DOV | 40 | 41 | 46 | 52 | 54 | 54 | 57 | 1 | 5 | 6 | 2 | 0 | 3 | 16 |
| FB562160740165 | SW32 | DOV | 77 | 77 | 80 | 81 | 82 | 82 | 93 | 0 | 3 | 1 | 1 | 0 | 11 | 16 |
| FB562153190167 | SW32 | DOV | 321 | 321 | 325 | 332 | 332 | 332 | 335 | 0 | 4 | 7 | 0 | 0 | 3 | 14 |
| FB562153050259 | SW32 | DOV | 321 | 322 | 325 | 332 | 332 | 332 | 335 | 1 | 3 | 7 | 0 | 0 | 3 | 13 |
| FB562153200069 | SW32 | DOV | 324 | 322 | 326 | 328 | 328 | 328 | 335 | -2 | 4 | 2 | 0 | 0 | 7 | 13 |
| FB562153200210 | SW32 | DOV | 321 | 322 | 325 | 332 | 332 | 332 | 335 | 1 | 3 | 7 | 0 | 0 | 3 | 13 |
| FB562160370446 | SW32 | DOV | 39 | 40 | 47 | 49 | 49 | 50 | 53 | 1 | 7 | 2 | 0 | 1 | 3 | 13 |
| FB562153190179 | SW32 | DOV | 328 | 329 | 331 | 340 | 340 | 340 | 341 | 1 | 2 | 9 | 0 | 0 | 1 | 12 |
| FB562153330113 | SW32 | DOV | 348 | 349 | 352 | 354 | 354 | 355 | 361 | 1 | 3 | 2 | 0 | 1 | 6 | 12 |
| FB562153480570 | SW32 | DOV | 349 | 349 | 353 | 355 | 356 | 356 | 361 | 0 | 4 | 2 | 1 | 0 | 5 | 12 |
| FB562160110569 | SW32 | DOV | 26 | 27 | 31 | 37 | 37 | 37 | 39 | 1 | 4 | 6 | 0 | 0 | 2 | 12 |
| FB562160320232 | SW35 | DOV | 44 | 41 | 46 | 48 | 49 | 50 | 53 | -3 | 5 | 2 | 1 | 1 | 3 | 12 |
| FB562160870921 | SW32 | DOV | 89 | 90 | 93 | 95 | 95 | 95 | 102 | 1 | 3 | 2 | 0 | 0 | 7 | 12 |
| FB562160030380 | SW32 | DOV | 4 | 5 | 9 | 11 | 11 | 12 | 16 | 1 | 4 | 2 | 0 | 1 | 4 | 11 |
| FB562160039509 | SW32 | DOV | 5 | 6 | 10 | 11 | 11 | 12 | 17 | 1 | 4 | 1 | 0 | 1 | 5 | 11 |
| FB562160080467 | SW32 | DOV | 18 | 19 | 22 | 24 | 28 | 28 | 30 | 1 | 3 | 2 | 4 | 0 | 2 | 11 |
| FB562160090358 | SW32 | DOV | 17 | 18 | 18 | 18 | 19 | 19 | 29 | 1 | 0 | 0 | 1 | 0 | 10 | 11 |
| FB562160180292 | SW32 | DOV | 26 | 27 | 31 | 34 | 34 | 35 | 38 | 1 | 4 | 3 | 0 | 1 | 3 | 11 |
| FB562160300065 | SW32 | DOV | 46 | 47 | 55 | 57 | 57 | 57 | 58 | 1 | 8 | 2 | 0 | 0 | 1 | 11 |
| FB562160370245 | SW35 | DOV | 40 | 40 | 44 | 46 | 46 | 46 | 51 | 0 | 4 | 2 | 0 | 0 | 5 | 11 |
| FB562160370431 | SW32 | DOV | 40 | 40 | 44 | 46 | 46 | 46 | 51 | 0 | 4 | 2 | 0 | 0 | 5 | 11 |
| FB562160380012 | SW32 | DOV | 46 | 46 | 51 | 53 | 54 | 54 | 57 | 0 | 5 | 2 | 1 | 0 | 3 | 11 |
| FB562160400254 | SW32 | DOV | 41 | 42 | 44 | 50 | 50 | 50 | 53 | 1 | 2 | 6 | 0 | 0 | 3 | 11 |
| FB562160522549 | SW32 | DOV | 102 | 102 | 106 | 108 | 110 | 110 | 113 | 0 | 4 | 2 | 2 | 0 | 3 | 11 |
| FB562160599510 | FB48 | DOV | 60 | 60 | 61 | 62 | 64 | 65 | 71 | 0 | 1 | 1 | 2 | 1 | 6 | 11 |
| FB562160990090 | SW32 | DOV | 101 | 102 | 102 | 104 | 104 | 104 | 113 | 1 | 0 | 2 | 0 | 0 | 9 | 11 |
| FE562153260016 | SW32 | DOV | 335 | 335 | 339 | 341 | 341 | 342 | 346 | 0 | 4 | 2 | 0 | 1 | 4 | 11 |
| FB562152790650 | SW32 | DOV | 335 | 336 | 339 | 341 | 341 | 342 | 346 | 1 | 3 | 2 | 0 | 1 | 4 | 10 |
| FB562153050332 | SW32 | DOV | 308 | 309 | 311 | 314 | 314 | 314 | 319 | 1 | 2 | 3 | 0 | 0 | 5 | 10 |
| FB562153250035 | SW32 | DOV | 335 | 335 | 338 | 340 | 340 | 340 | 345 | 0 | 3 | 2 | 0 | 0 | 5 | 10 |
| FB562153250192 | SW32 | DOV | 329 | 329 | 332 | 335 | 335 | 335 | 339 | 0 | 3 | 3 | 0 | 0 | 4 | 10 |
| FB562153330223 | SW32 | DOV | 335 | 336 | 339 | 341 | 341 | 342 | 346 | 1 | 3 | 2 | 0 | 1 | 4 | 10 |
| FB562160030247 | SW32 | DOV | 12 | 13 | 16 | 18 | 18 | 18 | 23 | 1 | 3 | 2 | 0 | 0 | 5 | 10 |
| FB562160040170 | SW35 | DOV | 44 | 44 | 46 | 53 | 53 | 53 | 54 | 0 | 2 | 7 | 0 | 0 | 1 | 10 |
| FB562160060028 | SW32 | DOV | 12 | 13 | 16 | 18 | 18 | 18 | 23 | 1 | 3 | 2 | 0 | 0 | 5 | 10 |
| FB562160080485 | SW32 | DOV | 12 | 13 | 16 | 18 | 18 | 18 | 23 | 1 | 3 | 2 | 0 | 0 | 5 | 10 |
| FB562160090443 | SW04 | DOV | 19 | 20 | 22 | 24 | 28 | 28 | 30 | 1 | 2 | 2 | 4 | 0 | 2 | 10 |
| FB562160100147 | SW31 | DOV | 19 | 20 | 22 | 24 | 28 | 28 | 30 | 1 | 2 | 2 | 4 | 0 | 2 | 10 |
| FB562160110229 | SW32 | DOV | 12 | 13 | 16 | 18 | 18 | 18 | 23 | 1 | 3 | 2 | 0 | 0 | 5 | 10 |
| FB562160170191 | SW32 | DOV | 22 | 21 | 24 | 25 | 29 | 29 | 31 | -1 | 3 | 1 | 4 | 0 | 2 | 10 |
| FB562160180102 | SW31 | DOV | 19 | 20 | 22 | 24 | 28 | 28 | 30 | 1 | 2 | 2 | 4 | 0 | 2 | 10 |
| FB562160230408 | SW35 | DOV | 33 | 30 | 36 | 38 | 38 | 38 | 40 | -3 | 6 | 2 | 0 | 0 | 2 | 10 |
| FB562160250006 | SW32 | DOV | 27 | 28 | 30 | 37 | 37 | 37 | 38 | 1 | 2 | 7 | 0 | 0 | 1 | 10 |
| FB562160370404 | SW32 | DOV | 40 | 41 | 44 | 46 | 46 | 46 | 51 | 1 | 3 | 2 | 0 | 0 | 5 | 10 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FB562160380095 | SW32 | DOV | 40 | 41 | 44 | 46 | 46 | 46 | 51 | 1 | 3 | 2 | 0 | 0 | 5 | 10 |
| FB562160380189 | SW32 | DOV | 40 | 41 | 44 | 46 | 46 | 46 | 51 | 1 | 3 | 2 | 0 | 0 | 5 | 10 |
| FB562160440136 | SW35 | DOV | 47 | 47 | 51 | 53 | 54 | 54 | 57 | 0 | 4 | 2 | 1 | 0 | 3 | 10 |
| FB562160610319 | SW32 | DOV | 67 | 68 | 71 | 74 | 74 | 74 | 78 | 1 | 3 | 3 | 0 | 0 | 4 | 10 |
| FB562161000338 | SW35 | DOV | 113 | 110 | 115 | 117 | 118 | 118 | 120 | -3 | 5 | 2 | 1 | 0 | 2 | 10 |
| FB562161029517 | FB48 | DOV | 103 | 103 | 106 | 108 | 110 | 110 | 113 | 0 | 3 | 2 | 2 | 0 | 3 | 10 |
| FB562152200277 | SW32 | DOV | 328 | 329 | 331 | 337 | 337 | 338 | 338 | 1 | 2 | 6 | 0 | 1 | 0 | 9 |
| FB562153339504 | SW32 | DOV | 352 | 353 | 355 | 357 | 362 | 362 | 362 | 1 | 2 | 2 | 5 | 0 | 0 | 9 |
| FB562153420195 | SW32 | DOV | 351 | 352 | 355 | 357 | 358 | 359 | 361 | 1 | 3 | 2 | 1 | 1 | 2 | 9 |
| FB562153450078 | SW32 | DOV | 351 | 352 | 355 | 357 | 358 | 359 | 361 | 1 | 3 | 2 | 1 | 1 | 2 | 9 |
| FB562160110115 | SW32 | DOV | 16 | 17 | 18 | 18 | 19 | 19 | 26 | 1 | 1 | 0 | 1 | 0 | 7 | 9 |
| FB562160110639 | SW32 | DOV | 13 | 14 | 16 | 18 | 18 | 18 | 23 | 1 | 2 | 2 | 0 | 0 | 5 | 9 |
| FB562160120606 | SW32 | DOV | 16 | 16 | 18 | 18 | 19 | 19 | 25 | 0 | 2 | 0 | 1 | 0 | 6 | 9 |
| FB562160449515 | FB48 | DOV | 44 | 44 | 45 | 47 | 52 | 52 | 53 | 0 | 1 | 2 | 5 | 0 | 1 | 9 |
| FB562160450714 | SW35 | DOV | 54 | 52 | 57 | 59 | 59 | 59 | 61 | -2 | 5 | 2 | 0 | 0 | 2 | 9 |
| FB562160470197 | SW31 | DOV | 50 | 51 | 57 | 59 | 59 | 59 | 60 | 1 | 6 | 2 | 0 | 0 | 1 | 9 |
| FB562160479500 | SW32 | DOV | 54 | 55 | 61 | 63 | 63 | 63 | 64 | 1 | 6 | 2 | 0 | 0 | 1 | 9 |
| FB562160519510 | SW32 | DOV | 54 | 55 | 61 | 63 | 63 | 63 | 64 | 1 | 6 | 2 | 0 | 0 | 1 | 9 |
| FB562160580387 | SW32 | DOV | 104 | 104 | 108 | 111 | 111 | 111 | 113 | 0 | 4 | 3 | 0 | 0 | 2 | 9 |
| FB562160780451 | SW32 | DOV | 82 | 83 | 86 | 89 | 89 | 90 | 92 | 1 | 3 | 3 | 0 | 1 | 2 | 9 |
| FB562160800106 | SW32 | DOV | 82 | 83 | 86 | 89 | 89 | 90 | 92 | 1 | 3 | 3 | 0 | 1 | 2 | 9 |
| FB562160850336 | SW32 | DOV | 89 | 90 | 93 | 95 | 95 | 95 | 99 | 1 | 3 | 2 | 0 | 0 | 4 | 9 |
| FB562152610188 | SW32 | DOV | 352 | 353 | 354 | 357 | 357 | 357 | 361 | 1 | 1 | 3 | 0 | 0 | 4 | 8 |
| FB562152980094 | SW32 | DOV | 347 | 348 | 352 | 354 | 354 | 355 | 356 | 1 | 4 | 2 | 0 | 1 | 1 | 8 |
| FB562153210091 | SW32 | DOV | 332 | 332 | 333 | 337 | 337 | 337 | 340 | 0 | 1 | 4 | 0 | 0 | 3 | 8 |
| FB562153210227 | SW32 | DOV | 347 | 348 | 352 | 354 | 355 | 355 | 356 | 1 | 4 | 2 | 1 | 0 | 1 | 8 |
| FB562153290005 | SW32 | DOV | 334 | 334 | 339 | 341 | 341 | 341 | 342 | 0 | 5 | 2 | 0 | 0 | 1 | 8 |
| FB562153450080 | SW35 | DOV | 353 | 353 | 355 | 357 | 358 | 359 | 361 | 0 | 2 | 2 | 1 | 1 | 2 | 8 |
| FB562153460206 | SW35 | DOV | 354 | 353 | 356 | 357 | 358 | 359 | 361 | -1 | 3 | 1 | 1 | 1 | 2 | 8 |
| FB562153549515 | FB48 | DOV | 356 | 354 | 355 | 357 | 362 | 362 | 362 | -2 | 1 | 2 | 5 | 0 | 0 | 8 |
| FB562160120485 | SW32 | DOV | 16 | 17 | 18 | 18 | 19 | 19 | 25 | 1 | 1 | 0 | 1 | 0 | 6 | 8 |
| FB562160120584 | SW32 | DOV | 16 | 17 | 18 | 18 | 19 | 19 | 25 | 1 | 1 | 0 | 1 | 0 | 6 | 8 |
| FB562160160055 | SW32 | DOV | 17 | 18 | 18 | 18 | 19 | 19 | 26 | 1 | 0 | 0 | 1 | 0 | 7 | 8 |
| FB562160169527 | FB48 | DOV | 17 | 17 | 18 | 18 | 19 | 19 | 25 | 0 | 1 | 0 | 1 | 0 | 6 | 8 |
| FB562160180315 | SW32 | DOV | 22 | 23 | 24 | 25 | 29 | 29 | 31 | 1 | 1 | 1 | 4 | 0 | 2 | 8 |
| FB562160190198 | SW32 | DOV | 29 | 31 | 31 | 37 | 37 | 37 | 39 | 2 | 0 | 6 | 0 | 0 | 2 | 8 |
| FB562160230171 | SW32 | DOV | 30 | 31 | 31 | 37 | 37 | 37 | 39 | 1 | 0 | 6 | 0 | 0 | 2 | 8 |
| FB562160259516 | FB48 | DOV | 36 | 29 | 31 | 34 | 34 | 35 | 37 | -7 | 2 | 3 | 0 | 1 | 2 | 8 |
| FB562160260060 | SW32 | DOV | 30 | 31 | 31 | 37 | 37 | 37 | 39 | 1 | 0 | 6 | 0 | 0 | 2 | 8 |
| FB562160290017 | SW35 | DOV | 33 | 32 | 36 | 38 | 38 | 38 | 40 | -1 | 4 | 2 | 0 | 0 | 2 | 8 |
| FB562160299506 | FB44 | DOV | 29 | 29 | 30 | 34 | 34 | 35 | 37 | 0 | 1 | 4 | 0 | 1 | 2 | 8 |
| FB562160299522 | FB28 | DOV | 30 | 30 | 31 | 37 | 37 | 37 | 38 | 0 | 1 | 6 | 0 | 0 | 1 | 8 |
| FB562160300072 | SW31 | DOV | 30 | 31 | 31 | 37 | 37 | 37 | 39 | 1 | 0 | 6 | 0 | 0 | 2 | 8 |
| FB562160300111 | SW35 | DOV | 37 | 37 | 39 | 43 | 43 | 43 | 45 | 0 | 2 | 4 | 0 | 0 | 2 | 8 |
| FB562160309507 | FB48 | DOV | 30 | 30 | 31 | 37 | 37 | 37 | 38 | 0 | 1 | 6 | 0 | 0 | 1 | 8 |
| FB562160320062 | SW35 | DOV | 37 | 37 | 39 | 43 | 43 | 43 | 45 | 0 | 2 | 4 | 0 | 0 | 2 | 8 |
| FB562160449501 | FB48 | DOV | 44 | 44 | 45 | 48 | 49 | 50 | 52 | 0 | 1 | 3 | 1 | 1 | 2 | 8 |
| FB562160449509 | FB60 | DOV | 44 | 44 | 45 | 48 | 49 | 50 | 52 | 0 | 1 | 3 | 1 | 1 | 2 | 8 |
| FB562160460008 | SW32 | DOV | 72 | 72 | 75 | 77 | 77 | 78 | 80 | 0 | 3 | 2 | 0 | 1 | 2 | 8 |
| FB562160460011 | SW32 | DOV | 72 | 72 | 75 | 77 | 77 | 78 | 80 | 0 | 3 | 2 | 0 | 1 | 2 | 8 |
| FB562160530509 | SW31 | DOV | 80 | 81 | 85 | 86 | 87 | 87 | 89 | 1 | 4 | 1 | 1 | 0 | 2 | 8 |
| FB562160610338 | SW31 | DOV | 62 | 63 | 65 | 67 | 67 | 67 | 71 | 1 | 2 | 2 | 0 | 0 | 4 | 8 |
| FB562160750321 | SW32 | DOV | 81 | 81 | 85 | 86 | 87 | 87 | 89 | 0 | 4 | 1 | 1 | 0 | 2 | 8 |
| FB562160939505 | FB28 | DOV | 93 | 93 | 94 | 97 | 97 | 99 | 101 | 0 | 1 | 3 | 0 | 2 | 2 | 8 |
| FE562152930144 | SW32 | DOV | 348 | 348 | 353 | 355 | 356 | 356 | 356 | 0 | 5 | 2 | 1 | 0 | 0 | 8 |
| FE562152930146 | SW32 | DOV | 348 | 348 | 353 | 355 | 356 | 356 | 356 | 0 | 5 | 2 | 1 | 0 | 0 | 8 |
| FB562152890182 | SW32 | DOV | 348 | 349 | 352 | 354 | 354 | 355 | 356 | 1 | 3 | 2 | 0 | 1 | 1 | 7 |
| FB562153120342 | SW32 | DOV | 341 | 342 | 345 | 348 | 348 | 349 | 349 | 1 | 3 | 3 | 0 | 1 | 0 | 7 |
| FB562153219504 | SW32 | DOV | 334 | 335 | 335 | 339 | 341 | 341 | 342 | 1 | 0 | 4 | 2 | 0 | 1 | 7 |
| FB562153219505 | SW32 | DOV | 333 | 334 | 335 | 338 | 339 | 339 | 341 | 1 | 1 | 3 | 1 | 0 | 2 | 7 |
| FB562153259500 | FB48 | DOV | 331 | 331 | 332 | 336 | 337 | 337 | 338 | 0 | 1 | 4 | 1 | 0 | 1 | 7 |
| FB562153310157 | SW32 | DOV | 334 | 335 | 338 | 340 | 340 | 340 | 342 | 1 | 3 | 2 | 0 | 0 | 2 | 7 |
| FB562153319500 | FB48 | DOV | 332 | 331 | 332 | 336 | 337 | 337 | 338 | -1 | 1 | 4 | 1 | 0 | 1 | 7 |
| FB562153350197 | SW32 | DOV | 341 | 342 | 345 | 348 | 348 | 349 | 349 | 1 | 3 | 3 | 0 | 1 | 0 | 7 |
| FB562153389511 | FB48 | DOV | 338 | 338 | 339 | 341 | 341 | 342 | 345 | 0 | 1 | 2 | 0 | 1 | 3 | 7 |
| FB562153419505 | FB48 | DOV | 341 | 342 | 345 | 348 | 348 | 349 | 349 | 1 | 3 | 3 | 0 | 1 | 0 | 7 |
| FB562153450216 | SW32 | DOV | 348 | 349 | 352 | 354 | 354 | 355 | 356 | 1 | 3 | 2 | 0 | 1 | 1 | 7 |
| FB562153459507 | FB48 | DOV | 345 | 345 | 346 | 349 | 350 | 350 | 352 | 0 | 1 | 3 | 1 | 0 | 2 | 7 |
| FB562153459534 | FB48 | DOV | 345 | 345 | 346 | 348 | 348 | 348 | 352 | 0 | 1 | 2 | 0 | 0 | 4 | 7 |
| FB562153460393 | SW32 | DOV | 349 | 349 | 353 | 355 | 356 | 356 | 356 | 0 | 4 | 2 | 1 | 0 | 0 | 7 |
| FB562153499409 | FB48 | DOV | 349 | 349 | 352 | 354 | 354 | 355 | 356 | 0 | 3 | 2 | 0 | 1 | 1 | 7 |
| FB562153499503 | FB48 | DOV | 352 | 349 | 352 | 354 | 354 | 355 | 356 | -3 | 3 | 2 | 0 | 1 | 1 | 7 |
| FB562160020182 | SW32 | DOV | 5 | 5 | 10 | 11 | 11 | 12 | 12 | 0 | 5 | 1 | 0 | 1 | 0 | 7 |
| FB562160030386 | SW32 | DOV | 24 | 25 | 29 | 31 | 31 | 31 | 32 | 1 | 4 | 2 | 0 | 0 | 1 | 7 |

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| FB562160039508 | SW32 | DOV | 9 | 10 | 12 | 15 | 15 | 16 | 17 | 1 | 2 | 3 | 0 | 1 | 1 | 7 |
| FB562160040296 | SW32 | DOV | 32 | 33 | 36 | 37 | 38 | 38 | 40 | 1 | 3 | 1 | 1 | 0 | 2 | 7 |
| FB562160049514 | FB44 | DOV | 5 | 5 | 10 | 11 | 11 | 12 | 12 | 0 | 5 | 1 | 0 | 1 | 0 | 7 |
| FB562160050450 | SW32 | DOV | 10 | 11 | 15 | 16 | 16 | 17 | 18 | 1 | 4 | 1 | 0 | 1 | 1 | 7 |
| FB562160050454 | SW32 | DOV | 24 | 25 | 29 | 31 | 31 | 31 | 32 | 1 | 4 | 2 | 0 | 0 | 1 | 7 |
| FB562160050455 | SW32 | DOV | 24 | 25 | 29 | 31 | 31 | 31 | 32 | 1 | 4 | 2 | 0 | 0 | 1 | 7 |
| FB562160059500 | FB23 | DOV | 5 | 5 | 10 | 11 | 11 | 12 | 12 | 0 | 5 | 1 | 0 | 1 | 0 | 7 |
| FB562160059521 | FB48 | DOV | 5 | 5 | 10 | 11 | 11 | 12 | 12 | 0 | 5 | 1 | 0 | 1 | 0 | 7 |
| FB562160080733 | SW32 | DOV | 10 | 11 | 12 | 15 | 15 | 16 | 18 | 1 | 1 | 3 | 0 | 1 | 2 | 7 |
| FB562160089500 | SW32 | DOV | 9 | 10 | 12 | 15 | 15 | 15 | 17 | 1 | 2 | 3 | 0 | 0 | 2 | 7 |
| FB562160089510 | SW32 | DOV | 9 | 10 | 12 | 15 | 15 | 16 | 17 | 1 | 2 | 3 | 0 | 1 | 1 | 7 |
| FB562160089524 | SW35 | DOV | 9 | 9 | 11 | 13 | 13 | 13 | 16 | 0 | 2 | 2 | 0 | 0 | 3 | 7 |
| FB562160099519 | SW32 | DOV | 10 | 11 | 15 | 16 | 17 | 17 | 18 | 1 | 4 | 1 | 1 | 0 | 1 | 7 |
| FB562160099560 | FB48 | DOV | 9 | 9 | 11 | 11 | 13 | 13 | 16 | 0 | 2 | 0 | 2 | 0 | 3 | 7 |
| FB562160109530 | FB48 | DOV | 11 | 11 | 12 | 15 | 15 | 16 | 18 | 0 | 1 | 3 | 0 | 1 | 2 | 7 |
| FB562160169503 | FB48 | DOV | 16 | 16 | 17 | 19 | 19 | 20 | 23 | 0 | 1 | 2 | 0 | 1 | 3 | 7 |
| FB562160169513 | FB48 | DOV | 17 | 17 | 18 | 18 | 19 | 19 | 24 | 0 | 1 | 0 | 1 | 0 | 5 | 7 |
| FB562160169519 | SW31 | DOV | 29 | 30 | 30 | 34 | 34 | 35 | 37 | 1 | 0 | 4 | 0 | 1 | 2 | 7 |
| FB562160180135 | SW32 | DOV | 23 | 23 | 25 | 26 | 27 | 27 | 30 | 0 | 2 | 1 | 1 | 0 | 3 | 7 |
| FB562160199512 | FB46 | DOV | 23 | 23 | 24 | 25 | 27 | 27 | 30 | 0 | 1 | 1 | 2 | 0 | 3 | 7 |
| FB562160300063 | SW32 | DOV | 34 | 33 | 37 | 39 | 39 | 40 | 40 | -1 | 4 | 2 | 0 | 1 | 0 | 7 |
| FB562160300291 | SW32 | DOV | 32 | 33 | 36 | 37 | 38 | 38 | 40 | 1 | 3 | 1 | 1 | 0 | 2 | 7 |
| FB562160389515 | FB28 | DOV | 39 | 39 | 43 | 44 | 44 | 45 | 46 | 0 | 4 | 1 | 0 | 1 | 1 | 7 |
| FB562160400237 | SW31 | DOV | 71 | 72 | 73 | 75 | 76 | 76 | 79 | 1 | 1 | 2 | 1 | 0 | 3 | 7 |
| FB562160430098 | SW32 | DOV | 45 | 46 | 47 | 49 | 49 | 50 | 53 | 1 | 1 | 2 | 0 | 1 | 3 | 7 |
| FB562160449516 | FB61 | DOV | 45 | 45 | 46 | 48 | 49 | 50 | 52 | 0 | 1 | 2 | 1 | 1 | 2 | 7 |
| FB562160449526 | FB48 | DOV | 45 | 45 | 46 | 48 | 49 | 50 | 52 | 0 | 1 | 2 | 1 | 1 | 2 | 7 |
| FB562160450226 | SW32 | DOV | 52 | 53 | 57 | 59 | 59 | 59 | 60 | 1 | 4 | 2 | 0 | 0 | 1 | 7 |
| FB562160450590 | SW32 | DOV | 57 | 58 | 59 | 63 | 64 | 64 | 65 | 1 | 1 | 4 | 1 | 0 | 1 | 7 |
| FB562160459275 | FB44 | DOV | 45 | 45 | 46 | 49 | 49 | 50 | 52 | 0 | 1 | 3 | 0 | 1 | 2 | 7 |
| FB562160459276 | FB48 | DOV | 45 | 45 | 46 | 48 | 49 | 50 | 52 | 0 | 1 | 2 | 1 | 1 | 2 | 7 |
| FB562160459277 | FB62 | DOV | 45 | 45 | 46 | 49 | 49 | 50 | 52 | 0 | 1 | 3 | 0 | 1 | 2 | 7 |
| FB562160459279 | FB46 | DOV | 45 | 45 | 46 | 49 | 49 | 50 | 52 | 0 | 1 | 3 | 0 | 1 | 2 | 7 |
| FB562160459280 | SW31 | DOV | 45 | 45 | 46 | 49 | 49 | 50 | 52 | 0 | 1 | 3 | 0 | 1 | 2 | 7 |
| FB562160459511 | FB44 | DOV | 45 | 45 | 46 | 48 | 49 | 50 | 52 | 0 | 1 | 2 | 1 | 1 | 2 | 7 |
| FB562160469520 | FB48 | DOV | 47 | 46 | 47 | 49 | 49 | 50 | 53 | -1 | 1 | 2 | 0 | 1 | 3 | 7 |
| FB562160530674 | SW31 | DOV | 74 | 75 | 78 | 79 | 80 | 80 | 82 | 1 | 3 | 1 | 1 | 0 | 2 | 7 |
| FB562160539509 | FB48 | DOV | 54 | 54 | 57 | 58 | 58 | 59 | 61 | 0 | 3 | 1 | 0 | 1 | 2 | 7 |
| FB562160579518 | FB64 | DOV | 59 | 58 | 59 | 63 | 64 | 64 | 65 | -1 | 1 | 4 | 1 | 0 | 1 | 7 |
| FB562160589509 | FB48 | DOV | 58 | 58 | 59 | 63 | 63 | 63 | 65 | 0 | 1 | 4 | 0 | 0 | 2 | 7 |
| FB562160590214 | FB48 | DOV | 82 | 82 | 85 | 86 | 86 | 86 | 89 | 0 | 3 | 1 | 0 | 0 | 3 | 7 |
| FB562160619514 | FB48 | DOV | 64 | 64 | 66 | 67 | 68 | 68 | 71 | 0 | 2 | 1 | 1 | 0 | 3 | 7 |
| FB562160660145 | SW32 | DOV | 67 | 68 | 71 | 72 | 73 | 73 | 75 | 1 | 3 | 1 | 1 | 0 | 2 | 7 |
| FB562160670513 | SW32 | DOV | 71 | 72 | 73 | 75 | 76 | 76 | 79 | 1 | 1 | 2 | 1 | 0 | 3 | 7 |
| FB562160700003 | SW31 | DOV | 72 | 73 | 73 | 75 | 76 | 76 | 80 | 1 | 0 | 2 | 1 | 0 | 4 | 7 |
| FB562160710078 | SW31 | DOV | 72 | 73 | 73 | 75 | 76 | 76 | 80 | 1 | 0 | 2 | 1 | 0 | 4 | 7 |
| FB562160710080 | SW31 | DOV | 72 | 73 | 73 | 75 | 76 | 76 | 80 | 1 | 0 | 2 | 1 | 0 | 4 | 7 |
| FB562160719505 | FB48 | DOV | 71 | 71 | 73 | 76 | 76 | 76 | 78 | 0 | 2 | 3 | 0 | 0 | 2 | 7 |
| FB562160730233 | SW32 | DOV | 81 | 82 | 86 | 88 | 88 | 88 | 89 | 1 | 4 | 2 | 0 | 0 | 1 | 7 |
| FB562160759536 | FB28 | DOV | 78 | 78 | 80 | 81 | 82 | 82 | 85 | 0 | 2 | 1 | 1 | 0 | 3 | 7 |
| FB562160799503 | FB44 | DOV | 79 | 79 | 81 | 85 | 85 | 85 | 86 | 0 | 2 | 4 | 0 | 0 | 1 | 7 |
| FB562160859511 | FB48 | DOV | 85 | 85 | 86 | 89 | 89 | 90 | 92 | 0 | 1 | 3 | 0 | 1 | 2 | 7 |
| FB562160859514 | FB48 | DOV | 85 | 85 | 86 | 89 | 89 | 90 | 92 | 0 | 1 | 3 | 0 | 1 | 2 | 7 |
| FB562160870808 | SW32 | DOV | 93 | 94 | 95 | 97 | 97 | 99 | 101 | 1 | 1 | 2 | 0 | 2 | 2 | 7 |
| FB562160939513 | FB48 | DOV | 93 | 93 | 95 | 97 | 97 | 99 | 100 | 0 | 2 | 2 | 0 | 2 | 1 | 7 |
| FB562160939514 | FB48 | DOV | 93 | 93 | 94 | 97 | 97 | 99 | 100 | 0 | 1 | 3 | 0 | 2 | 1 | 7 |
| FB562160991714 | SW32 | DOV | 102 | 103 | 106 | 108 | 108 | 108 | 110 | 1 | 3 | 2 | 0 | 0 | 2 | 7 |
| FB562161069511 | FB48 | DOV | 106 | 106 | 108 | 110 | 110 | 110 | 113 | 0 | 2 | 2 | 0 | 0 | 3 | 7 |
| FB562161080392 | SW32 | DOV | 109 | 110 | 114 | 116 | 116 | 117 | 117 | 1 | 4 | 2 | 0 | 1 | 0 | 7 |
| FE562153260017 | SW32 | DOV | 332 | 332 | 334 | 336 | 336 | 337 | 339 | 0 | 2 | 2 | 0 | 1 | 2 | 7 |
| FE562153260028 | FD70 | DOV | 334 | 334 | 338 | 340 | 340 | 340 | 341 | 0 | 4 | 2 | 0 | 0 | 1 | 7 |
| FE562153260029 | FD70 | DOV | 334 | 334 | 338 | 340 | 340 | 340 | 341 | 0 | 4 | 2 | 0 | 0 | 1 | 7 |
| FB562152551813 | SW32 | DOV | 332 | 333 | 334 | 336 | 336 | 337 | 339 | 1 | 1 | 2 | 0 | 1 | 2 | 6 |
| FB562153110126 | SW32 | DOV | 342 | 343 | 346 | 348 | 348 | 348 | 349 | 1 | 3 | 2 | 0 | 0 | 1 | 6 |
| FB562153120085 | SW32 | DOV | 339 | 340 | 341 | 342 | 344 | 345 | 346 | 1 | 1 | 1 | 2 | 1 | 1 | 6 |
| FB562153170756 | SW32 | DOV | 339 | 340 | 341 | 342 | 344 | 345 | 346 | 1 | 1 | 1 | 2 | 1 | 1 | 6 |
| FB562153190062 | SW32 | DOV | 342 | 343 | 346 | 348 | 348 | 348 | 349 | 1 | 3 | 2 | 0 | 0 | 1 | 6 |
| FB562153190064 | SW32 | DOV | 342 | 343 | 346 | 348 | 348 | 348 | 349 | 1 | 3 | 2 | 0 | 0 | 1 | 6 |
| FB562153240018 | SW32 | DOV | 332 | 333 | 334 | 336 | 336 | 337 | 339 | 1 | 1 | 2 | 0 | 1 | 2 | 6 |
| FB562153250085 | SW32 | DOV | 331 | 332 | 333 | 336 | 336 | 337 | 338 | 1 | 1 | 3 | 0 | 1 | 1 | 6 |
| FB562153250258 | SW32 | DOV | 332 | 333 | 334 | 336 | 336 | 337 | 339 | 1 | 1 | 2 | 0 | 1 | 2 | 6 |
| FB562153300005 | SW32 | DOV | 332 | 333 | 334 | 336 | 336 | 337 | 339 | 1 | 1 | 2 | 0 | 1 | 2 | 6 |
| FB562153310155 | SW32 | DOV | 334 | 335 | 338 | 340 | 340 | 340 | 341 | 1 | 3 | 2 | 0 | 0 | 1 | 6 |
| FB562153310252 | SW32 | DOV | 334 | 335 | 338 | 340 | 340 | 340 | 341 | 1 | 3 | 2 | 0 | 0 | 1 | 6 |

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| FB562153320381 | SW31 | DOV | 333 | 334 | 334 | 336 | 336 | 337 | 340 | 1 | 0 | 2 | 0 | 1 | 3 | 6 |
| FB562153320436 | SW32 | DOV | 349 | 350 | 353 | 355 | 356 | 356 | 356 | 1 | 3 | 2 | 1 | 0 | 0 | 6 |
| FB562153329501 | FB44 | DOV | 333 | 332 | 334 | 336 | 336 | 337 | 338 | -1 | 2 | 2 | 0 | 1 | 1 | 6 |
| FB562153349512 | SW32 | DOV | 335 | 336 | 339 | 341 | 341 | 341 | 342 | 1 | 3 | 2 | 0 | 0 | 1 | 6 |
| FB562153349513 | SW32 | DOV | 335 | 336 | 339 | 341 | 341 | 341 | 342 | 1 | 3 | 2 | 0 | 0 | 1 | 6 |
| FB562153359506 | FB28 | DOV | 335 | 335 | 338 | 340 | 340 | 340 | 341 | 0 | 3 | 2 | 0 | 0 | 1 | 6 |
| FB562153380198 | SW32 | DOV | 347 | 348 | 349 | 351 | 353 | 353 | 354 | 1 | 1 | 2 | 2 | 0 | 1 | 6 |
| FB562153380345 | SW32 | DOV | 347 | 347 | 348 | 352 | 352 | 352 | 353 | 0 | 1 | 4 | 0 | 0 | 1 | 6 |
| FB562153400145 | SW32 | DOV | 347 | 347 | 348 | 352 | 352 | 352 | 353 | 0 | 1 | 4 | 0 | 0 | 1 | 6 |
| FB562153460012 | FD70 | DOV | 349 | 350 | 353 | 355 | 356 | 356 | 356 | 1 | 3 | 2 | 1 | 0 | 0 | 6 |
| FB562153460070 | SW32 | DOV | 349 | 350 | 353 | 355 | 356 | 356 | 356 | 1 | 3 | 2 | 1 | 0 | 0 | 6 |
| FB562153469510 | FB48 | DOV | 346 | 346 | 347 | 348 | 349 | 349 | 352 | 0 | 1 | 1 | 1 | 0 | 3 | 6 |
| FB562153469513 | FB61 | DOV | 346 | 346 | 347 | 348 | 349 | 349 | 352 | 0 | 1 | 1 | 1 | 0 | 3 | 6 |
| FB562153479519 | FB48 | DOV | 348 | 348 | 349 | 351 | 353 | 353 | 354 | 0 | 1 | 2 | 2 | 0 | 1 | 6 |
| FB562153489500 | FB48 | DOV | 348 | 348 | 349 | 351 | 353 | 353 | 354 | 0 | 1 | 2 | 2 | 0 | 1 | 6 |
| FB562153489514 | FB48 | DOV | 352 | 348 | 349 | 351 | 353 | 353 | 354 | -4 | 1 | 2 | 2 | 0 | 1 | 6 |
| FB562153489517 | FB48 | DOV | 348 | 348 | 349 | 351 | 353 | 353 | 354 | 0 | 1 | 2 | 2 | 0 | 1 | 6 |
| FB562153490806 | SW32 | DOV | 354 | 355 | 357 | 359 | 359 | 360 | 361 | 1 | 2 | 2 | 0 | 1 | 1 | 6 |
| FB562160020091 | SW32 | DOV | 5 | 6 | 10 | 11 | 11 | 12 | 12 | 1 | 4 | 1 | 0 | 1 | 0 | 6 |
| FB562160039520 | FB44 | DOV | 3 | 2 | 4 | 6 | 6 | 6 | 8 | -1 | 2 | 2 | 0 | 0 | 2 | 6 |
| FB562160080699 | SW32 | DOV | 9 | 10 | 11 | 13 | 13 | 13 | 16 | 1 | 1 | 2 | 0 | 0 | 3 | 6 |
| FB562160090270 | SW32 | DOV | 11 | 12 | 15 | 16 | 16 | 17 | 18 | 1 | 3 | 1 | 0 | 1 | 1 | 6 |
| FB562160090369 | SW32 | DOV | 10 | 11 | 12 | 15 | 15 | 16 | 17 | 1 | 1 | 3 | 0 | 1 | 1 | 6 |
| FB562160090607 | SW32 | DOV | 11 | 12 | 15 | 16 | 16 | 17 | 18 | 1 | 3 | 1 | 0 | 1 | 1 | 6 |
| FB562160100007 | SW32 | DOV | 11 | 12 | 15 | 16 | 16 | 17 | 18 | 1 | 3 | 1 | 0 | 1 | 1 | 6 |
| FB562160100286 | SW32 | DOV | 11 | 12 | 15 | 16 | 16 | 17 | 18 | 1 | 3 | 1 | 0 | 1 | 1 | 6 |
| FB562160109502 | FB48 | DOV | 12 | 10 | 11 | 13 | 13 | 13 | 16 | -2 | 1 | 2 | 0 | 0 | 3 | 6 |
| FB562160109512 | FB48 | DOV | 11 | 11 | 12 | 15 | 15 | 16 | 17 | 0 | 1 | 3 | 0 | 1 | 1 | 6 |
| FB562160109534 | FB48 | DOV | 11 | 11 | 12 | 15 | 15 | 16 | 17 | 0 | 1 | 3 | 0 | 1 | 1 | 6 |
| FB562160110196 | SW32 | DOV | 25 | 26 | 29 | 30 | 31 | 31 | 32 | 1 | 3 | 1 | 1 | 0 | 1 | 6 |
| FB562160119513 | FB48 | DOV | 11 | 11 | 12 | 15 | 15 | 16 | 17 | 0 | 1 | 3 | 0 | 1 | 1 | 6 |
| FB562160119517 | FB48 | DOV | 12 | 11 | 12 | 15 | 15 | 16 | 17 | -1 | 1 | 3 | 0 | 1 | 1 | 6 |
| FB562160129515 | FB44 | DOV | 12 | 12 | 15 | 16 | 17 | 17 | 18 | 0 | 3 | 1 | 1 | 0 | 1 | 6 |
| FB562160149500 | SW32 | DOV | 17 | 17 | 19 | 20 | 20 | 20 | 23 | 0 | 2 | 1 | 0 | 0 | 3 | 6 |
| FB562160169526 | SW32 | DOV | 16 | 17 | 17 | 19 | 19 | 20 | 23 | 1 | 0 | 2 | 0 | 1 | 3 | 6 |
| FB562160170419 | SW32 | DOV | 24 | 24 | 26 | 28 | 28 | 28 | 30 | 0 | 2 | 2 | 0 | 0 | 2 | 6 |
| FB562160259515 | FB28 | DOV | 26 | 26 | 29 | 30 | 31 | 31 | 32 | 0 | 3 | 1 | 1 | 0 | 1 | 6 |
| FB562160259518 | FB28 | DOV | 26 | 26 | 29 | 30 | 31 | 31 | 32 | 0 | 3 | 1 | 1 | 0 | 1 | 6 |
| FB562160259519 | SW35 | DOV | 26 | 26 | 29 | 30 | 31 | 31 | 32 | 0 | 3 | 1 | 1 | 0 | 1 | 6 |
| FB562160259520 | FB48 | DOV | 26 | 26 | 30 | 30 | 31 | 31 | 32 | 0 | 4 | 0 | 1 | 0 | 1 | 6 |
| FB562160290250 | SW32 | DOV | 40 | 40 | 44 | 46 | 46 | 46 | 46 | 0 | 4 | 2 | 0 | 0 | 0 | 6 |
| FB562160290551 | SW32 | DOV | 39 | 40 | 43 | 44 | 44 | 45 | 46 | 1 | 3 | 1 | 0 | 1 | 1 | 6 |
| FB562160300282 | SW32 | DOV | 53 | 54 | 57 | 58 | 58 | 59 | 60 | 1 | 3 | 1 | 0 | 1 | 1 | 6 |
| FB562160309508 | SW32 | DOV | 30 | 31 | 33 | 36 | 36 | 36 | 37 | 1 | 2 | 3 | 0 | 0 | 1 | 6 |
| FB562160310553 | SW31 | DOV | 58 | 59 | 59 | 63 | 64 | 64 | 65 | 1 | 0 | 4 | 1 | 0 | 1 | 6 |
| FB562160319514 | FB48 | DOV | 31 | 31 | 32 | 33 | 36 | 36 | 37 | 0 | 1 | 1 | 3 | 0 | 1 | 6 |
| FB562160319515 | FB64 | DOV | 33 | 33 | 36 | 37 | 38 | 38 | 39 | 0 | 3 | 1 | 1 | 0 | 1 | 6 |
| FB562160319519 | FB44 | DOV | 31 | 31 | 32 | 33 | 34 | 34 | 37 | 0 | 1 | 1 | 1 | 0 | 3 | 6 |
| FB562160330276 | SW32 | DOV | 39 | 40 | 43 | 44 | 44 | 45 | 46 | 1 | 3 | 1 | 0 | 1 | 1 | 6 |
| FB562160330642 | SW32 | DOV | 39 | 40 | 43 | 44 | 44 | 45 | 46 | 1 | 3 | 1 | 0 | 1 | 1 | 6 |
| FB562160360150 | SW31 | DOV | 58 | 59 | 59 | 63 | 64 | 64 | 65 | 1 | 0 | 4 | 1 | 0 | 1 | 6 |
| FB562160370236 | SW32 | DOV | 39 | 40 | 40 | 42 | 42 | 43 | 46 | 1 | 0 | 2 | 0 | 1 | 3 | 6 |
| FB562160370395 | FB64 | DOV | 51 | 51 | 52 | 53 | 54 | 54 | 57 | 0 | 1 | 1 | 1 | 0 | 3 | 6 |
| FB562160370448 | SW32 | DOV | 39 | 40 | 43 | 44 | 44 | 45 | 46 | 1 | 3 | 1 | 0 | 1 | 1 | 6 |
| FB562160370449 | SW32 | DOV | 39 | 40 | 43 | 44 | 44 | 45 | 46 | 1 | 3 | 1 | 0 | 1 | 1 | 6 |
| FB562160370452 | SW32 | DOV | 39 | 40 | 43 | 44 | 44 | 45 | 46 | 1 | 3 | 1 | 0 | 1 | 1 | 6 |
| FB562160370457 | SW32 | DOV | 39 | 40 | 44 | 46 | 46 | 46 | 46 | 1 | 4 | 2 | 0 | 0 | 0 | 6 |
| FB562160370761 | SW31 | DOV | 47 | 48 | 50 | 51 | 51 | 52 | 54 | 1 | 2 | 1 | 0 | 1 | 2 | 6 |
| FB562160389267 | SW35 | DOV | 39 | 39 | 40 | 43 | 43 | 44 | 45 | 0 | 1 | 3 | 0 | 1 | 1 | 6 |
| FB562160399507 | FB48 | DOV | 40 | 40 | 43 | 44 | 44 | 45 | 46 | 0 | 3 | 1 | 0 | 1 | 1 | 6 |
| FB562160450293 | SW31 | DOV | 46 | 47 | 50 | 51 | 51 | 52 | 53 | 1 | 3 | 1 | 0 | 1 | 1 | 6 |
| FB562160460237 | SW31 | DOV | 66 | 67 | 67 | 71 | 72 | 72 | 73 | 1 | 0 | 4 | 1 | 0 | 1 | 6 |
| FB562160469515 | FB48 | DOV | 46 | 46 | 47 | 49 | 49 | 50 | 52 | 0 | 1 | 2 | 0 | 1 | 2 | 6 |
| FB562160470169 | SW31 | DOV | 50 | 51 | 51 | 53 | 54 | 54 | 57 | 1 | 0 | 2 | 1 | 0 | 3 | 6 |
| FB562160470198 | SW32 | DOV | 74 | 75 | 78 | 80 | 80 | 80 | 81 | 1 | 3 | 2 | 0 | 0 | 1 | 6 |
| FB562160470385 | SW31 | DOV | 58 | 59 | 59 | 63 | 64 | 64 | 65 | 1 | 0 | 4 | 1 | 0 | 1 | 6 |
| FB562160519507 | FB48 | DOV | 51 | 51 | 52 | 53 | 54 | 54 | 57 | 0 | 1 | 1 | 1 | 0 | 3 | 6 |
| FB562160520057 | SW32 | DOV | 53 | 54 | 57 | 58 | 58 | 59 | 60 | 1 | 3 | 1 | 0 | 1 | 1 | 6 |
| FB562160521342 | SW32 | DOV | 53 | 54 | 57 | 58 | 58 | 59 | 60 | 1 | 3 | 1 | 0 | 1 | 1 | 6 |
| FB562160522408 | SW32 | DOV | 54 | 55 | 58 | 60 | 60 | 60 | 61 | 1 | 3 | 2 | 0 | 0 | 1 | 6 |
| FB562160529508 | FB48 | DOV | 52 | 52 | 54 | 57 | 57 | 57 | 58 | 0 | 2 | 3 | 0 | 0 | 1 | 6 |
| FB562160530442 | SW32 | DOV | 54 | 55 | 58 | 60 | 60 | 60 | 61 | 1 | 3 | 2 | 0 | 0 | 1 | 6 |
| FB562160530598 | SW31 | DOV | 58 | 59 | 59 | 63 | 64 | 64 | 65 | 1 | 0 | 4 | 1 | 0 | 1 | 6 |
| FB562160550359 | SW31 | DOV | 65 | 66 | 67 | 68 | 69 | 69 | 72 | 1 | 1 | 1 | 1 | 0 | 3 | 6 |

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| FB562160550361 | SW31 | DOV | 58 | 59 | 59 | 63 | 64 | 64 | 65 | 1 | 0 | 4 | 1 | 0 | 1 | 6 |
| FB562160570206 | SW32 | DOV | 68 | 69 | 72 | 74 | 74 | 74 | 75 | 1 | 3 | 2 | 0 | 0 | 1 | 6 |
| FB562160580500 | SW32 | DOV | 68 | 69 | 72 | 74 | 74 | 74 | 75 | 1 | 3 | 2 | 0 | 0 | 1 | 6 |
| FB562160590377 | SW32 | DOV | 61 | 62 | 65 | 67 | 67 | 67 | 68 | 1 | 3 | 2 | 0 | 0 | 1 | 6 |
| FB562160609501 | SW35 | DOV | 65 | 65 | 66 | 67 | 68 | 68 | 71 | 0 | 1 | 1 | 1 | 0 | 3 | 6 |
| FB562160609512 | FB28 | DOV | 61 | 61 | 64 | 66 | 66 | 66 | 67 | 0 | 3 | 2 | 0 | 0 | 1 | 6 |
| FB562160610326 | SW31 | DOV | 64 | 65 | 66 | 67 | 68 | 68 | 71 | 1 | 1 | 1 | 1 | 0 | 3 | 6 |
| FB562160619504 | FB48 | DOV | 61 | 61 | 64 | 66 | 66 | 66 | 67 | 0 | 3 | 2 | 0 | 0 | 1 | 6 |
| FB562160619508 | FB48 | DOV | 61 | 61 | 64 | 66 | 66 | 66 | 67 | 0 | 3 | 2 | 0 | 0 | 1 | 6 |
| FB562160649508 | FB48 | DOV | 87 | 65 | 66 | 67 | 68 | 68 | 71 | -22 | 1 | 1 | 1 | 0 | 3 | 6 |
| FB562160659506 | FB46 | DOV | 66 | 65 | 66 | 67 | 68 | 68 | 71 | -1 | 1 | 1 | 1 | 0 | 3 | 6 |
| FB562160680347 | SW32 | DOV | 72 | 73 | 74 | 77 | 77 | 77 | 79 | 1 | 1 | 3 | 0 | 0 | 2 | 6 |
| FB562160700005 | SW31 | DOV | 72 | 73 | 73 | 75 | 76 | 76 | 79 | 1 | 0 | 2 | 1 | 0 | 3 | 6 |
| FB562160710263 | SW32 | DOV | 72 | 73 | 74 | 77 | 77 | 77 | 79 | 1 | 1 | 3 | 0 | 0 | 2 | 6 |
| FB562160719510 | FB44 | DOV | 72 | 72 | 72 | 74 | 75 | 75 | 78 | 0 | 0 | 2 | 1 | 0 | 3 | 6 |
| FB562160720424 | SW31 | DOV | 74 | 75 | 75 | 77 | 77 | 77 | 81 | 1 | 0 | 2 | 0 | 0 | 4 | 6 |
| FB562160729708 | FB46 | DOV | 72 | 72 | 74 | 75 | 75 | 75 | 78 | 0 | 2 | 1 | 0 | 0 | 3 | 6 |
| FB562160730241 | SW31 | DOV | 75 | 76 | 78 | 79 | 80 | 80 | 82 | 1 | 2 | 1 | 1 | 0 | 2 | 6 |
| FB562160739517 | FB48 | DOV | 73 | 73 | 74 | 77 | 77 | 77 | 79 | 0 | 1 | 3 | 0 | 0 | 2 | 6 |
| FB562160740291 | SW31 | DOV | 75 | 76 | 78 | 79 | 80 | 80 | 82 | 1 | 2 | 1 | 1 | 0 | 2 | 6 |
| FB562160749508 | SW32 | DOV | 75 | 75 | 78 | 79 | 80 | 80 | 81 | 0 | 3 | 1 | 1 | 0 | 1 | 6 |
| FB562160750149 | SW32 | DOV | 78 | 79 | 80 | 81 | 82 | 82 | 85 | 1 | 1 | 1 | 1 | 0 | 3 | 6 |
| FB562160799514 | FB48 | DOV | 79 | 79 | 80 | 81 | 81 | 81 | 85 | 0 | 1 | 1 | 0 | 0 | 4 | 6 |
| FB562160829501 | FB48 | DOV | 82 | 82 | 85 | 86 | 87 | 87 | 88 | 0 | 3 | 1 | 1 | 0 | 1 | 6 |
| FB562160860039 | SW32 | DOV | 87 | 88 | 89 | 90 | 90 | 91 | 94 | 1 | 1 | 1 | 0 | 1 | 3 | 6 |
| FB562160879512 | FB48 | DOV | 88 | 88 | 89 | 92 | 93 | 93 | 94 | 0 | 1 | 3 | 1 | 0 | 1 | 6 |
| FB562160949501 | FB48 | DOV | 94 | 94 | 95 | 97 | 97 | 99 | 100 | 0 | 1 | 2 | 0 | 2 | 1 | 6 |
| FB562161079502 | FB48 | DOV | 107 | 107 | 108 | 110 | 110 | 110 | 113 | 0 | 1 | 2 | 0 | 0 | 3 | 6 |
| FB562161079513 | FB30 | DOV | 108 | 108 | 110 | 112 | 112 | 113 | 114 | 0 | 2 | 2 | 0 | 1 | 1 | 6 |
| FB562161080276 | SW32 | DOV | 110 | 111 | 114 | 116 | 116 | 117 | 117 | 1 | 3 | 2 | 0 | 1 | 0 | 6 |
| FB562161090025 | SW32 | DOV | 110 | 111 | 114 | 116 | 116 | 117 | 117 | 1 | 3 | 2 | 0 | 1 | 0 | 6 |
| FB562161130598 | SW07 | DOV | 114 | 114 | 115 | 118 | 118 | 119 | 120 | 0 | 1 | 3 | 0 | 1 | 1 | 6 |
| FB562161149507 | FB48 | DOV | 114 | 114 | 115 | 118 | 118 | 119 | 120 | 0 | 1 | 3 | 0 | 1 | 1 | 6 |
| FE562160030248 | SW32 | DOV | 5 | 6 | 10 | 11 | 11 | 12 | 12 | 1 | 4 | 1 | 0 | 1 | 0 | 6 |
| FE562160080453 | SW31 | DOV | 18 | 19 | 19 | 22 | 23 | 23 | 25 | 1 | 0 | 3 | 1 | 0 | 2 | 6 |
| FB562152970237 | SW32 | DOV | 343 | 344 | 346 | 348 | 348 | 348 | 349 | 1 | 2 | 2 | 0 | 0 | 1 | 5 |
| FB562153260166 | SW32 | DOV | 333 | 333 | 335 | 337 | 337 | 338 | 338 | 0 | 2 | 2 | 0 | 1 | 0 | 5 |
| FB562153260238 | FD70 | DOV | 333 | 334 | 335 | 337 | 337 | 338 | 339 | 1 | 1 | 2 | 0 | 1 | 1 | 5 |
| FB562153260306 | SW32 | DOV | 340 | 341 | 342 | 344 | 344 | 345 | 346 | 1 | 1 | 2 | 0 | 1 | 1 | 5 |
| FB562153310110 | SW31 | DOV | 333 | 334 | 334 | 336 | 336 | 337 | 339 | 1 | 0 | 2 | 0 | 1 | 2 | 5 |
| FB562153310316 | SW32 | DOV | 333 | 334 | 335 | 337 | 337 | 338 | 339 | 1 | 1 | 2 | 0 | 1 | 1 | 5 |
| FB562153320276 | SW31 | DOV | 333 | 334 | 334 | 336 | 336 | 337 | 339 | 1 | 0 | 2 | 0 | 1 | 2 | 5 |
| FB562153339511 | SW31 | DOV | 333 | 334 | 334 | 337 | 337 | 338 | 339 | 1 | 0 | 3 | 0 | 1 | 1 | 5 |
| FB562153350172 | SW32 | DOV | 340 | 341 | 342 | 344 | 344 | 345 | 346 | 1 | 1 | 2 | 0 | 1 | 1 | 5 |
| FB562153350451 | SW32 | DOV | 346 | 347 | 348 | 349 | 350 | 351 | 352 | 1 | 1 | 1 | 1 | 1 | 1 | 5 |
| FB562153350467 | SW32 | DOV | 340 | 341 | 342 | 344 | 344 | 345 | 346 | 1 | 1 | 2 | 0 | 1 | 1 | 5 |
| FB562153409504 | FB44 | DOV | 340 | 340 | 342 | 342 | 342 | 342 | 345 | 0 | 2 | 0 | 0 | 0 | 3 | 5 |
| FB562153460069 | SW32 | DOV | 350 | 351 | 353 | 355 | 356 | 356 | 356 | 1 | 2 | 2 | 1 | 0 | 0 | 5 |
| FB562153460632 | SW32 | DOV | 350 | 351 | 353 | 355 | 356 | 356 | 356 | 1 | 2 | 2 | 1 | 0 | 0 | 5 |
| FB562153460842 | SW32 | DOV | 350 | 351 | 353 | 355 | 356 | 356 | 356 | 1 | 2 | 2 | 1 | 0 | 0 | 5 |
| FB562153469506 | FB48 | DOV | 347 | 347 | 348 | 349 | 350 | 351 | 352 | 0 | 1 | 1 | 1 | 1 | 1 | 5 |
| FB562153469516 | FB48 | DOV | 347 | 347 | 348 | 349 | 350 | 351 | 352 | 0 | 1 | 1 | 1 | 1 | 1 | 5 |
| FB562153469521 | FB48 | DOV | 347 | 347 | 348 | 349 | 350 | 351 | 352 | 0 | 1 | 1 | 1 | 1 | 1 | 5 |
| FB562153479507 | FB48 | DOV | 347 | 347 | 348 | 349 | 350 | 351 | 352 | 0 | 1 | 1 | 1 | 1 | 1 | 5 |
| FB562153479512 | FB48 | DOV | 347 | 347 | 348 | 349 | 350 | 351 | 352 | 0 | 1 | 1 | 1 | 1 | 1 | 5 |
| FB562153479513 | FB46 | DOV | 347 | 347 | 348 | 349 | 350 | 351 | 352 | 0 | 1 | 1 | 1 | 1 | 1 | 5 |
| FB562153499516 | SW32 | DOV | 352 | 351 | 353 | 355 | 356 | 356 | 356 | -1 | 2 | 2 | 1 | 0 | 0 | 5 |
| FB562160029501 | FB48 | DOV | 4 | 4 | 5 | 7 | 7 | 8 | 9 | 0 | 1 | 2 | 0 | 1 | 1 | 5 |
| FB562160029507 | FB48 | DOV | 4 | 4 | 5 | 7 | 7 | 8 | 9 | 0 | 1 | 2 | 0 | 1 | 1 | 5 |
| FB562160040261 | SW31 | DOV | 25 | 26 | 26 | 30 | 30 | 31 | 31 | 1 | 0 | 4 | 0 | 1 | 0 | 5 |
| FB562160049515 | FB48 | DOV | 4 | 4 | 5 | 7 | 7 | 8 | 9 | 0 | 1 | 2 | 0 | 1 | 1 | 5 |
| FB562160050312 | SW31 | DOV | 65 | 66 | 66 | 67 | 68 | 68 | 71 | 1 | 0 | 1 | 1 | 0 | 3 | 5 |
| FB562160051368 | SW32 | DOV | 26 | 27 | 30 | 30 | 31 | 31 | 32 | 1 | 3 | 0 | 1 | 0 | 1 | 5 |
| FB562160080456 | SW31 | DOV | 25 | 26 | 26 | 30 | 30 | 31 | 31 | 1 | 0 | 4 | 0 | 1 | 0 | 5 |
| FB562160080480 | SW32 | DOV | 40 | 41 | 44 | 46 | 46 | 46 | 46 | 1 | 3 | 2 | 0 | 0 | 0 | 5 |
| FB562160100361 | SW31 | DOV | 12 | 13 | 15 | 16 | 16 | 17 | 18 | 1 | 2 | 1 | 0 | 1 | 1 | 5 |
| FB562160100363 | SW31 | DOV | 12 | 13 | 15 | 16 | 16 | 17 | 18 | 1 | 2 | 1 | 0 | 1 | 1 | 5 |
| FB562160119521 | FB66 | DOV | 12 | 12 | 15 | 16 | 16 | 17 | 17 | 0 | 3 | 1 | 0 | 1 | 0 | 5 |
| FB562160120577 | SW32 | DOV | 17 | 18 | 19 | 20 | 20 | 20 | 23 | 1 | 1 | 1 | 0 | 0 | 3 | 5 |
| FB562160129503 | FB48 | DOV | 12 | 12 | 15 | 16 | 16 | 17 | 17 | 0 | 3 | 1 | 0 | 1 | 0 | 5 |
| FB562160129516 | FB48 | DOV | 12 | 12 | 13 | 16 | 16 | 17 | 17 | 0 | 1 | 3 | 0 | 1 | 0 | 5 |
| FB562160129517 | SW32 | DOV | 13 | 13 | 15 | 16 | 17 | 17 | 18 | 0 | 2 | 1 | 1 | 0 | 1 | 5 |
| FB562160129518 | FB48 | DOV | 12 | 12 | 13 | 16 | 16 | 17 | 17 | 0 | 1 | 3 | 0 | 1 | 0 | 5 |
| FB562160160201 | SW32 | DOV | 17 | 18 | 19 | 20 | 20 | 20 | 23 | 1 | 1 | 1 | 0 | 0 | 3 | 5 |

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| FB562160179509 | SW31 | DOV | 17 | 18 | 18 | 20 | 20 | 20 | 23 | 1 | 0 | 2 | 0 | 0 | 3 | 5 |
| FB562160180246 | SW31 | DOV | 58 | 59 | 60 | 62 | 62 | 62 | 64 | 1 | 1 | 2 | 0 | 0 | 2 | 5 |
| FB562160180314 | SW31 | DOV | 31 | 32 | 32 | 33 | 34 | 34 | 37 | 1 | 0 | 1 | 1 | 0 | 3 | 5 |
| FB562160250106 | SW32 | DOV | 40 | 41 | 44 | 46 | 46 | 46 | 46 | 1 | 3 | 2 | 0 | 0 | 0 | 5 |
| FB562160250128 | SW32 | DOV | 31 | 32 | 32 | 36 | 36 | 36 | 37 | 1 | 0 | 4 | 0 | 0 | 1 | 5 |
| FB562160250254 | SW31 | DOV | 33 | 34 | 36 | 38 | 38 | 38 | 39 | 1 | 2 | 2 | 0 | 0 | 1 | 5 |
| FB562160250267 | SW32 | DOV | 26 | 27 | 30 | 31 | 31 | 31 | 32 | 1 | 3 | 1 | 0 | 0 | 1 | 5 |
| FB562160260068 | SW32 | DOV | 37 | 38 | 39 | 40 | 41 | 41 | 43 | 1 | 1 | 1 | 1 | 0 | 2 | 5 |
| FB562160260680 | SW32 | DOV | 34 | 35 | 37 | 39 | 39 | 40 | 40 | 1 | 2 | 2 | 0 | 1 | 0 | 5 |
| FB562160300178 | SW32 | DOV | 88 | 89 | 92 | 93 | 93 | 93 | 94 | 1 | 3 | 1 | 0 | 0 | 1 | 5 |
| FB562160320286 | SW32 | DOV | 34 | 35 | 37 | 39 | 39 | 40 | 40 | 1 | 2 | 2 | 0 | 1 | 0 | 5 |
| FB562160329505 | FB48 | DOV | 32 | 32 | 33 | 36 | 36 | 36 | 37 | 0 | 1 | 3 | 0 | 0 | 1 | 5 |
| FB562160330199 | SW32 | DOV | 37 | 38 | 39 | 40 | 41 | 41 | 43 | 1 | 1 | 1 | 1 | 0 | 2 | 5 |
| FB562160370447 | SW32 | DOV | 39 | 40 | 40 | 42 | 42 | 43 | 45 | 1 | 0 | 2 | 0 | 1 | 2 | 5 |
| FB562160380056 | SW31 | DOV | 51 | 52 | 53 | 54 | 54 | 54 | 57 | 1 | 1 | 1 | 0 | 0 | 3 | 5 |
| FB562160430405 | SW32 | DOV | 51 | 52 | 52 | 53 | 54 | 54 | 57 | 1 | 0 | 1 | 1 | 0 | 3 | 5 |
| FB562160430768 | SW31 | DOV | 53 | 54 | 54 | 55 | 55 | 56 | 59 | 1 | 0 | 1 | 0 | 1 | 3 | 5 |
| FB562160439517 | SW31 | DOV | 46 | 47 | 47 | 49 | 49 | 50 | 52 | 1 | 0 | 2 | 0 | 1 | 2 | 5 |
| FB562160469503 | SW32 | DOV | 46 | 47 | 47 | 49 | 49 | 50 | 52 | 1 | 0 | 2 | 0 | 1 | 2 | 5 |
| FB562160470386 | SW31 | DOV | 51 | 52 | 52 | 53 | 54 | 54 | 57 | 1 | 0 | 1 | 1 | 0 | 3 | 5 |
| FB562160519522 | FB48 | DOV | 52 | 52 | 53 | 54 | 54 | 54 | 57 | 0 | 1 | 1 | 0 | 0 | 3 | 5 |
| FB562160522555 | SW32 | DOV | 55 | 56 | 58 | 60 | 60 | 60 | 61 | 1 | 2 | 2 | 0 | 0 | 1 | 5 |
| FB562160522602 | SW32 | DOV | 60 | 60 | 61 | 63 | 64 | 64 | 65 | 0 | 1 | 2 | 1 | 0 | 1 | 5 |
| FB562160529515 | FB48 | DOV | 52 | 52 | 53 | 54 | 54 | 54 | 57 | 0 | 1 | 1 | 0 | 0 | 3 | 5 |
| FB562160530545 | SW32 | DOV | 58 | 59 | 60 | 62 | 62 | 62 | 64 | 1 | 1 | 2 | 0 | 0 | 2 | 5 |
| FB562160530549 | SW32 | DOV | 54 | 55 | 55 | 58 | 58 | 58 | 60 | 1 | 0 | 3 | 0 | 0 | 2 | 5 |
| FB562160530563 | SW31 | DOV | 54 | 55 | 57 | 58 | 58 | 59 | 60 | 1 | 2 | 1 | 0 | 1 | 1 | 5 |
| FB562160530594 | SW31 | DOV | 54 | 55 | 57 | 58 | 58 | 59 | 60 | 1 | 2 | 1 | 0 | 1 | 1 | 5 |
| FB562160530666 | SW31 | DOV | 54 | 55 | 57 | 58 | 58 | 59 | 60 | 1 | 2 | 1 | 0 | 1 | 1 | 5 |
| FB562160550018 | SW32 | DOV | 58 | 59 | 60 | 62 | 62 | 62 | 64 | 1 | 1 | 2 | 0 | 0 | 2 | 5 |
| FB562160570172 | SW32 | DOV | 101 | 102 | 103 | 105 | 105 | 106 | 107 | 1 | 1 | 2 | 0 | 1 | 1 | 5 |
| FB562160580289 | SW32 | DOV | 62 | 63 | 65 | 67 | 67 | 67 | 68 | 1 | 2 | 2 | 0 | 0 | 1 | 5 |
| FB562160590354 | SW32 | DOV | 65 | 66 | 67 | 68 | 69 | 69 | 71 | 1 | 1 | 1 | 1 | 0 | 2 | 5 |
| FB562160590358 | SW31 | DOV | 61 | 62 | 64 | 66 | 66 | 66 | 67 | 1 | 2 | 2 | 0 | 0 | 1 | 5 |
| FB562160590405 | SW32 | DOV | 62 | 63 | 65 | 67 | 67 | 67 | 68 | 1 | 2 | 2 | 0 | 0 | 1 | 5 |
| FB562160590510 | SW32 | DOV | 61 | 62 | 62 | 66 | 66 | 66 | 67 | 1 | 0 | 4 | 0 | 0 | 1 | 5 |
| FB562160590572 | SW31 | DOV | 61 | 62 | 64 | 66 | 66 | 66 | 67 | 1 | 2 | 2 | 0 | 0 | 1 | 5 |
| FB562160590574 | SW31 | DOV | 61 | 62 | 64 | 66 | 66 | 66 | 67 | 1 | 2 | 2 | 0 | 0 | 1 | 5 |
| FB562160590575 | SW31 | DOV | 61 | 62 | 64 | 66 | 66 | 66 | 67 | 1 | 2 | 2 | 0 | 0 | 1 | 5 |
| FB562160590580 | SW31 | DOV | 61 | 62 | 64 | 66 | 66 | 66 | 67 | 1 | 2 | 2 | 0 | 0 | 1 | 5 |
| FB562160590581 | SW31 | DOV | 61 | 62 | 64 | 66 | 66 | 66 | 67 | 1 | 2 | 2 | 0 | 0 | 1 | 5 |
| FB562160590582 | SW31 | DOV | 61 | 62 | 64 | 66 | 66 | 66 | 67 | 1 | 2 | 2 | 0 | 0 | 1 | 5 |
| FB562160599500 | FB48 | DOV | 59 | 59 | 60 | 62 | 62 | 62 | 64 | 0 | 1 | 2 | 0 | 0 | 2 | 5 |
| FB562160600103 | SW32 | DOV | 62 | 63 | 65 | 67 | 67 | 67 | 68 | 1 | 2 | 2 | 0 | 0 | 1 | 5 |
| FB562160600130 | SW32 | DOV | 62 | 63 | 65 | 67 | 67 | 67 | 68 | 1 | 2 | 2 | 0 | 0 | 1 | 5 |
| FB562160600483 | SW31 | DOV | 65 | 66 | 67 | 68 | 69 | 69 | 71 | 1 | 1 | 1 | 1 | 0 | 2 | 5 |
| FB562160610343 | SW32 | DOV | 62 | 63 | 65 | 67 | 67 | 67 | 68 | 1 | 2 | 2 | 0 | 0 | 1 | 5 |
| FB562160610557 | SW32 | DOV | 62 | 63 | 65 | 67 | 67 | 67 | 68 | 1 | 2 | 2 | 0 | 0 | 1 | 5 |
| FB562160640278 | SW32 | DOV | 68 | 69 | 71 | 72 | 73 | 73 | 74 | 1 | 2 | 1 | 1 | 0 | 1 | 5 |
| FB562160649506 | SW32 | DOV | 69 | 70 | 72 | 74 | 74 | 74 | 75 | 1 | 2 | 2 | 0 | 0 | 1 | 5 |
| FB562160660319 | SW31 | DOV | 69 | 70 | 71 | 72 | 73 | 73 | 75 | 1 | 1 | 1 | 1 | 0 | 2 | 5 |
| FB562160660349 | SW31 | DOV | 69 | 70 | 71 | 72 | 73 | 73 | 75 | 1 | 1 | 1 | 1 | 0 | 2 | 5 |
| FB562160669509 | FB48 | DOV | 66 | 66 | 67 | 68 | 69 | 69 | 71 | 0 | 1 | 1 | 1 | 0 | 2 | 5 |
| FB562160670455 | SX31 | DOV | 69 | 70 | 71 | 72 | 73 | 73 | 75 | 1 | 1 | 1 | 1 | 0 | 2 | 5 |
| FB562160670490 | SW31 | DOV | 69 | 70 | 71 | 72 | 73 | 73 | 75 | 1 | 1 | 1 | 1 | 0 | 2 | 5 |
| FB562160670518 | SW32 | DOV | 73 | 74 | 75 | 77 | 77 | 77 | 79 | 1 | 1 | 2 | 0 | 0 | 2 | 5 |
| FB562160710615 | SW31 | DOV | 73 | 74 | 74 | 77 | 77 | 78 | 79 | 1 | 0 | 3 | 0 | 1 | 1 | 5 |
| FB562160720004 | SW32 | DOV | 73 | 74 | 75 | 77 | 77 | 77 | 79 | 1 | 1 | 2 | 0 | 0 | 2 | 5 |
| FB562160720105 | SW32 | DOV | 73 | 74 | 74 | 77 | 77 | 77 | 79 | 1 | 0 | 3 | 0 | 0 | 2 | 5 |
| FB562160729516 | FB48 | DOV | 73 | 73 | 74 | 77 | 77 | 77 | 78 | 0 | 1 | 3 | 0 | 0 | 1 | 5 |
| FB562160739502 | FB48 | DOV | 73 | 73 | 74 | 77 | 77 | 77 | 78 | 0 | 1 | 3 | 0 | 0 | 1 | 5 |
| FB562160739505 | FB48 | DOV | 73 | 73 | 74 | 77 | 77 | 77 | 78 | 0 | 1 | 3 | 0 | 0 | 1 | 5 |
| FB562160739511 | FB48 | DOV | 73 | 73 | 75 | 77 | 77 | 77 | 78 | 0 | 2 | 2 | 0 | 0 | 1 | 5 |
| FB562160739521 | FB48 | DOV | 73 | 73 | 74 | 77 | 77 | 77 | 78 | 0 | 1 | 3 | 0 | 0 | 1 | 5 |
| FB562160739532 | FB48 | DOV | 73 | 73 | 74 | 77 | 77 | 77 | 78 | 0 | 1 | 3 | 0 | 0 | 1 | 5 |
| FB562160750172 | SW32 | DOV | 76 | 77 | 78 | 79 | 80 | 80 | 82 | 1 | 1 | 1 | 1 | 0 | 2 | 5 |
| FB562160750309 | SW31 | DOV | 79 | 80 | 80 | 81 | 82 | 82 | 85 | 1 | 0 | 1 | 1 | 0 | 3 | 5 |
| FB562160759701 | SW31 | DOV | 75 | 75 | 77 | 77 | 78 | 78 | 80 | 0 | 2 | 0 | 1 | 0 | 2 | 5 |
| FB562160780083 | SW31 | DOV | 79 | 80 | 80 | 81 | 82 | 82 | 85 | 1 | 0 | 1 | 1 | 0 | 3 | 5 |
| FB562160780147 | SW31 | DOV | 79 | 80 | 80 | 81 | 82 | 82 | 85 | 1 | 0 | 1 | 1 | 0 | 3 | 5 |
| FB562160780452 | SW32 | DOV | 88 | 89 | 89 | 92 | 93 | 93 | 94 | 1 | 0 | 3 | 1 | 0 | 1 | 5 |
| FB562160809506 | FB48 | DOV | 80 | 80 | 81 | 82 | 83 | 83 | 85 | 0 | 1 | 1 | 1 | 0 | 2 | 5 |
| FB562160850150 | SW32 | DOV | 108 | 108 | 109 | 111 | 111 | 111 | 113 | 0 | 1 | 2 | 0 | 0 | 2 | 5 |
| FB562160850244 | SW32 | DOV | 86 | 87 | 88 | 90 | 90 | 90 | 92 | 1 | 1 | 2 | 0 | 0 | 2 | 5 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FB562160850305 | SW32 | DOV | 87 | 88 | 89 | 90 | 90 | 91 | 93 | 1 | 1 | 1 | 0 | 1 | 2 | 5 |
| FB562160860023 | SW32 | DOV | 87 | 88 | 89 | 90 | 90 | 91 | 93 | 1 | 1 | 1 | 0 | 1 | 2 | 5 |
| FB562160860027 | SW32 | DOV | 87 | 88 | 89 | 90 | 90 | 91 | 93 | 1 | 1 | 1 | 0 | 1 | 2 | 5 |
| FB562160991710 | SW32 | DOV | 101 | 102 | 103 | 105 | 105 | 106 | 107 | 1 | 1 | 2 | 0 | 1 | 1 | 5 |
| FB562161010510 | SW32 | DOV | 104 | 105 | 107 | 108 | 109 | 109 | 110 | 1 | 2 | 1 | 1 | 0 | 1 | 5 |
| FB562161070077 | SW32 | DOV | 108 | 109 | 110 | 112 | 112 | 113 | 114 | 1 | 1 | 2 | 0 | 1 | 1 | 5 |
| FB562161070267 | SW32 | DOV | 108 | 109 | 110 | 113 | 113 | 114 | 114 | 1 | 1 | 3 | 0 | 1 | 0 | 5 |
| FB562161070320 | SW32 | DOV | 108 | 109 | 110 | 112 | 112 | 113 | 114 | 1 | 1 | 2 | 0 | 1 | 1 | 5 |
| FB562161089504 | FB44 | DOV | 108 | 108 | 110 | 112 | 112 | 113 | 113 | 0 | 2 | 2 | 0 | 1 | 0 | 5 |
| FB562161089509 | FB30 | DOV | 108 | 108 | 110 | 112 | 112 | 113 | 113 | 0 | 2 | 2 | 0 | 1 | 0 | 5 |
| FB562161100421 | SW32 | DOV | 111 | 112 | 114 | 116 | 116 | 117 | 117 | 1 | 2 | 2 | 0 | 1 | 0 | 5 |
| FE562160051173 | SW32 | DOV | 40 | 41 | 44 | 46 | 46 | 46 | 46 | 1 | 3 | 2 | 0 | 0 | 0 | 5 |
| FB562153339503 | FB28 | DOV | 334 | 334 | 335 | 337 | 337 | 338 | 338 | 0 | 1 | 2 | 0 | 1 | 0 | 4 |
| FB562153339514 | FB48 | DOV | 338 | 334 | 335 | 337 | 337 | 338 | 338 | -4 | 1 | 2 | 0 | 1 | 0 | 4 |
| FB562153399509 | FB48 | DOV | 345 | 345 | 346 | 348 | 348 | 348 | 349 | 0 | 1 | 2 | 0 | 0 | 1 | 4 |
| FB562153419502 | FB48 | DOV | 341 | 341 | 342 | 344 | 344 | 345 | 345 | 0 | 1 | 2 | 0 | 1 | 0 | 4 |
| FB562153419503 | FB48 | DOV | 341 | 341 | 342 | 344 | 344 | 345 | 345 | 0 | 1 | 2 | 0 | 1 | 0 | 4 |
| FB562153459506 | FB48 | DOV | 345 | 345 | 346 | 348 | 348 | 348 | 349 | 0 | 1 | 2 | 0 | 0 | 1 | 4 |
| FB562153499504 | FB48 | DOV | 352 | 352 | 353 | 355 | 356 | 356 | 356 | 0 | 1 | 2 | 1 | 0 | 0 | 4 |
| FB562153509500 | FB48 | DOV | 352 | 352 | 353 | 355 | 356 | 356 | 356 | 0 | 1 | 2 | 1 | 0 | 0 | 4 |
| FB562153529500 | FB48 | DOV | 352 | 352 | 353 | 355 | 356 | 356 | 356 | 0 | 1 | 2 | 1 | 0 | 0 | 4 |
| FB562153529512 | FB48 | DOV | 352 | 352 | 353 | 355 | 356 | 356 | 356 | 0 | 1 | 2 | 1 | 0 | 0 | 4 |
| FB562160089502 | FB48 | DOV | 8 | 8 | 10 | 11 | 11 | 12 | 12 | 0 | 2 | 1 | 0 | 1 | 0 | 4 |
| FB562160090251 | SW32 | DOV | 81 | 82 | 82 | 85 | 85 | 85 | 86 | 1 | 0 | 3 | 0 | 0 | 1 | 4 |
| FB562160090357 | SW32 | DOV | 27 | 28 | 30 | 31 | 31 | 31 | 32 | 1 | 2 | 1 | 0 | 0 | 1 | 4 |
| FB562160120141 | SW31 | DOV | 13 | 14 | 15 | 16 | 16 | 17 | 18 | 1 | 1 | 1 | 0 | 1 | 1 | 4 |
| FB562160129519 | FB48 | DOV | 13 | 13 | 15 | 16 | 16 | 17 | 17 | 0 | 2 | 1 | 0 | 1 | 0 | 4 |
| FB562160160061 | SW32 | DOV | 27 | 28 | 30 | 31 | 31 | 31 | 32 | 1 | 2 | 1 | 0 | 0 | 1 | 4 |
| FB562160170420 | SW31 | DOV | 18 | 19 | 19 | 20 | 20 | 20 | 23 | 1 | 0 | 1 | 0 | 0 | 3 | 4 |
| FB562160190476 | SW32 | DOV | 27 | 28 | 29 | 30 | 31 | 31 | 32 | 1 | 1 | 1 | 1 | 0 | 1 | 4 |
| FB562160250213 | SW32 | DOV | 27 | 28 | 30 | 31 | 31 | 31 | 32 | 1 | 2 | 1 | 0 | 0 | 1 | 4 |
| FB562160250258 | SW32 | DOV | 27 | 28 | 30 | 31 | 31 | 31 | 32 | 1 | 2 | 1 | 0 | 0 | 1 | 4 |
| FB562160320018 | SW31 | DOV | 48 | 49 | 50 | 51 | 51 | 52 | 53 | 1 | 1 | 1 | 0 | 1 | 1 | 4 |
| FB562160330388 | SW32 | DOV | 38 | 39 | 40 | 42 | 42 | 43 | 43 | 1 | 1 | 2 | 0 | 1 | 0 | 4 |
| FB562160370092 | SW32 | DOV | 38 | 39 | 40 | 42 | 42 | 43 | 43 | 1 | 1 | 2 | 0 | 1 | 0 | 4 |
| FB562160370712 | SW32 | DOV | 41 | 42 | 44 | 46 | 46 | 46 | 46 | 1 | 2 | 2 | 0 | 0 | 0 | 4 |
| FB562160380048 | SW32 | DOV | 41 | 42 | 44 | 46 | 46 | 46 | 46 | 1 | 2 | 2 | 0 | 0 | 0 | 4 |
| FB562160389278 | SW35 | DOV | 39 | 39 | 40 | 42 | 42 | 43 | 43 | 0 | 1 | 2 | 0 | 1 | 0 | 4 |
| FB562160389527 | FB48 | DOV | 39 | 39 | 40 | 42 | 42 | 43 | 43 | 0 | 1 | 2 | 0 | 1 | 0 | 4 |
| FB562160389529 | FB28 | DOV | 39 | 39 | 40 | 42 | 42 | 43 | 43 | 0 | 1 | 2 | 0 | 1 | 0 | 4 |
| FB562160400353 | SW32 | DOV | 41 | 42 | 44 | 46 | 46 | 46 | 46 | 1 | 2 | 2 | 0 | 0 | 0 | 4 |
| FB562160430390 | SW32 | DOV | 73 | 74 | 75 | 77 | 77 | 77 | 78 | 1 | 1 | 2 | 0 | 0 | 1 | 4 |
| FB562160510457 | SW31 | DOV | 52 | 53 | 54 | 55 | 55 | 56 | 57 | 1 | 1 | 1 | 0 | 1 | 1 | 4 |
| FB562160510498 | SW31 | DOV | 52 | 53 | 54 | 55 | 55 | 56 | 57 | 1 | 1 | 1 | 0 | 1 | 1 | 4 |
| FB562160529561 | SW31 | DOV | 52 | 53 | 53 | 54 | 54 | 54 | 57 | 1 | 0 | 1 | 0 | 0 | 3 | 4 |
| FB562160530530 | SW32 | DOV | 59 | 60 | 61 | 63 | 63 | 63 | 64 | 1 | 1 | 2 | 0 | 0 | 1 | 4 |
| FB562160530671 | SW31 | DOV | 60 | 61 | 61 | 62 | 64 | 65 | 65 | 1 | 0 | 1 | 2 | 1 | 0 | 4 |
| FB562160530967 | SW31 | DOV | 55 | 56 | 57 | 58 | 58 | 59 | 60 | 1 | 1 | 1 | 0 | 1 | 1 | 4 |
| FB562160531049 | SW31 | DOV | 55 | 56 | 58 | 58 | 58 | 59 | 60 | 1 | 2 | 0 | 0 | 1 | 1 | 4 |
| FB562160539506 | FB48 | DOV | 53 | 53 | 54 | 55 | 55 | 56 | 57 | 0 | 1 | 1 | 0 | 1 | 1 | 4 |
| FB562160540162 | SW32 | DOV | 69 | 70 | 71 | 72 | 73 | 73 | 74 | 1 | 1 | 1 | 1 | 0 | 1 | 4 |
| FB562160540260 | SW31 | DOV | 55 | 56 | 57 | 58 | 58 | 59 | 60 | 1 | 1 | 1 | 0 | 1 | 1 | 4 |
| FB562160549507 | FB48 | DOV | 58 | 54 | 55 | 57 | 57 | 57 | 58 | -4 | 1 | 2 | 0 | 0 | 1 | 4 |
| FB562160550353 | SW31 | DOV | 66 | 67 | 68 | 69 | 69 | 70 | 71 | 1 | 1 | 1 | 0 | 1 | 1 | 4 |
| FB562160579500 | FB48 | DOV | 57 | 57 | 58 | 60 | 60 | 60 | 61 | 0 | 1 | 2 | 0 | 0 | 1 | 4 |
| FB562160579502 | FB48 | DOV | 57 | 57 | 58 | 60 | 60 | 60 | 61 | 0 | 1 | 2 | 0 | 0 | 1 | 4 |
| FB562160590491 | SW32 | DOV | 62 | 63 | 64 | 66 | 66 | 66 | 67 | 1 | 1 | 2 | 0 | 0 | 1 | 4 |
| FB562160600064 | SW32 | DOV | 66 | 67 | 68 | 69 | 69 | 70 | 71 | 1 | 1 | 1 | 0 | 1 | 1 | 4 |
| FB562160610317 | SW31 | DOV | 62 | 63 | 64 | 66 | 66 | 66 | 67 | 1 | 1 | 2 | 0 | 0 | 1 | 4 |
| FB562160610404 | SW31 | DOV | 62 | 63 | 64 | 66 | 66 | 66 | 67 | 1 | 1 | 2 | 0 | 0 | 1 | 4 |
| FB562160610446 | SW31 | DOV | 62 | 63 | 64 | 66 | 66 | 66 | 67 | 1 | 1 | 2 | 0 | 0 | 1 | 4 |
| FB562160610507 | SW31 | DOV | 62 | 63 | 64 | 66 | 66 | 66 | 67 | 1 | 1 | 2 | 0 | 0 | 1 | 4 |
| FB562160610537 | SW31 | DOV | 62 | 63 | 64 | 66 | 66 | 66 | 67 | 1 | 1 | 2 | 0 | 0 | 1 | 4 |
| FB562160610547 | SW31 | DOV | 62 | 63 | 64 | 66 | 66 | 66 | 67 | 1 | 1 | 2 | 0 | 0 | 1 | 4 |
| FB562160640185 | SW32 | DOV | 66 | 67 | 68 | 69 | 69 | 70 | 71 | 1 | 1 | 1 | 0 | 1 | 1 | 4 |
| FB562160640289 | SW31 | DOV | 66 | 67 | 67 | 68 | 69 | 69 | 71 | 1 | 0 | 1 | 1 | 0 | 2 | 4 |
| FB562160650185 | SW31 | DOV | 66 | 67 | 67 | 68 | 69 | 69 | 71 | 1 | 0 | 1 | 1 | 0 | 2 | 4 |
| FB562160669502 | FB48 | DOV | 67 | 67 | 68 | 69 | 69 | 70 | 71 | 0 | 1 | 1 | 0 | 1 | 1 | 4 |
| FB562160669503 | FB48 | DOV | 66 | 67 | 67 | 69 | 69 | 70 | 71 | 1 | 0 | 2 | 0 | 1 | 1 | 4 |
| FB562160669518 | FB44 | DOV | 67 | 67 | 68 | 69 | 69 | 70 | 71 | 0 | 1 | 1 | 0 | 1 | 1 | 4 |
| FB562160670458 | SW32 | DOV | 87 | 88 | 88 | 90 | 90 | 90 | 92 | 1 | 0 | 2 | 0 | 0 | 2 | 4 |
| FB562160679519 | FB48 | DOV | 67 | 67 | 68 | 69 | 69 | 70 | 71 | 0 | 1 | 1 | 0 | 1 | 1 | 4 |
| FB562160689524 | FB48 | DOV | 71 | 71 | 72 | 74 | 74 | 74 | 75 | 0 | 1 | 2 | 0 | 0 | 1 | 4 |
| FB562160730297 | SW32 | DOV | 80 | 81 | 82 | 83 | 84 | 84 | 85 | 1 | 1 | 1 | 1 | 0 | 1 | 4 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FB562160730389 | SW32 | DOV | 80 | 81 | 82 | 83 | 84 | 84 | 85 | 1 | 1 | 1 | 1 | 0 | 1 | 4 |
| FB562160739514 | FB48 | DOV | 74 | 74 | 75 | 77 | 77 | 77 | 78 | 0 | 1 | 2 | 0 | 0 | 1 | 4 |
| FB562160749504 | FB48 | DOV | 74 | 74 | 75 | 77 | 77 | 77 | 78 | 0 | 1 | 2 | 0 | 0 | 1 | 4 |
| FB562160780082 | SW32 | DOV | 80 | 81 | 82 | 83 | 84 | 84 | 85 | 1 | 1 | 1 | 1 | 0 | 1 | 4 |
| FB562160819505 | FB48 | DOV | 81 | 81 | 82 | 83 | 83 | 84 | 85 | 0 | 1 | 1 | 0 | 1 | 1 | 4 |
| FB562160870627 | FB48 | DOV | 103 | 103 | 104 | 106 | 106 | 106 | 107 | 0 | 1 | 2 | 0 | 0 | 1 | 4 |
| FB562160879513 | FB48 | DOV | 88 | 88 | 89 | 90 | 90 | 91 | 92 | 0 | 1 | 1 | 0 | 1 | 1 | 4 |
| FB562160899517 | FB44 | DOV | 90 | 90 | 92 | 93 | 93 | 94 | 94 | 0 | 2 | 1 | 0 | 1 | 0 | 4 |
| FB562161069508 | FB44 | DOV | 106 | 106 | 107 | 108 | 109 | 110 | 110 | 0 | 1 | 1 | 1 | 1 | 0 | 4 |
| FB562161069509 | FB44 | DOV | 106 | 106 | 107 | 108 | 109 | 110 | 110 | 0 | 1 | 1 | 1 | 1 | 0 | 4 |
| FB562161089523 | FB28 | DOV | 109 | 109 | 110 | 112 | 112 | 113 | 113 | 0 | 1 | 2 | 0 | 1 | 0 | 4 |
| FB562161099505 | FB48 | DOV | 109 | 109 | 110 | 112 | 112 | 113 | 113 | 0 | 1 | 2 | 0 | 1 | 0 | 4 |
| FB562161099509 | FB48 | DOV | 109 | 109 | 110 | 112 | 112 | 113 | 113 | 0 | 1 | 2 | 0 | 1 | 0 | 4 |
| FB562161099514 | FB44 | DOV | 109 | 109 | 110 | 112 | 112 | 113 | 113 | 0 | 1 | 2 | 0 | 1 | 0 | 4 |
| FB562153459511 | SW32 | DOV | 345 | 346 | 346 | 348 | 348 | 348 | 349 | 1 | 0 | 2 | 0 | 0 | 1 | 3 |
| FB562153459514 | SW32 | DOV | 345 | 346 | 346 | 348 | 348 | 348 | 349 | 1 | 0 | 2 | 0 | 0 | 1 | 3 |
| FB562160039526 | FB48 | DOV | 9 | 9 | 10 | 11 | 11 | 12 | 12 | 0 | 1 | 1 | 0 | 1 | 0 | 3 |
| FB562160089522 | FB28 | DOV | 9 | 9 | 10 | 11 | 11 | 12 | 12 | 0 | 1 | 1 | 0 | 1 | 0 | 3 |
| FB562160470206 | SW32 | DOV | 53 | 54 | 54 | 55 | 55 | 56 | 57 | 1 | 0 | 1 | 0 | 1 | 1 | 3 |
| FB562160520060 | SW31 | DOV | 53 | 54 | 54 | 55 | 55 | 56 | 57 | 1 | 0 | 1 | 0 | 1 | 1 | 3 |
| FB562160520109 | SW31 | DOV | 53 | 54 | 54 | 55 | 55 | 56 | 57 | 1 | 0 | 1 | 0 | 1 | 1 | 3 |
| FB562160530592 | SW31 | DOV | 57 | 58 | 58 | 60 | 60 | 60 | 61 | 1 | 0 | 2 | 0 | 0 | 1 | 3 |
| FB562160650211 | SW31 | DOV | 67 | 68 | 68 | 69 | 69 | 70 | 71 | 1 | 0 | 1 | 0 | 1 | 1 | 3 |
| FB562160650267 | SW31 | DOV | 67 | 68 | 68 | 69 | 69 | 70 | 71 | 1 | 0 | 1 | 0 | 1 | 1 | 3 |
| FB562160650329 | SW32 | DOV | 67 | 68 | 68 | 69 | 69 | 70 | 71 | 1 | 0 | 1 | 0 | 1 | 1 | 3 |
| FB562160679505 | FB48 | DOV | 67 | 69 | 69 | 70 | 71 | 71 | 72 | 2 | 0 | 1 | 1 | 0 | 1 | 3 |
| FB562160820298 | SW31 | DOV | 85 | 86 | 86 | 88 | 88 | 88 | 89 | 1 | 0 | 2 | 0 | 0 | 1 | 3 |
| FB562160870625 | SW32 | DOV | 90 | 91 | 92 | 93 | 93 | 94 | 94 | 1 | 1 | 1 | 0 | 1 | 0 | 3 |
| FB562160090335 | SW32 | DOV | 40 | 41 | 41 | 42 | 42 | 43 | 43 | 1 | 0 | 1 | 0 | 1 | 0 | 2 |
| FB562160100335 | FB44 | DOV | 93 | 92 | 92 | 93 | 93 | 93 | 94 | -1 | 0 | 1 | 0 | 0 | 1 | 2 |
| FB562160430540 | SW31 | DOV | 50 | 51 | 51 | 52 | 52 | 52 | 53 | 1 | 0 | 1 | 0 | 0 | 1 | 2 |
| FB562160450395 | SW31 | DOV | 50 | 51 | 51 | 52 | 52 | 52 | 53 | 1 | 0 | 1 | 0 | 0 | 1 | 2 |
| FB562160450441 | SW31 | DOV | 50 | 51 | 51 | 52 | 52 | 52 | 53 | 1 | 0 | 1 | 0 | 0 | 1 | 2 |
| FB562160450588 | SW31 | DOV | 50 | 51 | 51 | 52 | 52 | 52 | 53 | 1 | 0 | 1 | 0 | 0 | 1 | 2 |
| FB562160450642 | SW31 | DOV | 50 | 51 | 51 | 52 | 52 | 52 | 53 | 1 | 0 | 1 | 0 | 0 | 1 | 2 |
| FB562160460168 | SW31 | DOV | 50 | 51 | 51 | 52 | 52 | 52 | 53 | 1 | 0 | 1 | 0 | 0 | 1 | 2 |
| FB562160460199 | SW31 | DOV | 50 | 51 | 51 | 52 | 52 | 52 | 53 | 1 | 0 | 1 | 0 | 0 | 1 | 2 |
| FB562160470237 | SW31 | DOV | 50 | 51 | 51 | 52 | 52 | 52 | 53 | 1 | 0 | 1 | 0 | 0 | 1 | 2 |
| FB562160470238 | SW31 | DOV | 50 | 51 | 51 | 52 | 52 | 52 | 53 | 1 | 0 | 1 | 0 | 0 | 1 | 2 |
| FB562160470239 | SW31 | DOV | 50 | 51 | 51 | 52 | 52 | 52 | 53 | 1 | 0 | 1 | 0 | 0 | 1 | 2 |
| FB562160549533 | FB48 | DOV | 55 | 57 | 57 | 58 | 58 | 59 | 59 | 2 | 0 | 1 | 0 | 1 | 0 | 2 |

RUN DATE: 04/03/97
RUN TIME: 02:38.35
SEQUENCE: COUNTRY/STATE/CITY/ZIP
SERVICE DAYS: 20
WGT: POUNDS

F E D E R A L  E X P R E S S  C O R P O R A T I O N
CUSTOMER TIME-IN-TRANSIT
ACCOUNT 2085 OFFSHORE/27
FEBRUARY

149321 PAGE : 2
11516 REPORT : FEQZ206-R01
DEPT-LOC : 249-010

CUSTOMER NUMBER 1672-4130-1 DESTINATION BREAKOUT OF INTERNATIONAL SHIPMENTS WITH POD (PART 2)*

| DESTINATION CO | ST | CITY | ZIP | STA | TRACKING NUMBER | DATE SHIPPED | DELIVERY DATE | DEL TIME | # DEL DAYS | # OF PKGS | TYP SVC | SHIPMENT WEIGHT | POD RECIPIENT NAME | DOC TYPE | REFERENCE NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| US | AZ | LITCHFIELD PARK | 85309 | LUF | 040052606035 | 02-25-97 | 02-27-97 | 09:40 | 2 | 1 | IP | 1.10 | D.WAEVER | X | |
| | | TUCSON | 85707 | TUS | 040052684122 | 02-05-97 | 02-07-97 | 09:20 | 2 | 1 | IP | 3.30 | S.ALNES | X | |
| | CA | SACRAMENTO | 95652 | SMF | 040052684520 | 02-07-97 | 02-10-97 | 10:19 | 1 | 1 | IP | 2.20 | P.LARECKI | X | |
| | | | 95652 | SMF | 040052606094 | 02-25-97 | 02-27-97 | 10:08 | 2 | 1 | IP | 16.90 | A.CAMPBELL | X | |
| | | | 95652 | SMF | 040052606105 | 02-25-97 | 02-27-97 | 10:08 | 2 | 1 | IP | 30.80 | A.CAMPBELL | X | |
| | | | 95652 | SMF | 040052606245 | 02-26-97 | 02-28-97 | 10:10 | 2 | 1 | IP | 25.10 | P.LARECKI | X | |
| | | | 95652 | SMF | 040052606315 | 02-27-97 | 03-03-97 | 10:20 | 2 | 1 | IP | 4.40 | A.CAMPBELL | X | |
| | | | 95652 | SMF | 040052606422 | 02-28-97 | 03-03-97 | 10:20 | 1 | 1 | IP | 102.50 | A.CAMPBELL | X | |
| | | | 95652 | SMF | 040052606536 | 02-28-97 | 03-03-97 | 10:20 | 1 | 1 | IP | 112.40 | A.CAMPBELL | X | |
| | | | 95652 | SMF | 040052606540 | 02-28-97 | 03-03-97 | 10:20 | 1 | 1 | IP | 1.10 | A.CAMPBELL | X | |
| | | | 95652 | SMF | 040052685846 | 02-25-97 | 02-27-97 | 10:08 | 2 | 1 | IP | 12.10 | A.CAMPBELL | X | |
| | | | 95652 | SMF | 040052685850 | 02-25-97 | 02-27-97 | 10:08 | 2 | 1 | IP | 30.80 | A.CAMPBELL | X | |
| | | | 95652 | SMF | 040052606061 | 02-25-97 | 02-26-97 | 11:15 | 1 | 1 | IP | 30.80 | M.ANTHONY | X | |
| | | | 95652 | SMF | 040052684844 | 02-14-97 | 02-21-97 | 12:07 | 5 | 2 | IP | 13.20 | R.LAVIE | X | |
| | | | 95652 | SMF | 040052685496 | 02-21-97 | 02-24-97 | 10:07 | 1 | 1 | IP | 26.40 | P.LARECKI | X | |
| | | | 95652 | SMF | 040052685533 | 02-21-97 | 02-25-97 | 10:08 | 2 | 1 | IP | 33.00 | P.LARECKE | X | |
| | | | 95652 | SMF | 040052685754 | 02-21-97 | 02-24-97 | 10:07 | 1 | 1 | IP | 83.70 | P.LARECKI | X | |
| | | | 95652 | SMF | 040052685802 | 02-24-97 | 02-26-97 | 10:07 | 2 | 1 | IP | 2.20 | P.LARECKI | X | |
| | | | 95652 | SMF | 040052684774 | 02-12-97 | 02-14-97 | 09:47 | 2 | 1 | IP | 20.20 | P.JARECKI | X | |
| | | | 95652 | SMF | 040052684785 | 02-12-97 | 02-14-97 | 09:47 | 2 | 1 | IP | 14.10 | P.JARECKI | X | |
| | | | 95652 | SMF | 040052684800 | 02-13-97 | 02-17-97 | 10:17 | 2 | 1 | IP | 22.00 | A.CAMPBELL | X | |
| | | | 95652 | SMF | 040052684881 | 02-14-97 | 02-17-97 | 10:17 | 1 | 1 | IP | 11.90 | A.CAMPBELL | X | |
| | | | 95652 | SMF | 040052684903 | 02-14-97 | 02-17-97 | 10:17 | 1 | 1 | IPF | 110.20 | A.CAMPBELL | X | |
| | | | 95652 | SMF | 040052684936 | 02-14-97 | 02-17-97 | 10:17 | 1 | 1 | IP | 18.70 | A.CAMPBELL | X | |
| | | | 95652 | SMF | 040052684063 | 02-04-97 | 02-06-97 | 10:25 | 2 | 1 | IP | 8.80 | P.LARECKI | X | |
| | | | 95652 | SMF | 040052684170 | 02-05-97 | 02-07-97 | 10:15 | 2 | 1 | IP | 28.20 | P.KIRKPATRICK | X | |
| | | | 95652 | SMF | 040052684181 | 02-05-97 | 02-07-97 | 10:15 | 2 | 1 | IP | 14.10 | P.KIRKPATRICK | X | |
| | | | 95652 | SMF | 040052684262 | 02-06-97 | 02-10-97 | 10:19 | 2 | 1 | IP | 4.40 | P.LARECKI | X | |
| | | | 95652 | SMF | 040052684332 | 02-06-97 | 02-10-97 | 10:19 | 2 | 2 | IP | 17.80 | P.LARECKI | X | |
| | | SAN DIEGO | 92127 | MYF | 040052606282 | 02-27-97 | 03-03-97 | 10:04 | 2 | 1 | IP | 6.60 | D.RUSSO | X | |
| | FL | JACKSONVILLE | 32229 | NIP | 040052684623 | 02-10-97 | 02-12-97 | 09:19 | 2 | 1 | IP | 1.10 | R.SAIN | X | |
| | | PANAMA CITY | 32403 | PFN | 040052684682 | 02-11-97 | 02-13-97 | 10:28 | 2 | 1 | IP | 12.10 | A.MCDONALD | X | |
| | GA | MACON | 31098 | MCN | 040052606234 | 02-26-97 | 02-28-97 | 10:57 | 2 | 1 | IP | 4.40 | L.WATSON | X | |
| | | | 31098 | MCN | 040052606385 | 02-28-97 | 03-03-97 | 09:50 | 1 | 1 | IP | 45.10 | L.WATSON | X | |
| | | | 31098 | MCN | 040052606525 | 02-28-97 | 03-03-97 | 09:50 | 1 | 1 | IP | 52.90 | L.WATSON | X | |
| | | | 31098 | MCN | 040052685555 | 02-21-97 | 02-26-97 | 10:22 | 3 | 1 | IP | 14.50 | J.COLAZZO | X | |
| | | | 31098 | MCN | 040052685640 | 02-21-97 | 03-04-97 | 11:34 | 7 | 1 | IP | 33.00 | C.HAN | X | |
| | | | 31098 | MCN | 040052685824 | 02-25-97 | 02-27-97 | 10:16 | 2 | 1 | IP | 29.50 | L.WATSON | X | |
| | | | 31098 | MCN | 040052685010 | 02-17-97 | 02-19-97 | 10:01 | 2 | 2 | IP | 33.00 | L.GOLDEN | X | |

* HOLD FOR PICKUP PACKAGES, EXCEPTIONS TO NORMAL DELIVERY AND SHIPMENTS WITHOUT POD (PROOF OF DELIVERY) ARE NOT INCLUDED. SEE PARTS 3 THROUGH 5 FOR BREAKOUT.

RUN DATE: 04/03/97
RUN TIME: 02:38.35
SEQUENCE: COUNTRY/STATE/CITY/ZIP
SERVICE DAYS: 20
WGT: POUNDS

F E D E R A L  E X P R E S S  C O R P O R A T I O N
CUSTOMER TIME-IN-TRANSIT
ACCOUNT 2085 OFFSHORE/27
FEBRUARY

149321 PAGE : 3
11517 REPORT : FEQZ206-R01
DEPT-LOC : 249-010

CUSTOMER NUMBER 1672-4130-1

DESTINATION BREAKOUT OF INTERNATIONAL SHIPMENTS WITH POD (PART 2)*

| DESTINATION CO ST CITY | ZIP | STA | TRACKING NUMBER | DATE SHIPPED | DELIVERY DATE | DEL TIME | # DEL DAYS | # OF PKGS | TYP SVC | SHIPMENT WEIGHT | POD RECIPIENT NAME | DOC TYPE | REFERENCE NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| US GA MACON | 31098 | MCN | 040052685021 | 02-17-97 | 02-19-97 | 10:01 | 2 | 2 | IP | 33.00 | L.GOLDEN | X | |
| | 31098 | MCN | 040052685043 | 02-17-97 | 02-19-97 | 10:01 | 2 | 2 | IP | 17.60 | L.GOLDEN | X | |
| | 31098 | MCN | 040052685124 | 02-18-97 | 02-24-97 | 11:45 | 4 | 2 | IP | 72.70 | . P SMART | X | |
| | 31098 | MCN | 040052685194 | 02-19-97 | 02-22-97 | 11:09 | 3 | 1 | IP | 14.10 | E.MAYNARD SR | X | |
| | 31098 | MCN | 040052685205 | 02-19-97 | 02-22-97 | 11:30 | 3 | 1 | IP | 23.10 | J.FOSTER | X | |
| | 31098 | MCN | 040052685220 | 02-19-97 | 02-22-97 | 11:45 | 3 | 1 | IP | 13.20 | R.GOLDEN | X | |
| | 31098 | MCN | 040052685312 | 02-19-97 | 02-22-97 | 11:30 | 3 | 1 | IP | 44.00 | J.FOSTER | X | |
| | 31098 | MCN | 040052685426 | 02-21-97 | 02-24-97 | 10:27 | 1 | 1 | IP | 62.30 | W.ATSON | X | |
| | 31098 | MCN | 040052685636 | 02-21-97 | 02-24-97 | 14:45 | 1 | 1 | IP | 33.00 | P.BARFIELD | X | |
| | 31098 | MCN | 040052685710 | 02-21-97 | 02-24-97 | 10:27 | 1 | 1 | IP | 37.40 | W.ATSON | X | |
| | 31098 | MCN | 040052685732 | 02-21-97 | 02-24-97 | 10:27 | 1 | 1 | IP | 11.00 | W.ATSON | X | |
| | 31098 | MCN | 040052685743 | 02-21-97 | 02-25-97 | 10:28 | 2 | 1 | IP | 13.20 | L.WATSON | X | |
| | 31098 | MCN | 040052684601 | 02-10-97 | 02-12-97 | 10:29 | 2 | 2 | IP | 2.20 | D.ASHLEY | X | |
| | 31098 | MCN | 040052684715 | 02-12-97 | 02-14-97 | 10:27 | 2 | 3 | IP | 33.00 | R.GOLDEN | X | |
| | 31098 | MCN | 040052684726 | 02-12-97 | 02-14-97 | 10:25 | 2 | 3 | IP | 33.00 | G.MCDONALD | X | |
| | 31098 | MCN | 040052684811 | 02-13-97 | 02-17-97 | 09:20 | 2 | 1 | IP | 18.90 | R.GOLDEN | X | |
| | 31098 | MCN | 040052684951 | 02-15-97 | 02-17-97 | 10:15 | 1 | 1 | IP | 34.10 | P.BARFIELD | X | |
| | 31098 | MCN | 040010263805 | 01-30-97 | 02-03-97 | 09:23 | 2 | 3 | IP | 4.40 | P.BARFIELD | X | |
| | 31098 | MCN | 040052684052 | 02-04-97 | 02-06-97 | 10:23 | 2 | 1 | IP | 18.30 | R.GOLDEN | X | |
| | 31098 | MCN | 040052684240 | 02-06-97 | 02-10-97 | 10:21 | 2 | 1 | IP | 2.20 | R.WEST | X | |
| | 31098 | MCN | 040052684494 | 02-07-97 | 02-10-97 | 10:21 | 1 | 2 | IP | 33.00 | R.WEST | X | |
| | 31098 | MCN | 040052685172 | 02-19-97 | 02-22-97 | 11:09 | 3 | 1 | IP | 24.00 | E.MAYNARD SR | X | |
| | 31098 | MCN | 040052685231 | 02-19-97 | 02-21-97 | 09:08 | 2 | 1 | IP | 49.60 | J.DAVILA | X | |
| | 84056 | MCN | 040052606083 | 02-25-97 | 02-28-97 | 10:57 | 3 | 1 | IP | 90.30 | L.WATSON | X | |
| ID MOUNTAIN HOME | 83648 | BOI | 040052684671 | 02-10-97 | 02-12-97 | 10:56 | 2 | 1 | IP | 1.10 | J.BOWYER | X | |
| LA NEW ORLEANS | 70143 | MSY | 040052684645 | 02-10-97 | 02-12-97 | 10:39 | 2 | 1 | IP | 17.80 | D.LACOSTE | X | |
| | 70143 | MSY | 040052684096 | 02-04-97 | 02-06-97 | 10:15 | 2 | 1 | IP | 53.10 | L.COUSINS | X | |
| MO BRIDGETON | 63044 | ALN | 040052684660 | 02-10-97 | 02-12-97 | 08:23 | 2 | 1 | IP | 17.20 | L.JONES | X | |
| NC FAYETTEVILLE | 28308 | FAY | 040052684995 | 02-17-97 | 02-19-97 | 11:55 | 2 | 1 | IP | 1.10 | C.HILL | X | |
| GOLDSBORO | 27531 | RWI | 040052684166 | 02-05-97 | 02-07-97 | 10:29 | 2 | 1 | IP | 1.10 | R.FRENTES | X | |
| | 27531 | RWI | 040052684085 | 02-04-97 | 02-06-97 | 17:06 | 2 | 1 | IP | 1.10 | R.JOHNSON | X | |
| NE OFFUTT | 68113 | OMA | 040052684763 | 02-12-97 | 02-14-97 | 08:55 | 2 | 1 | IP | 4.40 | J.DINSMORE | X | |
| NJ VINELAND | 08360 | MIV | 040052684575 | 02-07-97 | 02-11-97 | 09:27 | 2 | 1 | IP | 8.80 | F.LUND | X | |
| NM CLOVIS | 88101 | CVN | 040052606562 | 02-28-97 | 03-03-97 | 09:18 | 1 | 1 | IP | 20.20 | M.LEWIS | X | |
| | 88101 | CVN | 040052606573 | 02-28-97 | 03-03-97 | 09:18 | 1 | 1 | IP | 21.60 | M.LEWIS | X | |
| | 88101 | CVN | 040052606455 | 02-28-97 | 03-03-97 | 09:18 | 1 | 1 | IP | 21.60 | M.LEWIS | X | |
| NV LAS VEGAS | 89191 | VGT | 040052606396 | 02-28-97 | 03-03-97 | 10:25 | 1 | 1 | IP | 41.80 | O.BEZEK | X | |
| OH COLUMBUS | 43216 | GQQ | 040052684472 | 02-07-97 | 02-11-97 | 10:29 | 2 | 1 | IP | 3.30 | G.CURTZ | X | |
| HEATH | 43056 | HNN | 040052684446 | 02-07-97 | 02-10-97 | 09:52 | 1 | 1 | IP | 94.80 | J.FLATT | X | |

* HOLD FOR PICKUP PACKAGES, EXCEPTIONS TO NORMAL DELIVERY AND SHIPMENTS WITHOUT POD (PROOF OF DELIVERY) ARE NOT INCLUDED. SEE PARTS 3 THROUGH 5 FOR BREAKOUT.

RUN DATE: 04/03/97
RUN TIME: 02:38.35
SEQUENCE: COUNTRY/STATE/CITY/ZIP
SERVICE DAYS: 20
WGT: POUNDS

F E D E R A L  E X P R E S S  C O R P O R A T I O N
CUSTOMER TIME-IN-TRANSIT
ACCOUNT 2085 OFFSHORE/27
FEBRUARY

149321 PAGE : 4
11518 REPORT : FEQZ206-R01
DEPT-LOC : 249-010

CUSTOMER NUMBER 1672-4130-1

DESTINATION BREAKOUT OF INTERNATIONAL SHIPMENTS WITH POD (PART 2)*

| DESTINATION CO | ST | CITY | ZIP | STA | * TRACKING NUMBER | DATE SHIPPED | DELIVERY DATE | DEL TIME | # DEL DAYS | # OF PKGS | TYP SVC | SHIPMENT WEIGHT | POD RECIPIENT NAME | DOC REFERENCE NOTES TYPE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| US | OH | HEATH | 43056 | MNN | 040052685146 | 02-18-97 | 02-20-97 | 09:11 | 2 | 1 | IP | 21.60 | D.HANBY | X |
| | | | 43056 | MNN | 040052685345 | 02-20-97 | 02-24-97 | 07:59 | 2 | 1 | IP | 21.60 | D.HANBY | X |
| | | | 43056 | MNN | 040052684962 | 02-15-97 | 02-17-97 | 07:28 | 1 | 1 | IP | 19.80 | D.HANBY | X |
| | OK | OKLAHOMA CITY | 73145 | OKC | 040052684111 | 02-05-97 | 02-07-97 | 10:55 | 2 | 3 | IP | 46.30 | L.SWANSON | X |
| | | | 73145 | OKC | 040052606466 | 02-28-97 | 03-03-97 | 11:41 | 1 | 1 | IP | 88.10 | J.WARNICK | X |
| | | | 73145 | OKC | 040052606503 | 02-28-97 | 03-03-97 | 11:41 | 1 | 1 | IP | 9.90 | J.WARNICK | X |
| | | | 73145 | OKC | 040052685463 | 02-21-97 | 02-24-97 | 11:00 | 1 | 1 | IP | 30.80 | L.SWANSON | X |
| | | | 73145 | OKC | 040052685522 | 02-21-97 | 02-24-97 | 11:00 | 1 | 1 | IP | 13.20 | L.SWANSON | X |
| | PA | PHILADELPHIA | 19111 | NXX | 040052606186 | 02-26-97 | 02-28-97 | 13:55 | 2 | 1 | IP | 6.60 | W.RAPP | X |
| | | | 19111 | NXX | 040052606481 | 02-28-97 | 03-03-97 | 10:01 | 1 | 1 | IP | 1.10 | N.RAPP | X |
| | | TOBYHANNA | 18466 | AVP | 040052606374 | 02-27-97 | 03-01-97 | 10:18 | 2 | 1 | IP | 28.60 | R.ONDRAKO | X |
| | SC | SUMTER | 29152 | SUM | 040052606271 | 02-27-97 | 03-03-97 | 08:56 | 2 | 1 | IP | 17.60 | T.FOURSEE | X |
| | TX | FORT WORTH | 76108 | FTW | 040052685931 | 02-25-97 | 02-27-97 | 09:35 | 2 | 1 | IP | 79.30 | G.CURRY | X |
| | | | 76108 | FTW | 040052685323 | 02-20-97 | 02-24-97 | 09:25 | 2 | 1 | IP | 79.30 | D.DANIEL | X |
| | | KELLY AFB | 78243 | SVZ | 040052684133 | 02-05-97 | 02-07-97 | 09:57 | 2 | 1 | IP | 11.00 | D.HAVERTY | X |
| | | SAN ANTONIO | 78241 | SVZ | 040052606046 | 02-25-97 | 02-28-97 | 09:57 | 3 | 1 | IP | 45.80 | M.LOPEZ | X |
| | | | 78241 | SVZ | 040052685964 | 02-25-97 | 02-28-97 | 09:57 | 3 | 1 | IP | 67.60 | M.LOPEZ | X |
| | | | 78241 | SVZ | 040052685986 | 02-25-97 | 02-27-97 | 09:39 | 2 | 1 | IP | 27.50 | J.RUBIO | X |
| | | | 78241 | SVZ | 040052685990 | 02-25-97 | 02-27-97 | 09:39 | 2 | 1 | IP | 26.40 | J.RUBIO | X |
| | | | 78241 | SVZ | 040052684752 | 02-12-97 | 02-14-97 | 09:19 | 2 | 1 | IP | 123.40 | M.LOPEZ | X |
| | | | 78241 | SVZ | 040052684376 | 02-07-97 | 02-10-97 | 09:30 | 1 | 2 | IP | 28.60 | J.RUBIO | X |
| | | | 78241 | SVZ | 040052684564 | 02-07-97 | 02-10-97 | 09:30 | 1 | 1 | IP | 8.80 | J.RUBIO | X |
| | | | 78241 | SVZ | 040052684612 | 02-10-97 | 02-12-97 | 09:38 | 2 | 2 | IP | 72.70 | J.RUBIO | X |
| | | | 78241 | SVZ | 040052606120 | 02-25-97 | 02-28-97 | 09:57 | 3 | 1 | IP | 50.70 | M.LOPEZ | X |
| | | | 78241 | SVZ | 040052606131 | 02-25-97 | 02-28-97 | 09:57 | 3 | 1 | IP | 79.30 | M.LOPEZ | X |
| | | | 78241 | SVZ | 040052606201 | 02-26-97 | 02-28-97 | 09:57 | 2 | 1 | IP | 69.40 | M.LOPEZ | X |
| | | | 78241 | SVZ | 040052606256 | 02-26-97 | 02-28-97 | 09:00 | 2 | 1 | IP | 63.90 | B.LATHAM | X |
| | | | 78241 | SVZ | 040052606304 | 02-27-97 | 03-03-97 | 09:38 | 2 | 1 | IP | 108.20 | J.RUBIO | X |
| | | | 78241 | SVZ | 040052606411 | 02-28-97 | 03-03-97 | 09:43 | 1 | 1 | IP | 66.10 | J.RODRIQUEZ | X |
| | | | 78241 | SVZ | 040052606444 | 02-28-97 | 03-03-97 | 09:38 | 1 | 1 | IP | 6.60 | J.RUBIO | X |
| | | | 78241 | SVZ | 040052685835 | 02-25-97 | 02-27-97 | 09:39 | 2 | 1 | IP | 2.20 | J.RUBIO | X |
| | | | 78241 | SVZ | 040052686001 | 02-25-97 | 02-27-97 | 09:39 | 2 | 1 | IP | 18.90 | J.RUBIO | X |
| | | | 78241 | SVZ | 040052685150 | 02-18-97 | 02-21-97 | 09:27 | 3 | 1 | IP | 6.60 | J.RUBIO | X |
| | | | 78241 | SVZ | 040052685474 | 02-21-97 | 02-24-97 | 13:20 | 1 | 1 | IP | 1.10 | .SUDOH | X |
| | | | 78241 | SVZ | 040052684730 | 02-12-97 | 02-14-97 | 09:56 | 2 | 3 | IP | 15.40 | F.BELTRAN | X |
| | | | 78241 | SVZ | 040052684914 | 02-14-97 | 02-17-97 | 10:19 | 1 | 1 | IP | 2.20 | J.RODRIQUEZ | X |
| | | | 78241 | SVZ | 040052684925 | 02-14-97 | 02-17-97 | 10:19 | 1 | 1 | IP | 13.20 | J.RODRIQUEZ | X |
| | | | 78241 | SVZ | 040052684026 | 02-04-97 | 02-06-97 | 10:12 | 2 | 3 | IP | 2.20 | B.SANCHEZ | X |
| | | | 78241 | SVZ | 040052684144 | 02-05-97 | 02-07-97 | 09:42 | 2 | 1 | IP | 4.40 | J.RUBIO | X |

* HOLD FOR PICKUP PACKAGES, EXCEPTIONS TO NORMAL DELIVERY AND SHIPMENTS WITHOUT POD (PROOF OF DELIVERY) ARE NOT INCLUDED. SEE PARTS 3 THROUGH 5 FOR BREAKOUT.

RUN DATE: 04/03/97
RUN TIME: 02:38.35
SEQUENCE: COUNTRY/STATE/CITY/ZIP
SERVICE DAYS: 20
WGT: POUNDS

F E D E R A L  E X P R E S S  C O R P O R A T I O N
CUSTOMER TIME-IN-TRANSIT
ACCOUNT 2085 OFFSHORE/27
FEBRUARY

149321 PAGE : 5
11519 REPORT : FEQZ206-R01
DEPT-LOC : 249-010

CUSTOMER NUMBER 1672-4130-1

DESTINATION BREAKOUT OF INTERNATIONAL SHIPMENTS WITH POD (PART 2)*

| DESTINATION CO | ST | CITY | ZIP | STA | TRACKING NUMBER | DATE SHIPPED | DELIVERY DATE | DEL TIME | # DEL DAYS | # OF PKGS | TYP SVC | SHIPMENT WEIGHT | POD RECIPIENT NAME | DOC REFERENCE NOTES TYPE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| US | TX | SAN ANTONIO | 78241 | SVZ | 040052684553 | 02-07-97 | 02-10-97 | 10:02 | 1 | 1 | IP | 8.80 | J.RUBIO | X |
| | | SHEPPARD AFB | 76311 | SPS | 040052685813 | 02-24-97 | 02-26-97 | 09:57 | 2 | 1 | IP | 13.20 | T.WESTON | X |
| | | | 76311 | SPS | 040052684656 | 02-10-97 | 02-12-97 | 10:35 | 2 | 1 | IP | 6.60 | T.WESTON | X |
| | UT | HILL AFB | 84056 | OGD | 040052684483 | 02-07-97 | 02-10-97 | 10:20 | 1 | 1 | IP | 6.60 | G.STEADMAN | 1 |
| | | OGDEN | 84056 | OGD | 040052685916 | 02-25-97 | 02-27-97 | 10:28 | 2 | 1 | IP | 12.10 | T.WARD | X |
| | | | 84056 | OGD | 040052685920 | 02-25-97 | 02-28-97 | 10:25 | 3 | 1 | IP | 79.30 | T.WARD | X |
| | | | 84056 | OGD | 040052685953 | 02-25-97 | 02-27-97 | 10:28 | 2 | 1 | IP | 16.00 | T.WARD | X |
| | | | 84056 | OGD | 040052685183 | 02-19-97 | 02-21-97 | 10:27 | 2 | 1 | IP | 4.40 | T.WARD | X |
| | | | 84056 | OGD | 040052685356 | 02-20-97 | 02-24-97 | 09:41 | 2 | 1 | IP | 8.80 | T.WARD | X |
| | | | 84056 | OGD | 040052685570 | 02-21-97 | 02-25-97 | 10:05 | 2 | 1 | IP | 2.20 | T.WARD | X |
| | | | 84056 | OGD | 040052685721 | 02-21-97 | 02-24-97 | 09:41 | 1 | 1 | IP | 6.60 | T.WARD | X |
| | | | 84056 | OGD | 040052685780 | 02-24-97 | 02-26-97 | 10:21 | 2 | 1 | IP | 57.30 | T.WARD | X |
| | | | 84056 | OGD | 040052684741 | 02-12-97 | 02-14-97 | 10:29 | 2 | 1 | IP | 136.60 | T.WARD | X |
| | | | 84056 | OGD | 040052684892 | 02-14-97 | 02-17-97 | 10:01 | 1 | 1 | IP | 13.20 | G.STEADMAN | X |
| | | | 84056 | OGD | 040052684984 | 02-15-97 | 02-17-97 | 10:01 | 1 | 1 | IP | 110.20 | G.STEADMAN | X |
| | | | 84056 | OGD | 040052685006 | 02-17-97 | 02-19-97 | 10:17 | 2 | 1 | IP | 4.40 | T.WARD | X |
| | | | 84056 | OGD | 040052685032 | 02-17-97 | 02-19-97 | 10:17 | 2 | 2 | IP | 209.40 | T.WARD | X |
| | | | 84056 | OGD | 040010263993 | 02-03-97 | 02-06-97 | 10:10 | 3 | 1 | IP | 33.00 | T.WARD | X |
| | | | 84056 | OGD | 040052684074 | 02-04-97 | 02-06-97 | 10:10 | 2 | 1 | IP | 19.10 | T.WARD | X |
| | | | 84056 | OGD | 040052684505 | 02-07-97 | 02-10-97 | 10:20 | 1 | 1 | IP | 81.50 | G.STEADMAN | X |
| | | | 84056 | OGD | 040052685791 | 02-24-97 | 02-26-97 | 10:21 | 2 | 1 | IP | 2.20 | T.WARD | X |
| | VA | LANGLEY AFB | 23665 | PHF | 040052685776 | 02-24-97 | 02-26-97 | 09:27 | 2 | 1 | IP | 4.40 | C.FRAZE | X |
| | | | 23665 | PHF | 040052684634 | 02-10-97 | 02-12-97 | 09:18 | 2 | 1 | IP | 1.10 | C.FRASE | X |
| | | | 23665 | PHF | 040052684100 | 02-05-97 | 02-07-97 | 09:37 | 2 | 2 | IP | 4.40 | J.LEHMAN | X |
| | | | 23665 | PHF | 040052684284 | 02-06-97 | 02-10-97 | 09:10 | 2 | 1 | IP | 2.20 | J.LEHMAN | X |
| | | | 23665 | PHF | 040052684030 | 02-04-97 | 02-06-97 | 09:36 | 2 | 1 | IP | 1.10 | P.SUNDAY | X |
| | | RICHMOND | 23297 | RIC | 040052684435 | 02-07-97 | 02-11-97 | 11:01 | 2 | 1 | IP | 2.20 | N.TRAMMULL | X |

TOTAL INTERNATIONAL PACKAGES WITH POD = 168

* HOLD FOR PICKUP PACKAGES, EXCEPTIONS TO NORMAL DELIVERY AND SHIPMENTS WITHOUT POD (PROOF OF DELIVERY) ARE NOT INCLUDED. SEE PARTS 3 THROUGH 5 FOR BREAKOUT.

# Appendix C. March 1997 Federal Express Flight Schedule

**MEMPHIS, TN to Frankfurt Germany**

| FLIGHT OR ACTIVIT | ORIGIN LOCAL | DEST LOCAL | DISTANCE | LOCAL DEPT. | LOCAL ARR. | GMT(Z) DEPT. | GMT(Z) ARR. | ELAPSE TIME | ELAPSE TIME |
|---|---|---|---|---|---|---|---|---|---|
| **Depart Memphis Hub** | | | | Tue 3:24 | | Tue 9:24 | | | |
| Flight #0004 (MD11) | MEM | CDG | | Tue 3:24 | Tue 18:46 | Tue 9:24 | Tue 17:46 | 8:22 | 8:37 |
| Transload @ CDG Hub | CDG | CDG | 0 | Tue 18:46 | Tue 20:40 | Tue 17:46 | Tue 19:40 | 1:54 | 1:90 |
| Flight #006F (B727-200) | CDG | FRA | | Tue 20:40 | Tue 21:53 | Tue 19:40 | Tue 20:53 | 1:13 | 1:22 |
| **Arrive Frankfurt** | | | 0 | | Tue 21:53 | | Tue 20:53 | 11:29 | 11:48 |
| | | | | | | | | | |
| **Depart Memphis Hub** | | | | Tue 3:24 | | Tue 9:24 | | | |
| Flight #0004 (MD11) | MEM | CDG | | Tue 3:24 | Tue 18:46 | Tue 9:24 | Tue 17:46 | 8:22 | 8:37 |
| Transload @ CDG Hub | CDG | CDG | 0 | Tue 18:46 | Tue 21:15 | Tue 17:46 | Tue 20:15 | 2:29 | 2:48 |
| Flight #004A (B727-200) | CDG | FRA | | Tue 21:15 | Tue 22:28 | Tue 20:15 | Tue 21:28 | 1:13 | 1:22 |
| **Arrive Frankfurt** | | | 0 | | Tue 22:28 | | Tue 21:28 | 12:04 | 12:07 |

**Newark, NJ to Frankfurt Germany**

| FLIGHT OR ACTIVIT | ORIGIN LOCAL | DEST LOCAL | DISTANCE | LOCAL DEPT. | LOCAL ARR. | GMT(Z) DEPT. | GMT(Z) ARR. | ELAPSE TIME | ELAPSE TIME |
|---|---|---|---|---|---|---|---|---|---|
| **Depart Newark Hub** | | | | Tue 3:30 | | Tue 8:30 | | | |
| Flight #0006 (MD11) | EWR | PIK | | Tue 3:30 | Tue 14:28 | Tue 8:30 | Tue 14:28 | 5:58 | 5:97 |
| Ground time @ PIK | PIK | PIK | 0 | Tue 14:28 | Tue 16:40 | Tue 14:28 | Tue 15:40 | 1:12 | 1:20 |
| Flight #0006 (MD11) | PIK | CDG | | Tue 16:40 | Tue 18:13 | Tue 15:40 | Tue 17:13 | 1:33 | 1:55 |
| Transload @ CDG Hub | CDG | CDG | 0 | Tue 18:13 | Tue 20:40 | Tue 17:13 | Tue 19:40 | 2:27 | 2:45 |
| Flight #006F (B727-200) | CDG | FRA | | Tue 20:40 | Tue 21:53 | Tue 19:40 | Tue 20:53 | 1:13 | 1:22 |
| **Arrive Frankfurt** | | | 0 | | Tue 21:53 | | Tue 20:53 | 12:23 | 12:38 |
| | | | | | | | | | |
| **Depart Memphis Hub** | | | | Tue 3:30 | | Tue 8:30 | | | |
| Flight #0006 (MD11) | EWR | PIK | | Tue 3:30 | Tue 14:28 | Tue 8:30 | Tue 14:28 | 5:58 | 5:97 |
| Ground time @ PIK | PIK | PIK | 0 | Tue 14:28 | Tue 16:40 | Tue 14:28 | Tue 15:40 | 1:12 | 1:20 |
| Flight #0006 (MD11) | PIK | CDG | | Tue 16:40 | Tue 18:13 | Tue 15:40 | Tue 17:13 | 1:33 | 1:55 |
| Transload @ CDG Hub | CDG | CDG | 0 | Tue 18:13 | Tue 21:15 | Tue 17:13 | Tue 20:15 | 3:02 | 3:03 |
| Flight #006F (B727-200) | CDG | FRA | | Tue 21:15 | Tue 22:28 | Tue 20:15 | Tue 21:28 | 1:13 | 1:22 |
| **Arrive Frankfurt** | | | 0 | | Tue 21:53 | | Tue 20:53 | 12:58 | 12:97 |

## Appendix D, Document Identifier Code Explanations

1. Document Identifier Code:

> "The document identifier code is used on all Military Standard Transportation and Movement Procedures (MILSTAMP) data records. It is a means of identifying the functional area system (transportation, supply, etc.), to which the document relates and the intended purpose of the document (TCMD, manifest, tracer, etc.)" (DoD 4500.32-R, 1987:F8-1).

a. AS1:

> "To notify the requisitioners about the estimated shipping date (ESD) or the actual shipping date of their requisitioned items. The ESD indicates that the items are waiting to be released for shipment; the actual shipping data indicates the day the items will be released to a carrier. Shipment status also provides data for interface with Transportation and for shipment tracing by consignee, as provided in Military Standard Transportation and Movement Procedures (MILSTAMP)" (67-1, 1989:9-155).

b. TX1: "Shipments not otherwise covered—Prime document for LRU (define) shipment (including empty SEAVAN, CONEX, etc.) not in a consolidation container" (DoD 4500.32-R, 1987:F8-2). This is the date the customer inputs into the system or the Headquarters Air Force Material Command Air Clearance Authority Challenge Desk inputs into the system for requested shipment date to the APOE (Suther, 1997).

c. TXA: "Shipments not otherwise covered-- Prime document for LRU (define) shipment (including empty SEAVAN, CONEX, etc.) not in a consolidation container" (DoD 4500.32-R, 1987:F8-2). This DIC is the APOE receipt date for loose cargo (Moon, 1997).

d. TXD: "Shipments not otherwise covered—Prime document for shipment units consolidated in a container (CONEX, SEAVAN, MILVAN, 463L Pallet, RORO, or Unitized Pallet Load) (DoD 4500.32-R, 1987:F8-3). This DIC is the APOE receipt date for containerized cargo (Moon, 1997).

e. TK1: "Prepared by initial intratheater airlift terminal showing hour/day shipment unit is received and forwarded" (DoD 4500.32-R, 1987:F8-4). This DIC is primarily used for advanced notification of an impending shipment (Moon, 1997).

f. TK2: "Prepared by intermediate intratheater airlift terminal showing hour/day shipment unit is received and forwarded" (DoD 4500.32-R, 1987:F8-4). This DIC is primarily used for advanced notification of an impending shipment (Moon, 1997).

g. TK6: "Prepared by AMC APOD showing hour/day shipment unit is received at an APOD and forwarded to the ultimate consignee" (DoD 4500.32-R, 1987:F8-5).

h. TK7: "Prepared by HQ AMC/OCCA showing hour/day each export shipment unit is received/lifted from CONUS by AMC and MSC. The OCCA entries include the date of overseas vessel discharge" (DoD 4500.32-R, 1987:F8-5). The primary purpose of this DIC is to provide trailer data—Additional handling instructions or specific cargo profile (e.g. explosives, proper shipping name, outsize cargo) (Moon, 1997).

i. D6S Receipt Date: "To receive materiel. These transactions are submitted for report codes 6 or 7 to record gains to the Air Force inventory and maintain in-transit control" (67-1, 1989:10-43).

2. Document Number: "Most of the transactions processed with Base Supply are assigned an organizational document number made up of 14 alpha and numeric characters. It is a control or reference number used to identify a specific transaction" (AFM 67-23, 1991:16).
3. Consignor DoDAAC: Department of Defense Activity Address Code of Shipper
4. Consignee DoDAAC: Department of Defense Activity Address Code of Receiver
5. APOE: Aerial Port of Embarkation
6. APOD: Aerial Port of Debarkation

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Condon Vita

Captain Travis Condon was born on [redacted]. He graduated from Bret Harte High School in 1984. On 27 March 1985, he enlisted in the United States Air Force and embarked on a series of assignments while working towards his degree. In September 1990 he received a Bachelor of Science degree in Management from Golden Gate University and subsequently entered Officer Training School in August 1991.

Upon graduation from OTS in November 1991, he was assigned to Griffiss AFB, NY as Chief, Combat Readiness and Resources and graduated from Transportation Officer School at Sheppard AFB, Texas in March 1992. In June 1993, he was reassigned to Falcon AFB, CO as Chief of Transportation and while assigned to this location he completed his Master of Science degree in Business Management at the State University of New York Institute of Technology at Utica/Rome, New York. Following this short assignment, he cross-trained into Logistics Plans and was reassigned to Sembach AFB, GE as Chief, Logistics Plans in June 1994.

It was from this location that he entered the prestigious Air Force Institute of Technology Graduate School of Logistics and Acquisition Management in May 1996 and graduated with a Master of Science degree in Transportation Management and Supply Management in September 1997. He was subsequently assigned to Headquarters Air Mobility Command as a Transportation Plans Staff Officer.

Permanent address: [redacted]

Patterson Vita

Captain Kirk A. Patterson was born on [redacted]. He graduated from Northview High School in 1981 and attended Georgia Institute of Technology in Atlanta, Georgia. He later transferred to Auburn University in Auburn, Alabama where he graduated in December 1985 with a Bachelor of Science degree in Biology. He continued his education at Auburn University, earning a Master of Science degree in Interdepartmental Physiology in June 1988. He received his commission from Officer Training School on 31 July 1991 and graduated from Transportation Officer School at Sheppard Air Force Base, Texas in November 1991.

His first tour of duty was with the 6th Aerial Port Squadron at Howard AFB, Panama. In September 1993, he was assigned to the 8th Transportation Squadron, Kunsan AB, Republic of Korea. One year later he was assigned to the 432nd Transportation Squadron, Misawa ABS, Japan.

Captain Patterson entered the Graduate School of Logistics and Acquisition Management, Air Force Institute of Technology, in May 1996 and graduated with a Master of Science degree in both Transportation Management and Supply Management in September 1997. He was subsequently assigned to Headquarters Air Force Materiel Command as a Transportation representative on the Inspector General team.

Permanent address: [redacted]

# REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 074-0188



| 1. AGENCY USE ONLY (Leave blank) | 2. REPORT DATE | 3. REPORT TYPE AND DATES COVERED |
|---|---|---|
| | September 1997 | Master's Thesis |

**4. TITLE AND SUBTITLE**
A COMPARISON OF THE MILITARY'S ORGANIC MOVEMENT AND COMMERCIAL EXPRESS CARRIERS

**5. FUNDING NUMBERS**

**6. AUTHOR(S)**
Travis E. Condon, Capt, USAF and Kirk A. Patterson, Capt, USAF

**7. PERFORMING ORGANIZATION NAMES(S) AND ADDRESS(S)**
Air Force Institute of Technology
2750 P Street
WPAFB OH 45433-7765

**8. PERFORMING ORGANIZATION REPORT NUMBER**
AFIT/GTM/LAL/97S-1

**9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)**
Headquarters Air Force Materiel Command/LGTW
Attn: Mr. Greg Holevar
4375 Chidlaw Road, Suite 6
WPAFB OH 45433-5006

**10. SPONSORING / MONITORING AGENCY REPORT NUMBER**

**11. SUPPLEMENTARY NOTES**

**12a. DISTRIBUTION / AVAILABILITY STATEMENT**
Approved for release; distribution unlimited

**12b. DISTRIBUTION CODE**

**13. ABSTRACT (*Maximum 200 Words*)**

The DoD has begun outsourcing airlift in order to expedite high priority cargo movement. However, are commercial express carriers more expedient in the cargo delivery than the Air Force organic transportation system? Although anecdotal evidence suggests commercial carriers are faster, little empirical research has been conducted on this subject.

This study compares the military's organic transportation system with Federal Express in the delivery of high priority cargo to Spangdahlem Air Base, Germany. The Large Sample Test of Hypothesis was used to determine if there was a significant difference between the cargo transit times of the two.

The mean delivery time for the military's organic transportation system from CONUS to Spangdahlem was 6.24 days, while Federal Express' mean delivery time was 2.71 days.

The primary conclusion drawn from this research is that Federal Express is indeed able to transport small items (weighing less than 150 pounds) to Spangdahlem AB, Germany faster than the military's traditional organic transportation system. A secondary conclusion taken from this research is that every segment of the pipeline except the actual flight time between CONUS and Europe all take significantly longer for the military system than for the commercial system.

**14. SUBJECT TERMS**
Air Transportation, Shipping, Military Transportation, Cargo Movement, Military Airlift, Airlift Operations, Express Carriers, Federal Express

**15. NUMBER OF PAGES**
67

**16. PRICE CODE**

| 17. SECURITY CLASSIFICATION OF REPORT | 18. SECURITY CLASSIFICATION OF THIS PAGE | 19. SECURITY CLASSIFICATION OF ABSTRACT | 20. LIMITATION OF ABSTRACT |
|---|---|---|---|
| Unclassified | Unclassified | Unclassified | UL |

AFIT Control Number AFIT/GTM/LAL/97S-1

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1. Did this research contribute to a current research project? a. Yes b. No

2. Do you believe this research topic is significant enough that it would have been researched (or contracted) by your organization or another agency if AFIT had not researched it?
a. Yes b. No

3. **Please estimate** what this research would have cost in terms of manpower and dollars if it had been accomplished under contract or if it had been done in-house.

Man Years_____ $_____

4. Whether or not you were able to establish an equivalent value for this research (in Question 3), what is your estimate of its significance?

a. Highly Significant b. Significant c. Slightly Significant d. Of No Significance

5. Comments (Please feel free to use a separate sheet for more detailed answers and include it with this form):

_____ _____
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