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**TRANSPORTATION COST SYSTEM (TRACS)
COMMERCIAL AIR SUBSYSTEM
STATISTICAL AND COMPUTER DOCUMENTATION
(Source Code and Data on CD-ROM)**

USPS-LR-J-29/R2001-1

Transportation Cost System (TRACS)

Commercial Air Subsystem

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The scanning process generates a dispatch and routing (D&R) tag or a routing label affixed to an ACT tag¹ to be attached to the item (or container). The D&R tag or the routing label contains information such as the airline code, flight number, origin and destination for each flight leg. The D&R tag or the ACT tag also shows item weight and mail class indicator. The mail class indicator is frequently referred to as the ACT Tag code.

Information from the ACDCS is consolidated in the Air Contract Support System (ACSS) Master File and the PVA file. The ACSS file provides a historical list of flights that carried mail, including information on mail weight, miles transported and amounts due to contractors. This ACSS file is a primary input for creating the TRACS-Air sampling frame (see section III). The PVA file provides weight information by dispatch and ACT Tag code, which are then summarized into population control totals for use in expanding TRACS-Air sample data to form Passenger Air distribution key estimates (see section VII).

A. First Stage Sample

The primary sampling unit (PSU) is a flight-day, which is defined as all mail being dispatched from the specified origin on a given day via a particular airline and flight with the same first-leg destination reflected on the routing label or D&R tag. A sample of flight-days is systematically selected from the sampling frame. The following table shows the Commercial Air first stage sample size by quarter for FY 2000.

Sample Size by PQ

Period	Sample Size
PQ1	208
PQ2	208
PQ3	206
PQ4	274
FY 2000	896

B. Second Stage Sample

The secondary sampling unit (SSU) is an item of mail dispatched for a sampled flight-day. Examples of mail items include sacks, letter trays, flat tubs, and loose parcels. For the second stage sample, mail items are stratified into five ACT Tag groups, based on the mail class indicator (ACT tag code): F for First-Class, P for Priority, E for Express, I for International and O for others. The ACT Tag code indicates the predominant mail class contained in the item (an item may contain one or more mail classes or categories). Two items are sampled from each ACT Tag group. If there are less than two items available for an ACT Tag group, they are replaced with items from

¹ Refer to Appendix IV for example tags and labels.

other ACT Tag groups, with preference given first to F, then P, then E, then I and finally O. If there are less than eight items on the flight-day, all items are sampled.

For each selected item, the ACT Tag code and routing information are recorded directly onto the data collector's laptop computer. This information is later used to link the sample data with the payment records in the PVA file. The total weight of the item, as well as the count and weight of the contents of the item by mail category, are also recorded.

III. CREATING THE SAMPLING FRAME

The sampling frame, a list of flight-days which are likely to be used for transporting mail during the next postal quarter (PQ), is constructed five weeks before the beginning of every postal quarter. A flight-day is defined by the date, airport at which the dispatch originates, carrier, flight number, and first leg destination. The sampling frame is restricted to flights and days of the week which have been used to transport mail in the recent past, and whose schedules remain valid through the upcoming postal quarter. Refer to Appendix II-A for the flowchart that shows the program, input and output files in the frame development process.

Information on recent usage of contract flight-days is obtained from the Air Contract Support System (ACSS) Master File, which is generated at the St. Louis ISSC every accounting period (AP) for each of the four weeks of the AP. Refer to Appendix I-B for the record layout of the ACSS file. TRACS-Air extracts the system service records from the ACSS file; deletes duplicate, zero payment and Eagle records; consolidates records for a dispatch; and calculates pound-miles as the product of pay-miles and weight. (Program TRACSSMN.BY00.DESIGN.PQq00.CNTL(AIRD1ACS)).

The Official Airlines Guide (OAG), which is a list of all commercial flights for the foreseeable future, is used to determine which flights will be valid in the upcoming postal quarter. TRACS-Air extracts records from the OAG file corresponding to flights for which the earliest effective date and the latest discontinuation date span an entire accounting period (AP) in the quarter. Refer to Appendix I-C for the OAG extract file layout. Each extracted OAG record is tagged to indicate the APs for which the flight will be valid. (Program TRACSSMN.BY00.DESIGN. PQq00.CNTL(AIRD2OAG)).

ACSS and OAG extract records are then match-merged by flight (i.e., origin airport, first leg destination airport, carrier and flight number), and replicated four times for each AP the flight is valid - once for each week in the AP. The result constitutes the frame, which is a list of flight-days available for sampling in the upcoming quarter. Facility and district information are appended to the frame file by merging it with the NTMS Facility File which maps the origin airport with the appropriate three-digit ZIP Code, and the ZIP Table which maps the three-digit ZIP Code with the district's base unit, from which the tests will be administered (see Appendix I-D & I-G for facility & ZIP table layouts). (Program TRACSSMN.BY00.DESIGN.PQq00.CNTL(AIRD3FRM)).

IV. SELECTING THE FIRST STAGE SAMPLE

A. Selecting the Sample

Flight-days in the frame file are sorted by district and date. TRACS Air generates a random start, and calculates a sampling interval by dividing the frame size by the sampling size for the quarter. It then applies systematic sampling using the generated random start and calculated skip interval. A sample size of 70 flight-days per AP, or 210 per postal quarter, is selected from the frame. (Program TRACSSMN.BY00.DESIGN.PQq00.CNTL(AIRD4SMP)). Refer to Appendix II-A for a flowchart that shows the program, input and output files from the initial frame creation to the final TRACS-Air sample file.

B. Assigning the TESTID

Each sampled flight-day is assigned a unique eight-character TESTID which indicates the date of test, the type of TRACS test, and a sequence code of the test among commercial and network air tests scheduled for a particular date. An example TESTID would be 01100-BA. This TESTID has the following structure:

- characters 1-2 = month of test, i.e., '01';

- characters 3-4 = day of test, i.e., '10';

- character 5 = last digit of year, i.e., '0' for '2000';

- character 6 = '-';

- character 7 = alpha indicating type of TRACS test ('A', 'B' or 'C' for Commercial Air tests, 'F' for Eagle, 'D' or 'E' for rail, 'G' or 'H' for Amtrak, and 'I' through 'Z' for highway tests);

- character 8 = alpha indicating the sequence of the particular test among Commercial and Network Air tests scheduled for that testdate, i.e., 'A' indicating it is the first Air test for that date.

The TESTID is assigned by TRACSSMN.BY00.DESIGN.PQq00.CNTL(AIRD5FLT). In the same program, the Commercial Air sample is combined with the Network Air sample to form a file that contains all TRACS-Air tests for the quarter, named TRACSSMN.AIR.PQq00.OUTPUT.AIRFLAT.SAS.

C. Consolidating the TRACS Sample Master File and Reassigning Test Dates

The Commercial and Network Air samples are combined with the Highway, Rail and Amtrak samples. With the exception of Network Air and Amtrak, test dates are reassigned to even out a district's daily workload as much as possible, while keeping the same number of tests originally scheduled for each district. For example, if three or more TRACS tests are scheduled for a particular district on a particular day, the test

date for one of the three tests will be changed to the same day of another week during the same quarter if possible. This process is referred to as "smoothing".

The following four programs are executed in the sample consolidation and smoothing process.

- (1) TRACSSMN.BY00.DESIGN.PQq00.CNTL(TRACODES) consolidates TRACS Highway, Rail, Amtrak, Commercial Air and Network Air sample into one SAS data set.
- (2) TRACSSMN.BY00.DESIGN.PQq00.CNTL(SMOOTH1) prepares the highway sample only, even though the input includes the entire TRACS sample master file, for smoothing.
- (3) TRACSSMN.BY00.DESIGN.PQq00.CNTL(SMOOTH2) moves samples to the same day of another week to even out the daily workload.
- (4) TRACSSMN.BY00.DESIGN.PQq00.CNTL(CHKCODES) validates the 'smoothed' sample by comparing it with the sample file for the previous quarter. It produces sample distribution by subsystem, by day and by district. The output of the program is the consolidated TRACS sample master file:
ALB.HQ210D01.FY00.PQq. Refer to Appendix I-J for the layout of the air portion of the consolidated TRACS Sample Master file.

D. Partitioning

TRACS samples are partitioned for each base unit computer (typically one per district) prior to distribution to the field.

About three weeks before the beginning of a quarter, the program `userid.TRACS.CLIST` is run in a mainframe Time Sharing Option (TSO) session. After selecting the Production Job menu option for partitioning the sample, the user specifies the fiscal year, the postal quarter (PQ), and the beginning and ending dates of the PQ. This initiates the Job Control Language (JCL) procedure `DDASMN.PRODPROC(HSD2101P)` which runs the COBOL partitioning program `HSDHQN.CODES.LOAD (HSD210C7)`. This program selects records from the TRACS sample file `ALB.HQ210D01.FY00.PQq` for the user-specified PQ, inserts a valid base unit code, and writes them to a temporary file. Subsequent job steps of the JCL procedure `HSD2101P` sort the temporary file by base unit and TESTID and copy the records to an indexed VSAM file `HSDHQN.VS210D01.TRACS.SAMPLE`. The partitioning process is also documented in the Library Reference entitled 'TRACS-CODES Computer System Documentation' (USPS-LR-J-35).

V. ADMINISTERING TESTS IN THE FIELD

Within each district, the Manager of Statistical Programs (MSP) is responsible for downloading the sample file, assigning tests to data collectors, reviewing the data after

tests are conducted, and ensuring timely transmission of the data to the mainframe computer system at the San Mateo ISSC.

A. Downloading the Sample

On Friday, two weeks prior to the start of a quarter, CODES Support resets the flags in the TRACS field of the DISTRICT data file, so sites can begin downloading the sample file. On the following Monday, CODES Support uploads the TRACS text message to the mainframe which notifies CODES sites that the sample file is available for downloading.

CODES sites use the 'Receive Text Files' option of the base unit's 3270 Direct Communications menu to learn when the new TRACS sample file is available. Each site may then select 'Receive TRACS Sample File' option, which creates and downloads an ASCII file containing site-specific sample records.

Later, CODES Support verifies that all districts have downloaded the TRACS sample files.

B. Administrative Functions

Administrative tracking of tests is performed on the base unit computer(s) in each district. Administrative functions available on the base unit computer include the following: receive TRACS sample file; TRACS data entry; review test information; reschedule a test; delete a test; print test information; check test status; review admin file; upload TRACS data; transmit test data to the San Mateo mainframe; and initialize files after the end of each quarter.

C. Collecting the Data

TRACS tests are conducted by data collectors knowledgeable in determining the mail category, based on the indicia, postage, markings and endorsements on the mail piece. One or two days prior to the test, the data collector obtains the actual plane close-out time, the latest time that mail can be turned over to the airline. On the day of the test, he/she arrives at the facility several hours before the close-out time to ensure that there is sufficient time to locate bulk billed and other mail items bound for the flight and perform the test before the mail is turned over to the airline. For each test, the data collector verifies the test and first-leg flight information, and enters replacement and/or reschedule information if necessary. The data collector then selects at most ten items (sacks, trays, loose parcels, etc.) on the basis of the ACT Tag code as shown on the ACT tag or D&R tag attached to the items. Typically, two items from each of the five ACT Tag groups are selected; two F's, two P's, two E's, two I's, and two from all other codes. Substitution by another item type, following the substitution hierarchy 'F', 'P', 'E', 'I' then 'O', may be done if there are not enough items of the required ACT Tag group(s) to sample. For each sampled item, the data collector records the ACT Tag code and

weight of the item, the count and weight of the contents by mail category, and subsequent legs of the flight.

TRACS data collection procedures are contained in Chapter 5 of Handbook F-65, 'Data Collection User's Guide for Cost Systems', filed in USPS-LR-J-14. The CODES software, used on laptop computers to record the data, is documented in the Library Reference entitled 'TRACS-CODES Computer System Documentation' (USPS-LR-J-35).

D. Transmitting the Data to the San Mateo ISSC

Each week, the MSP transmits all tests from the base unit computer to the mainframe computer at the San Mateo ISSC. A backup copy of the data is made when they are transmitted, in case of transmission errors or loss of data on the mainframe computer system. The data transmission process is more fully documented in Section 2 of USPS-LR-J-35.

VI. DATA VALIDATION AND EDITING

A. Creating the Check-in File

Each Monday morning, CODES Support executes a pre-check-in program to verify that all CODES sites have transmitted data for at least one test from the previous week. They submit the JCL program DDASMN.PRODPROC(HSD2221P) to run the COBOL program HSDHQN.CODES.LOAD (HSD222C4). The program identifies delinquent sites, tests that are not contained in the sample extract file, and invalid records, and prints various record processing totals.

After pre-check-in has been completed, San Mateo Production Support initiates the check-in process from the CODES-TRACS Production Jobs Menu. The JCL program DDASMN.PRODPROC(HSD2131P) and COBOL programs DDA.PRODLINK(HSD213C2 and HSD214C4) read the VSAM Master Data file HSDHQN.VS210D01.TRACDATA, which contains all data records transmitted the previous week by form type and test ID, and breaks it into 11 separate sequential files, one for each TRACS form. The files are then grouped by test type (i.e., air, highway, rail and Amtrak) and are checked for data entry errors and for general accuracy and completeness. Forms A1 and A3 contain test header and detail information, respectively, for commercial and network air. Later in the check-in process, the COBOL program HSD215C6 (controlled by the JCL HSD2131Q) processes the two air forms, writes them to two temporary files and performs edit checks. At the end of the check-in process, the temporary files are copied onto tape. The Air files are named:

HSDHQN.PS215T01.CODES.AIR1.TRC00apw
HSDHQN.PS215T01.CODES.AIR3.TRC00apw

The weekly files are later concatenated into quarterly files named:

TRACSSMN.AIR1.CODES.PQq00.TEXT
TRACSSMN.AIR3.CODES.PQq00.TEXT

which contain the TEST Header and TEST Detail information, respectively.

B. Editing

In addition to edits performed as data are entered in the CODES software, test data are validated and edited on the mainframe computer prior to their final use. These validation and consistency checks include:

- checking for duplicate TESTIDs;
- matching of TESTID among the SAMPLE, TEST Header and TEST Detail records, and validating the consistency of flight and other information among the three;
- checking for invalid characters and numbers exceeding pre-specified bounds;
- validating facility and carrier codes and trip numbers;
- checking the consistency of replaced and/or rescheduled tests with date and/or flight information entered;
- checking for missing information for LEG1, or same flight information for LEG1, LEG2 and/or LEG3;
- checking for invalid or duplicate ITEMNO, invalid ITEMTYPE, MAILCODE, or ACT Tag MAILCLASS Indicator;
- checking for missing and/or inconsistent ITEMWT and MAILWT;
- imputing TARE weight for records with computed TARE weight outside specified bounds;
- adjusting each individual mail weight MAILWT to account for tare weight;
- deleting records for sealed, registered items which cannot be opened;
- computing great circle miles and pound-miles.

The above consistency and validation checks are performed by the program² TRACSSMN.BY00.AIRq00.EDIT.CNTL(AIRE5EDT).

Inputs to the above edit process are:

1. TEST Header File (TRACSSMN.AIR1.CODES.PQq00.TEXT): contains general information pertaining to a test;
2. TEST Detail File (TRACSSMN.AIR3.CODES.PQq00.TEXT): contains item information;
3. TRACS SAMPLE Master File (ALB.HQ210D01.FY00.PQq): master sample file for all TRACS subsystems disseminated to the field;

² NOTE: Certain variables of some input and program files submitted for the rate case have been encrypted to protect commercially sensitive information. Refer to Appendix III for a cross-walk of filenames referred to in this document and the encrypted and CD filenames.

4. Mailcode File (TRACSSMN.MAILCODE.FLAT.TEXT.FY00): contains list of valid mail category codes and corresponding CRA group codes;
5. Facility File (TRACSSMN.LATF04Q.PQq00.FLAT.TEXT): contains list of valid facility codes and corresponding ZIP3 codes;
6. Facility Edit File (TRACSSMN.AIRPQq00.INPUT.LATF04Q.ADD): contains list of additional valid facility codes;
7. Carrier Reference File (TRACSSMN.INPUTAIR.CARRIERS.LATT13Q.PQq00): contains list of valid commercial carrier codes;
8. Carrier Edit File (TRACSSMN.AIRCRA00.CARRIERS.ADD): contains list of additional valid commercial carrier codes;
9. Other Edit File (TRACSSMN.AIRCRA00.EDITS): contains minor typographical edits for origin and/or destination codes in the PVA file and typographical and consistency edits for the origin, destination and carrier codes and flight number in the TEST files.

Refer to Appendix II-B for the flowchart that shows the program, input and output files for the editing process.

C. Generating the Final Analysis File (ZFILE)

The ZFILE is the final analysis file containing sample test data and the control totals necessary for expanding the test data to population estimates of pound-miles.

The first step in generating the ZFILE is to summarize the administrative control data contained in the PVA file. The PVA file, generated by the program TRACSSMN.BY00.AIRq00.EDIT.CNTL(AIRE0PVA), contains a census of all mail items transported by air during the postal quarter for airline payment purposes. Each record of the PVA shows total number of items and weight information by dispatch and ACT Tag code combination. A dispatch is the specific flight or group of flights a mail item will travel on from air origin to final air destination. There may be up to three flights on one dispatch, and multiple dispatches associated with one flight. Pound miles for each PVA record are calculated by determining the great circle miles from origin to intermediate stops to the final destination and multiplying this by the weight. The PVA data records are first collapsed or summarized by ACT Tag group for each flight-day, i.e., for each combination of: date, origin airport, first leg destination, first leg carrier, and first leg trip number. Each record in this file shows the population pound-miles for each flight-day-ACT Tag group combination. This will be the control total when expanding the sample data to the mail on the test flight, for each ACT Tag group. (Programs TRACSSMN.BY00.AIRq00.EDIT.CNTL(AIRE1PVA, AIRE2PVA and AIRE3PVA)). The flight-day pound-miles will later be summarized, by ACT Tag group, over all flights to produce the total population pound-miles for the quarter. The quarterly pound-miles, by ACT Tag group, will provide control totals for expanding the test flight estimates to all mail transported by air during the quarter.

The second step in generating the ZFILE is to compute pound-miles for the test data. For each dispatch, great circle miles (GCM) are first computed from the origin to intermediate stops to the final destination. The miles are then multiplied by the recorded weight of test mail to obtain the pound-miles. Finally, the test pound-miles are summarized by flight-day, ACT Tag group, and mailcode combination. (Program TRACSSMN.BY00.AIRq00.EDIT.CNTL(AIRE5EDT)).

The next step in creating the ZFILE is to merge the test data from the second step with the summarized PVA data obtained in the first step, based on the flight-day and ACT tag group. In the merge process, test records without matching PVA records are dropped. The population control totals are computed and appended to every record in the merged file. Each record in the resultant merged file, TRACSSMN.AIRBYq00.EXPAND.ZFILE, shows the test pound-miles for the combination of flight-day, ACT Tag group, and mailcode; population pound-mile control total for the combination of flight-day and ACT Tag group; and population pound-mile control total for the ACT Tag group for the entire postal quarter. Refer to Appendix I-M for the ZFILE layout. (Program TRACSSMN.BY00.AIRq00.EDIT.CNTL(AIRE6ZFL)).

VII. ESTIMATION

A. Distribution Keys

The TRACS-Air subsystem produces pound-mile distribution keys, one for each quarter. It is a two step expansion process, with each step done by ACT Tag group. In the first step, the test day pound-miles are expanded to the population pound-miles of the flight-day. In the second step, the flight-day pound-miles are again expanded to the universe pound-miles for the entire postal quarter. The fully expanded pound-miles are then added across all ACT Tag groups.

Notation:

- i : test index, $i = 1, 2, \dots, n$, where the index is a five-key combination of the date, the origin, first leg destination, first leg carrier and first leg flight number
- I : universe index, $I = 1, 2, \dots, N$,
- AC: ACT Tag group, AC='F', 'P', 'E', 'I', or 'O',
- j : item, $j=1, 2, \dots, 10$
- r : rate category (mail category)
- \hat{x} : sample pound-mile,
- X: pound-mile control total,
- \hat{R} : distribution key.

The test day pound-miles are first expanded to the population pound-miles of the flight-day by ACT Tag group:

$$\hat{x}_{AC,i,r} = \frac{\sum_j \hat{x}_{AC,i,j,r}}{\sum_j \hat{x}_{AC,i,j}} X_{AC,i}.$$

The expanded flight-day pound-miles are again expanded to the population pound-mile control total for the entire quarter for each ACT Tag group:

$$\hat{x}_{AC,r} = \frac{\sum_{I=1}^N X_{AC,I}}{\sum_{i=1}^n X_{AC,i}} \sum_{i=1}^n \hat{x}_{AC,i,r}.$$

The estimated pound-miles for mail category r for the quarter is simply the sum of $\hat{x}_{AC,r}$ across all ACT Tag groups:

$$\hat{x}_r = \sum_{AC} \hat{x}_{AC,r} = \sum_{AC} \frac{\sum_{I=1}^N X_{AC,I}}{\sum_{i=1}^n X_{AC,i}} \sum_{i=1}^n \frac{\sum_j \hat{x}_{AC,i,j,r}}{\sum_j \hat{x}_{AC,i,j}} X_{AC,i} \quad (1)$$

The distribution key is thus:

$$\hat{R}_r = \frac{\hat{x}_r}{\hat{x}} = \frac{\hat{x}_r}{\sum_r \hat{x}_r} = \frac{\hat{x}_r}{\sum_{AC} \sum_{I=1}^N X_{AC,I}} = \frac{\hat{x}_r}{X} \quad (2)$$

where X is the total pound-miles of mail transported by all carriers for the entire postal quarter.

Program: TRACSSMN.BY00.AIRq00.EXPAND.CNTL(AIRE7KEY)

Inputs: TRACSSMN.AIRBYq00.EXPAND.ZFILE
TRACSSMN.MAILCODE.FLAT.TEXT.FY00

B. Confidence Limits

By definition, the upper and lower 95% confidence limits of an estimate (x) are:

$$x(1 \pm 1.96 \times CV(x)), \quad (3)$$

where $CV(x)$ is the coefficient of variation (CV) of the estimate. In this case, the CV of the distribution key is exactly the same as the CV of the pound-miles. The following discussion will focus only on the pound-miles.

To calculate the CV of the pound-miles in equation (1), we treat the fully expanded pound-miles from a test as a random outcome of the sample. It is illustrative to re-write equation (1) as the following:

$$\begin{aligned} \hat{x}_r &= \sum_{i=1}^n \sum_{AC} \left[\left(\frac{\sum_{j=1}^N X_{AC,j}}{\sum_{i=1}^n X_{AC,i}} X_{AC,i} \right) \frac{\hat{x}_{AC,i,r}}{\hat{x}_{AC,i}} \right] \\ &= \sum_{i=1}^n \hat{x}_{i,r} \end{aligned} \quad (4)$$

where $\hat{x}_{i,r}$ is the fully expanded pound-miles from test i . The CV of \hat{x}_r is the same as

the CV of $\frac{\hat{x}_r}{n} = \frac{\sum_{i=1}^n \hat{x}_{i,r}}{n}$, the sample mean. Therefore,

$$CV(\hat{x}_r) = \frac{\sqrt{\frac{\sum_{i=1}^n (\hat{x}_{i,r} - \bar{x}_r)^2}{n-1}}}{\sqrt{n\bar{x}_r}} \quad (5)$$

The CVs for quarterly distribution keys are calculated using equation (5). The quarterly CVs are then weighted by the quarterly costs to produce the CVs for the annual costs, which are in turn used in calculating the confidence limits of the annual costs using equation (3).

APPENDIX I: FILE FORMATS

A. Parameter File

(TRACSSMN.AIR.PQq00.INPUT.PARAM)

Field	Type	Size	Position	Description
PQ	Numeric	1	Line 4, Col 15	Postal quarter.
FY	Numeric	4	Line 5, Col 15	Fiscal year.
FIRST_DT	MM/DD/YYYY	10	Line 6, Col 15	First date of the quarter.
FIRST_WK	Numeric	2	Line 7, Col 15	First week of the quarter, within the range 1-52.
FIRST_AP	Numeric	2	Line 8, Col 15	First accounting period of the quarter, within the range 1-13.
# OF APs	Numeric	1	Line 10, Col 15	Number of AP's in the quarter.
SAMPSIZE/AP	Numeric	2	Line 11, Col 15	Sample size per AP, normally 70.
NHOLIDAY	Numeric	1	Line 13, Col 15	Number of holidays within the quarter.
HOLIDAY1	MM/DD/YYYY	10	Line 14, Col 15	First holiday date.
HOLIDAY2	MM/DD/YYYY	10	Line 15, Col 15	Second holiday date.
HOLIDAY3	MM/DD/YYYY	10	Line 16, Col 15	Third holiday date.
HOLIDAY4	MM/DD/YYYY	10	Line 17, Col 15	Fourth holiday date.
ADDEDZIP	Numeric	2	Line 18, Col 15	Number of records in the ADDEDZIP file.

B. ACSS Master File Extract
(LAUSTNT.PS476TCR.FYWK00ww)

Field	Type	Size	Position	Description
WEEK	Numeric	2	8	The USPS fiscal week in which the flight occurred.
SUM_TYPE	Numeric	1	10	Summary type, which indicates the contract type. Values may be: 1 = ASYS (commercial) 2 = Segment (obsolete) 3 = Network Service 4 = 2-Week Air Taxi (obsolete) 5 = Air Taxi Service 6 = Intra-Alaska 7 = unassigned 8 = Hawaiian-Pacific System Service 9 = Hawaiian-Pacific Segment Service NOTE: Only records with SUM_TYPE = 1 are considered for commercial air.
PAY_TYPE	Numeric	1	30	Identifies record by service type. This variable should have the same value as SUM_TYPE. NOTE: When the value of PAY_TYPE does not equal the value of SUM_TYPE, it indicates an error record or a payment made outside of the normal ACSS processing procedures.
FAC_A	Character	3	31	The three-letter identifier for the airport origin of the leg of the dispatch indicated by the LEG_IND variable (called the 'pay leg'). FAC_A equals the liable origin of the dispatch for all leg 1 records.
RT_A	Character	3	34	The code of the carrier or airline for the leg of the dispatch indicated by LEG_IND.
TRIP_A	Character	4	37	The flight number of the leg of the dispatch indicated by LEG_IND.
PAY_DATE	Numeric	8	45	The date the payment was made.
FINLDEST	Character	3	53	The destination of the last leg of the dispatch.
LEG_IND	Numeric	1	56	Indicator for the leg number of the pay record. May have a value of 1, 2, or 3.
FAC_B	Character	3	57	For leg 1 records, the destination airport of the first leg of the dispatch For leg 2 and 3 records, the origin of the first leg of the dispatch.
RT_B	Character	3	60	For leg 1 records, the airline on the second

Field	Type	Size	Position	Description
				leg of the dispatch. For leg 2 and 3 records, the airline on the first leg of the dispatch.
TRIP_B	Character	4	63	For leg 1 records, the flight number of the second leg. For leg 2 and 3 records, the flight number of the first leg.
FAC_C	Character	3	68	For leg 1 and 2 records, the destination airport of the second leg. For leg 3 records, the destination airport of the first leg.
RT_C	Character	3	71	For leg 1 and 2 records, the airline on the third leg. For leg 3 records, the airline on the second leg.
TRIP_C	Character	4	74	For leg 1 and 2 records, the flight number of the third leg. For leg 3 records, the flight number of the second leg.
REC_TYPE	Character	2	79	Indicator for the transaction type. May have values: '01' = Adjudicated payment claim (dispute record) '03' = Regular service record (payment record) '05' = MPE (2734-A) addition '07' = MPE deduction '09' = 7440 addition '11' = 7440 deduction '13' = Intra-Alaska addition '15' = Intra-Alaska deduction NOTE: Only records with REC_TYPE = '03' are included as ACSS payment record for a planned air route.
REC_SEQ	Character	2	81	A VSAM processing variable whose value is '00' for normal status and '01' or greater for duplicate records. NOTE: Only records with REC_SEQ = '00' are included.
CLOSEHH	Character	2	118	The hour portion of the close-out time, the time when mail can no longer be assigned to a specific first-leg flight.
CLOSEMM	Character	2	120	The minutes portion of the close-out time.
PAYMILE	Packed Decimal	3	142	Great Circle Distance (GCD) miles between the origin and destination of the pay record.
DIV_CODE	Character	2	160	The NASS two-position alpha-numerical code identifying the liable origin's USPS Field District.
FC_PCS	Packed	2	225	The number of items (trays, sacks, loose

Field	Type	Size	Position	Description
	Decimal			parcels, etc.) scanned for the dispatch whose ACT Tag group is an 'F' (First-Class).
FC_WT	Packed Decimal	4	227	The gross weight of the 'F' items scanned for the dispatch.
EX_PCS	Packed Decimal	2	231	The number of items (trays, sacks, loose parcels, etc.) scanned for the dispatch whose ACT Tag group is an 'E' (Express).
EX_WT	Packed Decimal	4	233	The gross weight of the 'E' items scanned for the dispatch.
PR_PCS	Packed Decimal	2	237	The number of items (trays, sacks, loose parcels, etc.) scanned for the dispatch whose ACT Tag group is a 'P' (Priority).
PR_WT	Packed Decimal	4	239	The gross weight of the 'P' items scanned for the dispatch.
SDAY_PCS	Packed Decimal	2	243	The number of items (trays, sacks, loose parcels, etc.) scanned for the dispatch whose ACT Tag Code is an 'S' (Same Day Airport Express Service, obsolete).
SDAY_WT	Packed Decimal	4	245	The gross weight of the 'S' items scanned for the dispatch.
PAL_PCS	Packed Decimal	2	249	The number of items (trays, sacks, loose parcels, etc.) scanned for the dispatch whose ACT Tag Code indicated PAL mail (Parcel Air Lift).
PAL_WT	Packed Decimal	4	251	The gross weight of the PAL mail items scanned for the dispatch.
OTHERPCS	Packed Decimal	2	255	The number of items (trays, sacks, loose parcels, etc.) that were scanned under a code not classified among the ones identified above or that were not scanned at all.
OTHERWT	Packed Decimal	4	257	The gross weight of the items that were scanned under a code other than the ones identified above or that were not scanned at all.
LS_PCS	Packed Decimal	2	291	The number of non-containerized items (loose sacks) on the dispatch.
LS_WT	Packed Decimal	4	293	The total weight of non-containerized items on the dispatch.
CONT_WT	Packed Decimal	3	340	The total weight of all containerized mail on the pay record.
LSAMTDUE	Packed Decimal	5.2	631	The total amount due (line-haul and terminal handling) for all non-containerized (loose sack) items on the pay record.

Field	Type	Size	Position	Description
CTAMTDUE	Packed Decimal	5.2	648	The total amount due (line-haul and terminal handling) for all containerized items on the pay record.

C. OAG File Extract
(LAUSTNT.VS570D02)

Field	Type	Size	Position	Description
LEG_RT1	Character	3	1	The two-letter identifier for the commercial airline operating the flight.
LEGTRIP1	Character	4	4	The flight number.
EFF_DATE	Numeric	8	8	The first date that the flight is available at the times and frequencies indicated on the record.
LEG_ORG1	Character	5	16	The origin of the flight.
LEGDEST1	Character	5	21	The destination of the flight.
FREQ	Character	4	26	A one- to four-position frequency code similar to the codes used in the NASS highway records. FREQ indicates the days of the week the flight operates.
DIS_DATE	Numeric	8	30	The last date that the flight is available at the times and frequencies indicated on the record.
EFF_JUL	Numeric	7	56	The effective date in Julian notation.
DIS_JUL	Numeric	7	63	The discontinuation date in Julian notation.
FREQCODE	Character	7	82	A seven-position alpha-numeric with 1's for active days and 0's for inactive days.

D. NTMS Facility File

(TRACSSMN.LATF04Q.PQq00.FLAT.TEXT)

Field	Type	Size	Position	Description
FAC_TYPE	Character	3	1	Type of facility: 'AMF', 'APT', etc.
LEG_ORG1	Character	3	4	Origin airport of the flight.
FAC_NAME	Character	30	17	Name of the origin facility.
ZIP3	Character	3	94	Three-digit ZIP.
ORLAD	Numeric	2	122	Latitude degrees.
ORLAM	Numeric	2	124	Latitude minutes.
ORLOD	Numeric	3	126	Longitude degrees.
ORLOM	Numeric	2	129	Longitude minutes.
FINANCE	Character	6	131	Finance number for the district to where the origin facility belongs.

E. Supplementary Facility File(TRACSSMN.AIR.PQq00.INPUT.ADD2NTMS,
also TRACSSMN.ADMIN.NTMS.PQq00.FLAT.TEST)

Field	Type	Size	Position	Description
LEG_ORG1	Character	3	1	Origin airport of the flight.
FAC_NAME	Character	25	10	Name of the origin facility.
FAC_TYPE	Character	3	35	Type of facility: 'AMF', 'APT', etc.
ZIP3	Character	3	46	Three-digit ZIP.

F. Supplementary ZIP Table

(TRACSSMN.AIR.PQq00.INPUT.ADDEDZIP)

Field	Type	Size	Position	Description
LEG_ORG1	Character	3	1	Origin airport of the flight.
ZIP3	Character	3	46	Three-digit ZIP.

G. ZIP Table

(TRACSSMN.ZIPTABLE.ORFEO.PQq00.SAS)

Field	Type	Size	Position	Description
ZIP3	Character	3		Three-digit ZIP.
BASEUNIT (DIS_CODE)	Character	3		District or base unit code.
CSDNAME (DIS_NAME)	Character	25		District name.

H. Exceptional Base Unit File

(TRACSSMN.ZIPTABLE.EXCEPT.PQq00)

Field	Type	Size	Position	Description
LEG_ORG1	Character	3	1	Exceptional facility code.
DISCODE1	Character	3	39	Exceptional base unit code.
DISNAME1	Character	20	43	Exceptional district name.

I. Testcode File

(TRACSSMN.DESIGN.PQq00.INPUT.TESTCODE)

Field	Type	Size	Position	Description
POSCODE	Character	1	14	An array of alphabetic characters from A-Z.
MM or DD	Character	2	18	An array of two-digit numbers from 01 to 31 which may be read as the month of the year (MM) or day of the month (DD).
APAIR	Character	1	25	Alphabetic character assigned as code corresponding to the first alphabetic character of the TESTID, usually the Seventh position, which indicates the type of test, i.e., 'A', 'B', or 'C' for Commercial Air.
APEAGLE	Character	1	27	Alphabetic character assigned as code corresponding to the first alphabetic character of the TESTID, usually the seventh position, which indicates the type of test, i.e., 'F' for Network Air.

J. TRACS Sample Master File (Air fields only)

(ALB.HQ210D01.FY00.PQq,

also in TRACSSMN.CODE.SMPLMSTR.PQq00.SAS.DATA)

Field	Type	Size	Position	Description
TESTID	Character	8	1	Test identifier code.
MODE	Character	7	9	Mode of transportation: 'AIR', 'EAGLE', 'HIGHWAY', 'RAIL', or 'AMTRAK'.
ROUTE	Character	5	16	For mode='AIR', first-leg airline code.
TRIP	Character	4	21	For mode='AIR', first-leg flight number.
TESTTIME	Character	4	36	Test time.
TESTSITE	Character	5	40	Test facility code, also first-leg origin code.
TYPE	Character	3	45	Type of facility.
TESTDATE	Character	8	48	Test date.
OCODE	Character	5	56	For mode='AIR', first-leg destination code.
DIS_CODE	Character	3	71	Base unit code.

K. Plan Versus Actual (PVA) File
(LAXSTN.PS466D22)

Field	Type	Size	Position	Description
DNCODE	Character	2	1	Area code.
BRANCH	Character	2	3	Branch.
ROUTE1	Character	5	5	First-leg airline code.
TRIP1	Character	5	10	First-leg flight number.
OCODE1	Character	5	15	First-leg origin code.
FINLDEST	Character	5	20	Final destination code.
CLOSEOUT	Character	4	25	Close-out time.
ARRIVET	Character	4	29	Arrival time.
XFERFAC1	Character	5	33	First-leg destination code.
XFERFAC2	Character	5	38	Second-leg destination code.
XFERFAC3	Character	5	43	Third-leg destination code.
XFERRT1	Character	5	48	Second-leg airline code.
XFERRT2	Character	5	53	Third-leg airline code.
XFERRT3	Character	5	58	Fourth-leg airline code.
XFERTRP1	Character	5	63	Second-leg flight number.
XFERTRP2	Character	5	68	Third-leg flight number.
XFERTRP3	Character	5	73	Fourth-leg flight number.
BIN_FREQ	Character	7	78	Flight frequency for each day of the week, 0 or 1.
C_O_DATE	YYMMDD	6	85	Close-out date.
SVC_TYPE	Numeric	1	91	Service type: May have values: '1' = ASYS '2' = SEGMENT '3' = NETWORK
REC_TYPE	Character	1	92	Record type. May have values: 'N' = NEW 'P' = PLANNED 'V' = VOID
LG1LVTM	Character	4	93	First-leg departure time.
LG2LVTM	Character	4	97	Second-leg departure time.
LG3LVTM	Character	4	101	Third-leg departure time.
LG4LVTM	Character	4	105	Fourth-leg departure time.

Field	Type	Size	Position	Description
LG1ARVTM	Character	4	109	First-leg arrival time.
LG2ARVTM	Character	4	113	Second-leg arrival time.
LG3ARVTM	Character	4	117	Third-leg arrival time.
LG4ARVTM	Character	4	121	Fourth-leg arrival time.
MAILCLAS	Character	1	125	Mail classification or ACT Tag Code.
PIECES	Numeric	5	126	Number of mail items for the MAILCLAS in the flight.
FILLER1	Character	2	131	Filler.
LBS	Numeric	7	133	Total number of pounds for the Mailclas in the flight.
FREQ	Character	4	140	Flight frequency.
INITLVTM	Character	4	144	Initial departure time.
FILLER2	Character	10	148	Filler.
COST_LB	Numeric	12.8	158	Cost per pound.
INV_COST	Character	1	170	Invalid cost per pound indicator.
DET_SUM	Character	1	171	Record type. May have values: 'D' = DETAILED 'S' = SUMMARY
PLANINDX	Character	4	172	Planned route index number.
FILLER3	Character	7	176	Filler.
LG1EQUIP	Character	4	183	First-leg aircraft type.
LG2EQUIP	Character	4	187	Second-leg aircraft type.
LG3EQUIP	Character	4	191	Third-leg aircraft type.
LG4EQUIP	Character	4	195	Fourth-leg aircraft type.
FILLER4	Character	2	199	Filler.

L. Mailcode File

(TRACSSMN.MAILCODE.FLAT.TEXT.FY00)

Field	Type	Size	Position	Description
MAILCODE	Character	2	1	Code for mail category.
CRA_GRP	Character	2	11	CRA category to which mailcode belongs.
DESC	Character	55	15	Description of mail category.

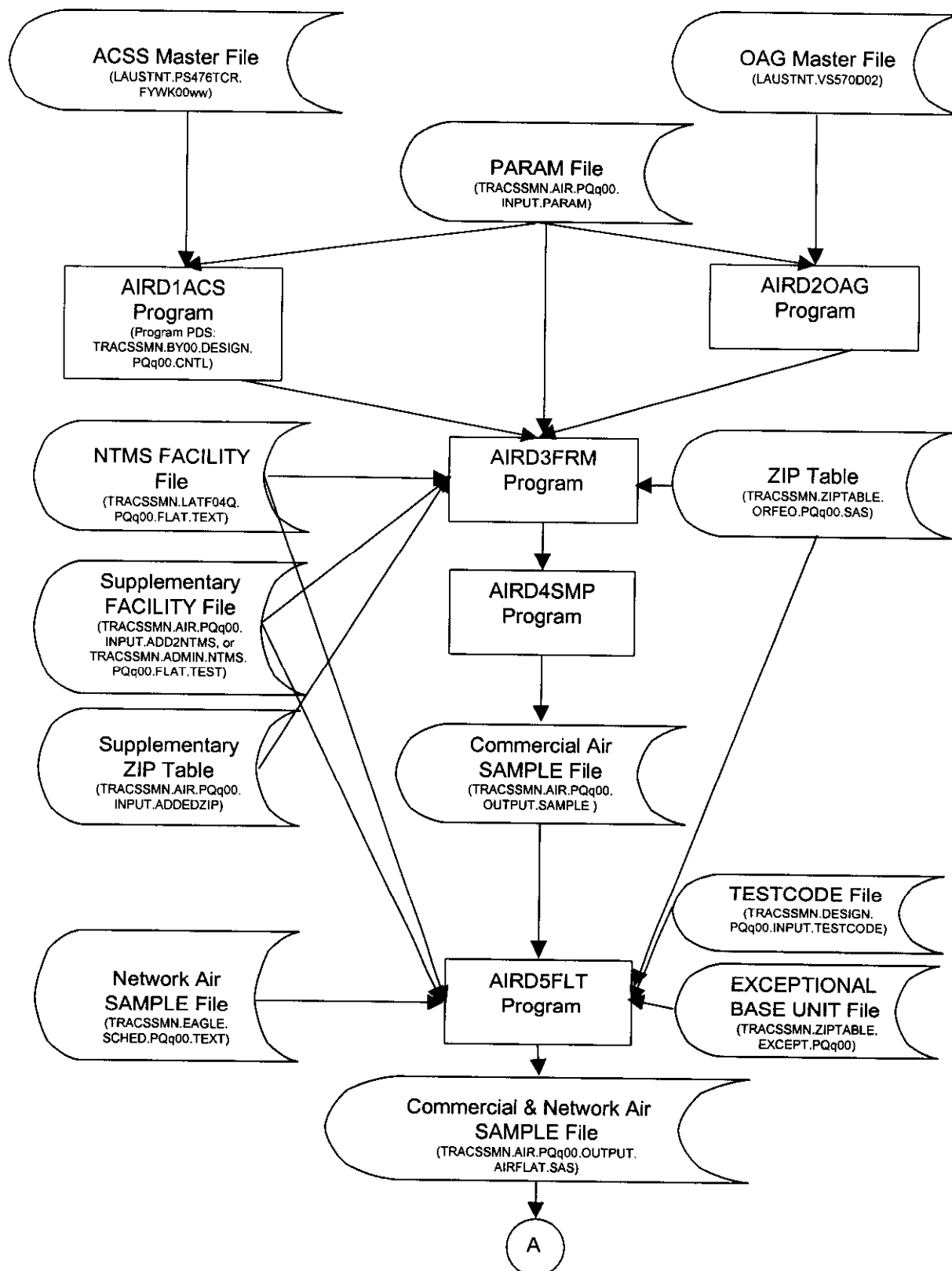
M. Commercial Air ZFile

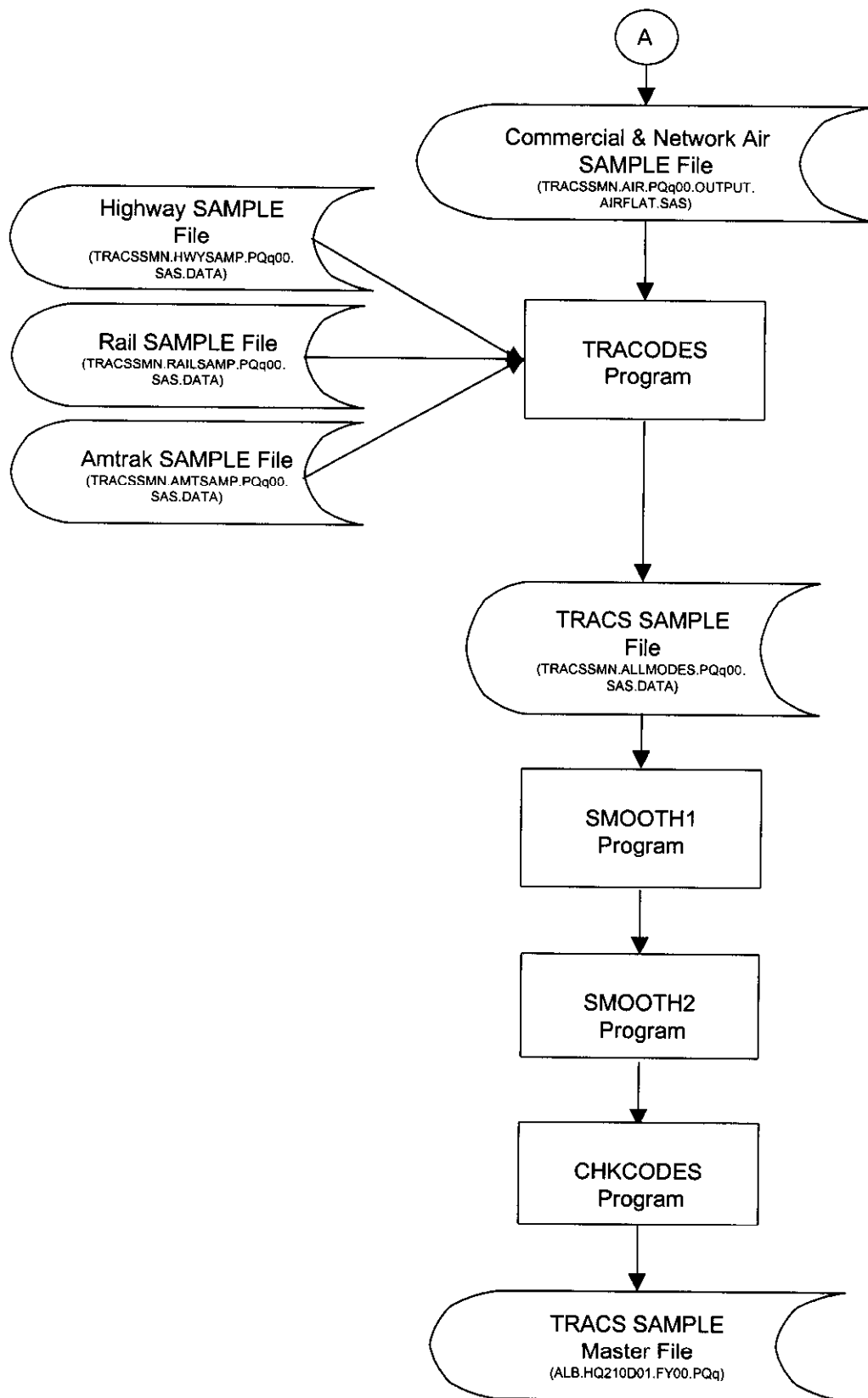
(SAS dataset: TRACSSMN.AIRBYq00.EXPAND.ZFILE)

Field	Type	Size	Position	Description
TESTID	Character	8		Test identifier code.
ITEMNO	Numeric	2		Item number.
ITEMTYPE	Character	1		Type of item tested.
AIRCLASS	Character	1		ACT-Tag airclass of item: 'F', 'P', 'E', 'I' or 'O'.
MAILCODE	Character	2		Code for the type of mail.
CRA_GRP	Character	2		CRA group code.
TOTWT	Numeric	8		Total weight of the item.
WT	Numeric	8		Weight of mail for each mailcode.
SAMPMCPM	Numeric	8		Total pound-miles by mailcode from sample.
FRAMACPM	Numeric	8		Total pound-miles by airclass of records from the population that have a match in the sample.
FRAMALPM	Numeric	8		Total pound-miles by airclass of all records from the population.
FRAMALWT	Numeric	8		Total pounds by airclass of all records from the population.
LEG_ORG1	Character	3		Origin airport.
PAY_DATE	Numeric	8		Test date.
LEGDEST1	Character	3		First-leg destination airport code.
LEG_RT1	Character	3		First-leg airline code.
LEGTRIP1	Character	4		First-leg flight number.
LEGDEST2	Character	3		Second-leg destination airport code.
LEG_RT2	Character	3		Second-leg airline code.
LEGTRIP2	Character	4		Second-leg flight number.
LEGDEST3	Character	3		Third-leg destination airport code.
LEG_RT3	Character	3		Third-leg airline code.
LEGTRIP3	Character	4		Third-leg flight number.

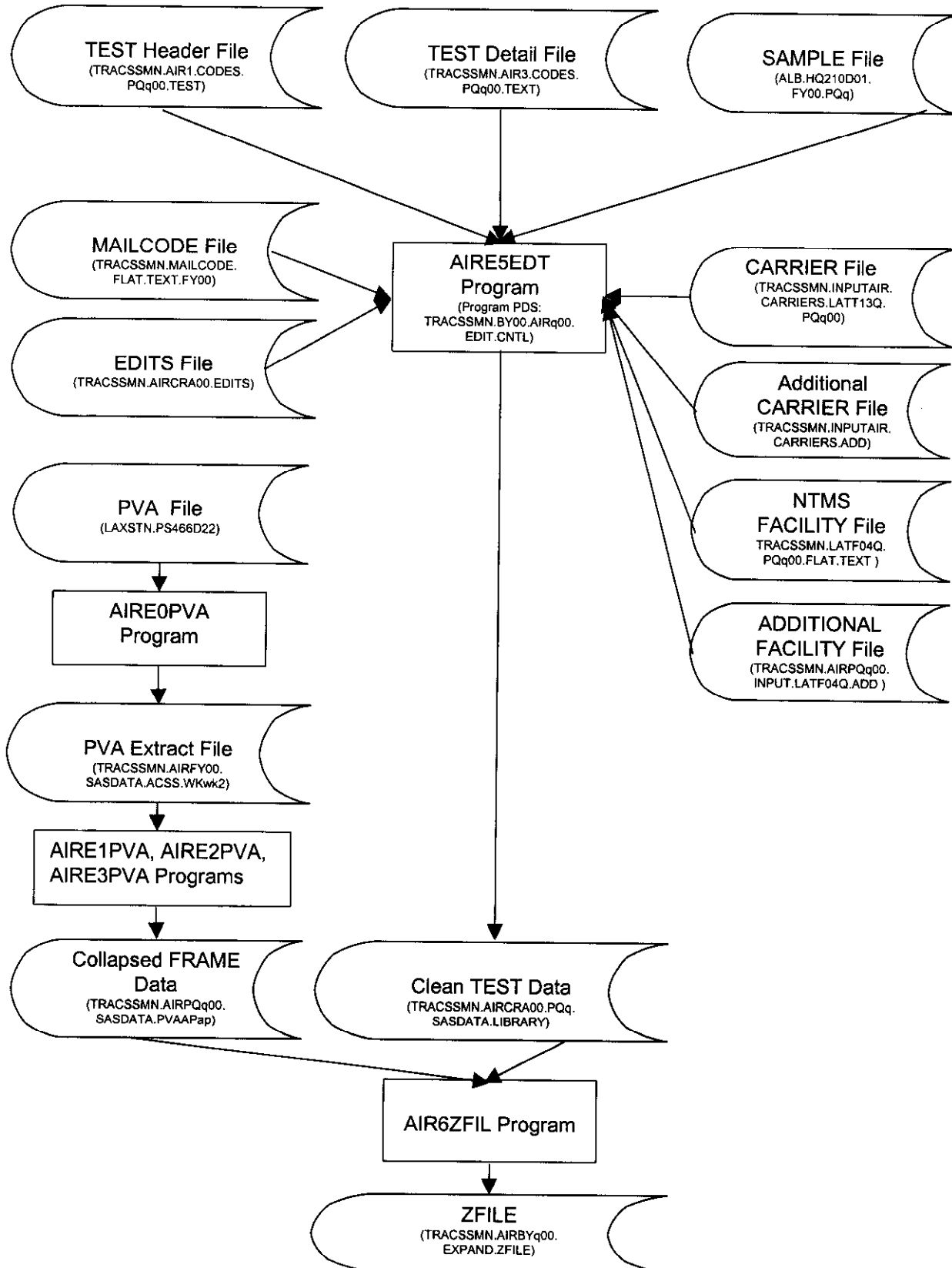
APPENDIX II: FLOWCHARTS

A. Sample Selection Flowchart





B. Data Editing Flowchart



APPENDIX III: PROGRAM, INPUT, LOG & DOCUMENTATION FILE NAMES

A. List of Source Code, Data , Log and Documentation Files on CD-ROM

Contents	Directory	Filename
DESIGN Programs	TRACS\BY00\COMMAIR\DATA_CD\DESIGN\BY300\CNTL	AIRD1ACS
		AIRD2OAG
		AIRD3FRM
		AIRD4SMP
		AIRD5FLT
		TRACODES
		SMOOTH1
		SMOOTH2
		CHKCODES
EDIT Programs	TRACS\BY00\COMMAIR\DATA_CD\EDIT\BY300\CNTL	AIRE0PVA
		AIRE1PVA
		AIRE2PVA
		AIRE3PVA
		AIRE5EDT
		AIRE6ZFL
EXPAND Programs	TRACS\BY00\COMMAIR\DATA_CD\EXPAND\BY100\CNTL	AIRE7KEY
	TRACS\BY00\COMMAIR\DATA_CD\EXPAND\BY200\CNTL	AIRE7KEY
	TRACS\BY00\COMMAIR\DATA_CD\EXPAND\BY300\CNTL	AIRE7KEY
	TRACS\BY00\COMMAIR\DATA_CD\EXPAND\BY400\CNTL	AIRE7KEY
EXPAND Logs	TRACS\BY00\COMMAIR\DATA_CD\EXPAND\BY100\LOGS	AIRE7KEY
	TRACS\BY00\COMMAIR\DATA_CD\EXPAND\BY200\LOGS	AIRE7KEY
	TRACS\BY00\COMMAIR\DATA_CD\EXPAND\BY300\LOGS	AIRE7KEY
	TRACS\BY00\COMMAIR\DATA_CD\EXPAND\BY400\LOGS	AIRE7KEY

Contents	Directory	Filename
EXPAND Inputs	TRACS\BY00\COMMAIR\DATA_CD\EXPAND\BY100\INPUT	ZFILELIB.XPO ³
	TRACS\BY00\COMMAIR\DATA_CD\EXPAND\BY200\INPUT	ZFILELIB.XPO
	TRACS\BY00\COMMAIR\DATA_CD\EXPAND\BY300\INPUT	ZFILELIB.XPO
	TRACS\BY00\COMMAIR\DATA_CD\EXPAND\BY400\INPUT	ZFILELIB.XPO
	TRACS\BY00\COMMAIR\DATA_CD\EXPAND\INPUT	MAILCODE.TXT
TRACS-AIR Document	TRACS\BY00\COMMAIR\DOCUMENT	LR-J-29.DOC

³ Files with .XPO extension are exported PC-SAS data sets. They can be accessed by first running PC-SAS code similar to below:

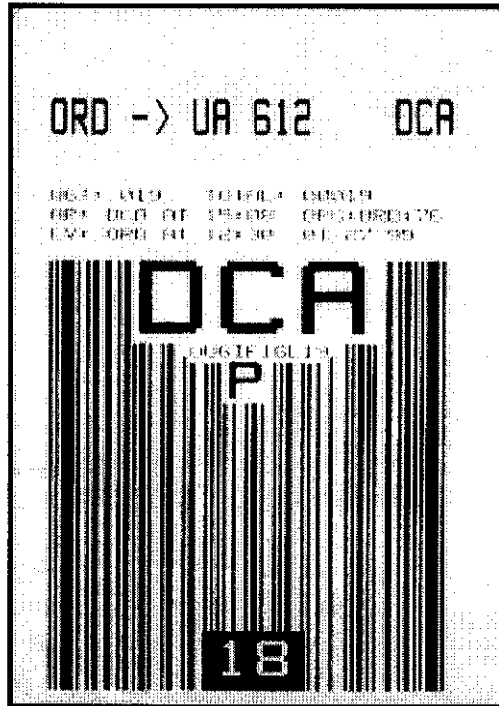
```
libname zfilelib xport 'e:\TRACS\BY00\COMMAIR\DATA_CD\EXPAND\BY100\INPUT\ZFILELIB.XPO';
libname zfile      'c:\tracs\by00\temp';
proc copy in=zfilelib out=zfile; run;
proc contents data=zfile._all_ ; run;
title 'Data sets and variables in TRACS Commercial Air ZFILE';
```

B. Encrypted File Names

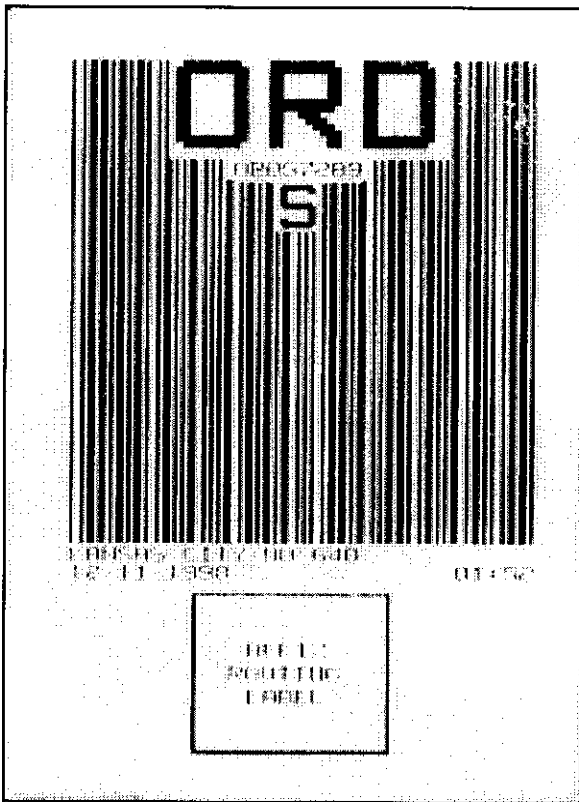
Original File Name	Encrypted File Name
<u>Program PDS Name:</u> TRACSSMN.BY00.AIRq00.EDIT.CNTL <u>Members:</u> <ul style="list-style-type: none">• AIRE0PVA• AIRE1PVA• AIRE2PVA• AIRE3PVA• AIRE5EDT• AIRE6ZFL	<u>Program PDS Name:</u> TRACSSMN.BY00.Z.AIRq00.EDIT.CNTL <u>Members:</u> <ul style="list-style-type: none">• AIRE0PVA• AIRE1PVA• AIRE2PVA• AIRE3PVA• AIRE5EDT• AIRE6ZFL
<u>Program PDS Name:</u> TRACSSMN.BY00.AIRq00.EXPAND.CNTL	<u>Program PDS Name:</u> TRACSSMN.BY00.Z.AIRq00.EXPAND.CNTL
<u>Inputs:</u> TRACSSMN.AIRBYq00.EXPAND.ZFILE	<u>Inputs:</u> TRACSSMN.AIRBYq00.Z.EXPAND.ZFILE

APPENDIX IV: EXAMPLE TAGS AND LABELS

A. Example D&R Tag



B. Example ACT Tag



C. Example Routing Label

