

EUROPEAN ORGANISATION
FOR THE SAFETY OF AIR NAVIGATION



EUROCONTROL EXPERIMENTAL CENTRE

**REVISION SUMMARY DOCUMENT
FOR THE
BASE OF AIRCRAFT DATA (BADA)
REVISION 2.4**

EEC Note No. 6/96

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Abstract: A set of aircraft performance summary tables are presented for the 67 aircraft types modelled by the Base of Aircraft Data (BADA) Revision 2.4. For each aircraft type, the performance tables specify the true air speed, rate of climb/descent and fuel flow for conditions of climb, cruise and descent at various flight levels. The performance figures contained within the tables are calculated based on a total-energy model and BADA 2.4 performance coefficients.						

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**Revision Summary Document
for the
Base of Aircraft Data (BADA) 2.4**

EUROCONTROL Experimental Centre

Summary

This Revision Summary Document (RSD) describes all changes made to BADA files in Revision 2.4 from the previous release, Revision 2.3. Configuration management procedures for BADA trace all changes through Configuration Change Orders (CCOs). The RSD thus presents a list of all 22 CCOs implemented for BADA 2.4 along with a description for each CCO.

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1. INTRODUCTION

1.1 Identification and Scope

This document summarises the changes made to the Base of Aircraft Data (BADA), Revision 2.4 from the previous Revision 2.3.

A general description of BADA Revision 2.4 is provided in the BADA 2.4 User Manual [RD1]. As noted in Section 6 of the User Manual, all BADA 2.4 files can be accessed over the Internet via anonymous ftp at the following address:

bada.eurocontrol.fr {subdirectory bada/2.4}

1.2 Organisation

This document is presented in two sections including Section 1, the Introduction. This first section includes a list of referenced documents and a glossary of acronyms.

Section 2, Configuration Change Orders, presents a list of all changes to the BADA files between Revision 2.3 and 2.4. Each change is classified as a Configuration Change Order (CCO). A description for each CCO is also included in this section.

A copy of the Revision Summary File for BADA 2.4 is included as Appendix A.

1.3 Referenced Documents

- | | |
|------------|--|
| RD1 | User Manual for the Base of Aircraft Data (BADA) Revision 2.4; EEC Note No. 5/96, February 1996. |
| RD2 | Configuration Management Manual for the Base of Aircraft Data (BADA), Issue 1.0; Internal EEC Note 4/B2.3/1995, 18 October 1995. |
| RD3 | Coverage of 1994 European Air Traffic by the Base of Aircraft Data Revision 2.2; EEC Note 15/95, 24 July 1995. |
| RD4 | Aircraft Type Designators; ICAO Document No. 8643, 24th Edition, January 1994. |

1.4 Glossary of Acronyms

APF	Airline Procedures File
AR40	Real Time simulation for Hungary held at the EEC
AR41	Real Time simulation for Turkey held at the EEC
BADA	Base of Aircraft Data
CAS	Calibrated Airspeed
CCO	Configuration Change Order
CM	Configuration Management
CRCO	Central Route Charges Office
EEC	Eurocontrol Experimental Centre
ICAO	International Civil Aviation Organisation
IPAS	Integrated Preparation and Analysis System
OPF	Operations Performance File
PTF	Performance Table File
RCS	Revision Control System
ROD	Rate of Descent
RSD	Revision Summary Document

2. CONFIGURATION CHANGE ORDERS

Table 2-1 below provides a summary of the 22 BADA Configuration Change Orders (CCOs) that were implemented between BADA Revisions 2.3 and 2.4. The use of CCOs as part of the configuration management (CM) procedures for BADA is described in the BADA CM Manual [RD2].

Table 2-1: CCO Summary for BADA 2.4

CCO Identifier	Title
BADA-CCO-95-21	Modify Max. alt in TU54, EA30 and BA46 OPF files
BADA-CCO-95-22	Equivalence for E-3A
BADA-CCO-95-23	Equivalence for MiG a/c
BADA-CCO-95-24	Modelling report for TU54 model
BADA-CCO-95-25	Equivalence alignment in SYNONYM.LST
BADA-CCO-95-26	Modelling Report FK50 model
BADA-CCO-95-27	FK50__.OPF and APF format changes
BADA-CCO-95-28	TU54__.OPF format changes
BADA-CCO-95-29	Excessive R.O.D. in FK50
BADA-CCO-95-30	Stall of TU54 model
BADA-CCO-95-31	Minimum weights for B73F and B73S models
BADA-CCO-95-32	Equivalences for YK40, YK42, AN24 and AN26
BADA-CCO-95-33	Cruise Mach number change B707, B767, FK28 and LR35
BADA-CCO-95-34	New equivalent for IL-76
BADA-CCO-95-35	New equivalences for AR41 simulation
BADA-CCO-95-36	Correct values of Ctc4 and Ctc5
BADA-CCO-95-37	Re-developed model TU34
BADA-CCO-95-38	New A/C model for FK70
BADA-CCO-95-39	Change cruise speeds for BE90
BADA-CCO-95-40	Add new equivalences
BADA-CCO-95-41	New A/C model for C421
BADA-CCO-95-42	Update OPF files for BADA 2.4

Descriptions for each CCO are presented in subsequent pages. For each CCO a description of the change, motivation for the change and a specification of the affected files is provided. Note that any symbols referring to BADA coefficients use the same symbols as described in the BADA 2.3 User Manual [RD1].

BADA-CCO-95-21**Modify maximum altitude in TU54, EA30 and BA46 OPF files**Description of Modification:

The maximum altitudes for the TU54, EA30 and BA46 models were modified to resp.: 41,000 ft , 39,000 ft and 33,000 ft.

Reason for Modification:

Div. B1 reported that the maximum altitude for the abovementioned models were inappropriate. The Flight Manuals for these aircraft were checked and the correct values were implemented.

Files Affected:

TU54__.OPF	modified
EA30__.OPF	modified
BA46__.OPF	modified

BADA-CCO-95-22**Equivalence for E-3A**Description of Modification:

An equivalent for the Boeing E-3A was implemented for the AR40 simulation.

Reason for Modification:

The AR40 called for an equivalent for the Boeing E-3A Sentry (AWACS). An equivalent was found in the Boeing 707 which has a similar airframe. There was no detailed performance information available to make a useful comparison between these two aircraft.

Files Affected:

SYNONYM.LST	modified
SYNONYM.NEW	modified

BADA-CCO-95-23**Equivalence for MiG aircraft**Description of Modification:

The FGTR model had been chosen as equivalent to the MiG fighter family.

Reason for Modification:

In the traffic samples for the AR40 simulation there were quite a number of Russian MiG fighters. Since FGTR is a generic fighter model the MiG aircraft can be equivalenced by this model. Note that the designation "MIG" is not an official ICAO code. There are no ICAO codes available for former Soviet-Union military aircraft.

Files Affected:

SYNONYM.LST	modified
SYNONYM.NEW	modified

BADA-CCO-95-24**Modelling report for TU54 model**Description of Modification:

A new model for the TU54 was made and a modelisation report was written

Reason for Modification:

The TU54 model is the first in a series of re-modelissions that will be done in order to have modelisation reports for all models that are directly supported by BADA. The TU54 was chosen because its parameter values were based on extrapolated B727 data.

Files Affected:

TU54__.APF	modified
TU54__.OPF	modified
TU54__.PTF	modified

BADA-CCO-95-25**Equivalence alignment in SYNONYM.LST**Description of Modification:

Equivalenced aircraft code was left aligned.

Reason for Modification:

In order for PREP to read the SYNONYM.LST file properly, the equivalenced aircraft had to be left aligned and be sperated by three spaces.

Files Affected:

SYNONYM.LST modified

BADA-CCO-95-26**Modelling report FK50 model**Description of Modification:

A new model for the Fokker 50 (FK50) was made and a report was written.

Reason for Modification:

The FK50 is one of the more important aircraft in the european airspace (nr 6. according to CRCO 94 traffic share). A modelisation report was not available and therefore a new model was made and a report was written for the same reason mentioned for BADA-CCO-95-24.

Files Affected:

FK50__.APF	modified
FK50__.OPF	modified
FK50__.PTF	modified

BADA-CCO-95-27**FK50__.OPF and APF format changes**Description of Modification:

Minor Changes were made to the FK50__.OPF and APF files.

Reason for Modification:

After installing the new FK50 model it appeared that there were still some minor errors in the format of both files. These were corrected and the new files were placed under RCS.

Files Affected:

FK50__.APF	modified
FK50__.OPF	modified

BADA-CCO-95-28**TU54__.OPF format changes**Description of Modification:

Format changes were made to the TU54__.OPF file.

Reason for Modification:

Errors were found in the TU54__.OPF file. These errors were corrected and the new file was placed under RCS.

Files Affected:

TU54__.OPF	modified
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BADA-CCO-95-29**Excessive R.O.D. in FK50 model**Description of Modification:

The excessive R.O.D. for the FK50 model was corrected.

Reason for Modification:

The new FK50 model showed an excessive R.O.D. The problem was investigated and the descent coefficients were corrected to give a more realistic value for the R.O.D. These changes were incorporated in the FK50 modelling report so no new issue was produced.

Files Affected:

FK50__.APF	modified
FK50__.PTF	modified

BADA-CCO-95-30**Stall of TU54 model**Description of Modification:

Stall speed was corrected for TU54 model.

Reason for Modification:

The stall speed for take-off was inadvertently set to 11.34 kts instead of the proper 113.4 kts value. This value was corrected and the new file was placed under RCS.

Files Affected:

TU54__.OPF	modified
TU54__.PTF	modified

BADA-CCO-95-31**Minimum weights for B73F and B73S corrected**Description of Modification:

The minimum weights for the B73F and B73S models were corrected.

Reason for Modification:

During trials done by Div. B1 to check the validity of the Brequet-Leduc formula it was found that the results for the abovementioned aircraft showed a large deviation from what was expected. Since weight is a major aircraft dependent input in the Brequet-Leduc formula it was assumed that the error must be in the minimum weights for these aircraft. The Flight Manuals did indeed give a different value compared to the OPF files. These values were therefore corrected and new files were made available.

Files Affected:

B73F__.OPF	modified
B73F__.PTF	modified
B73S__.OPF	modified
B73S__.PTF	modified

BADA-CCO-95-32**Equivalences for YK40, YK42, AN24 and AN26**Description of Modification:

The YK40, YK42, AN24 and AN26 were added to SYNONYM.LST

Reason for Modification:

The AR40 simulation needed equivalences for the abovementioned aircraft. The following equivalences were found and implemented:

YK40 :	DH8
YK42 :	BA46
AN24 :	FK27
AN26 :	FK27

A full description on the choice of these equivalents can be found in document BADA/TN/95/06

Files Affected:

SYNONYM.LST	modified
SYNONYM.NEW	modified

BADA-CCO-95-33**Cruise Mach number change for B707, B767, FK28 and LR35**Description of Modification:

The cruise mach numbers for the abovementioned models were changed.

Reason for Modification:

During AR40, some ATCO's expressed their discontent with the cruise Mach numbers implemented in certain models. The Flight Manuals of these models were checked and for four of these models it was decided to change the cruise Mach number in the following way:

Type	Old value	New value
B707	0.82	0.80
B767	0.78	0.80
FK28	320/0.72	300/0.70
LR35	0.82	0.77

Files Affected:

B707__.APF	modified
B707__.PTF	modified
B767__.APF	modified
B767__.PTF	modified
FK28__.APF	modified
FK28__.PTF	modified
LR35__.APF	modified
LR35__.PTF	modified

BADA-CCO-95-34**New equivalent for IL76**Description of Modification:

A new equivalent for the IL76 model was implemented

Reason for Modification:

During AR40 it was found that the current equivalent for the IL76 model (DC8S) was flying too fast. Another equivalent therefore had to be found. The EA30 appeared to be a better equivalent and the SYNONYM.LST/NEW files were therefore modified.

Files Affected:

SYNONYM.LST	modified
SYNONYM.NEW	modified

BADA-CCO-95-35**New equivalences for AR41**Description of Modification:

The CN35 and AN12 model were added to SYNONYM.LST/NEW

Reason for Modification:

For the AR41 (Turkey) simulation there was a need for a CN35 model and an AN12 model. Although the CN35 model has a high traffic share (see EEC Note 15/95) there was no performance data available to produce a proper model. Both these aircraft were therefore equivalenced by resp. the AT42 and C130 models.

Files Affected:

SYNONYM.LST	modified
SYNONYM.NEW	modified

BADA-CCO-95-36**Correct values of Ctc4 and Ctc5**Description of Modification:

The Ctc4 and Ctc5 values were set to zero for several OPF files.

Reason for Modification:

A new algorithm for the correction of temperature on thrust to be implemented in BADA 2.4 called for a change of the Ctc4 values of -50 to 0 (zero). Two models (DA10 and DA20) possessed negative values for Ctc5 (which must always be ≥ 0). These values were also set to zero.

Files Affected:

AT42__.OPF	modified
AT72__.OPF	modified
BE20__.OPF	modified
BE99__.OPF	modified
DA10__.OPF	modified
DA20__.OPF	modified
DA50__.OPF	modified
DA90__.OPF	modified
DH8__.OPF	modified
FK27__.OPF	modified
ND16__.OPF	modified
SF34__.OPF	modified

New PTF files were produced as well for all these models.

BADA-CCO-95-37**Re-modellisation of TU34**Description of Modification:

A new model for the Tu-134 (TU34) was made

Reason for Modification:

The old TU34 model was based on some Tu-134 data from Jane's combined with DC9 data that was used for extrapolation. Enough reference data had become available now to justify a re-modellisation.

Files Affected:

TU34__.OPF	modified
TU34__.APF	modified
TU34__.PTF	modified

BADA-CCO-95-38**Add a/c model for Fokker 70 (FK70)**Description of Modification:

A new model (FK70) was added to BADA

Reason for Modification:

Reference information for the Fokker 70 (FK70) has become available. A model was made and added to BADA.

Files Affected:

FK70__.OPF	created
FK70__.APF	created
FK70__.PTF	created

BADA-CCO-95-39**Change cruise speeds for the BE90**Description of Modification:

Cruise speeds for the BE90 (Beech 90) were changed

Reason for Modification:

During tests with the BE90 it appeared that the cruise speeds that were implemented were those for ISA -30. The values were corrected to ISA values.

Files Affected:

BE90__.OPF	modified
BE90__.APF	modified
BE90__.PTF	modified

BADA-CCO-95-40**Update SYNONYM.LST/NEW**Description of Modification:

The FK70, CONC and CL65 were added to the lists

Reason for Modification:

The Fokker 70 is a new aircraft model that has become available. The CONC, and CL65 were equivalence by resp. the FGTR and CL60 models.

Files Affected:

SYNONYM.LST	modified
SYNONYM.NEW	modified

BADA-CCO-95-41**New A/C model for C421**Description of Modification:

A new A/C mode for the Cessna 421 Golden Eagle (C421) was made.

Reason for Modification:

The C421 model was equivalenced by the PA31. However enough reference information was available and the traffic share (0.3% in CRCO 1994 traffic) justified a directly supported model.

Files Affected:

C421__.OPF	new
C421__.APF	new
C421__.PTF	new
SYNONYM.LST	modified
SYNONYM.NEW	modified

BADA-CCO-95-42**Update OPF files for BADA 2.4**Description of Modification:

All OPF files were updated to contain the max. alt parameters, two minor format changes were made and the max. alt for the C130 model was corrected

Reason for Modification:

The introduction of a dynamic maximum altitude made it necessary to add three parameters to all OPF files. Two minor format changes ("Speed Enveloppe" to Flight Envelope" and KIAS to KCAS) were made as well. Finally the C130 maximum altitude value of 30,000 ft was corrected to 40,000 ft.

Files Affected:

all OPF files modified

APPENDIX A

Revision Summary File for BADA 2.4

BADA Revision Summary File

Revision Id: 2.4
 Release Date: 96/01/04
 Number of Files: 203

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=====
File Name      Revision      Last Modification      Size      Checksum
                ( revision    date )                (bytes)
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SYNONYM.LST    2.4           2.3.1.7   95/12/08           8981      2523138945
SYNONYM.NEW    2.4           2.3.1.7   95/12/08          10443      3245449269
  AT42__.APF    2.4           2.2.1.2   95/05/18           2424      4129374035
  AT42__.OPF    2.4           2.3.1.2   95/12/13           4392      3529080171
  AT42__.PTF    2.4                               5376      2715442469
  AT72__.APF    2.4           2.2.1.2   95/05/18           2424      833603854
  AT72__.OPF    2.4           2.3.1.2   95/12/13           4392      41867126
  AT72__.PTF    2.4                               5356      1400059754
  B707__.APF    2.4           2.3.1.1   95/08/29           2424      2615567612
  B707__.OPF    2.4           2.3.1.1   95/12/13           4392      2647431411
  B707__.PTF    2.4                               5456      2306344356
  B727__.APF    2.4           2.2.1.3   95/05/18           2424      609971738
  B727__.OPF    2.4           2.3.1.1   95/12/13           4392      605042684
  B727__.PTF    2.4                               5456      628899423
  B737__.APF    2.4           2.2.1.2   95/05/18           2424      619508167
  B737__.OPF    2.4           2.3.1.1   95/12/13           4392      3167927336
  B737__.PTF    2.4                               5456      3614427476
  B73F__.APF    2.4           2.2.1.2   95/05/18           2424      1101822935
  B73F__.OPF    2.4           2.3.1.2   95/12/13           4392      3979397556
  B73F__.PTF    2.4                               5456      3517229188
  B73S__.APF    2.4           2.2.1.2   95/05/18           2424      4071733794
  B73S__.OPF    2.4           2.3.1.2   95/12/13           4392      2967856342
  B73S__.PTF    2.4                               5456      20749987
  B73V__.APF    2.4           2.2.1.1   95/04/24           2424      438878897
  B73V__.OPF    2.4           2.3.1.1   95/12/13           4392      913463735
  B73V__.PTF    2.4                               5456      2248995641
  B747__.APF    2.4           2.2.1.2   95/05/18           2424      2300314197
  B747__.OPF    2.4           2.3.1.1   95/12/13           4392      1750630184
  B747__.PTF    2.4                               5456      773458011
  B74F__.APF    2.4           2.2.1.1   95/03/03           2424      2592242315
  B74F__.OPF    2.4           2.3.1.1   95/12/13           4392      4204495524
  B74F__.PTF    2.4                               5456      598934754
  B757__.APF    2.4           2.2.1.2   95/05/18           2424      1218306626
  B757__.OPF    2.4           2.3.1.1   95/12/13           4392      613657130
  B757__.PTF    2.4                               5456      2379418796
  B767__.APF    2.4           2.3.1.1   95/08/29           2424      3919836320
  B767__.OPF    2.4           2.3.1.1   95/12/13           4392      826189095
  B767__.PTF    2.4                               5456      1773382912
  BA11__.APF    2.4           2.2.1.2   95/05/18           2424      3492805552
  BA11__.OPF    2.4           2.3.1.1   95/12/13           4392      3437920492
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File Name      Revision      Last Modification      Size      Checksum
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BA11___.PTF    2.4
BA31___.APF    2.4          2.2.1.2    95/05/18    2424    3116990731
BA31___.OPF    2.4          2.3.1.1    95/12/13    4392    2020058393
BA31___.PTF    2.4          2.3.1.1    95/12/13    5376    2247606561
BA41___.APF    2.4          2.2.1.2    95/05/18    2424    389789176
BA41___.OPF    2.4          2.3.1.1    95/12/13    4392    2196502647
BA41___.PTF    2.4          2.3.1.1    95/12/13    5376    2959423432
BA46___.APF    2.4          2.2.1.1    95/03/03    2424    4049368607
BA46___.OPF    2.4          2.3.1.2    95/12/13    4392    3955694144
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BE20___.APF    2.4          2.2.1.1    95/03/03    2424    1003998807
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BE90___.APF    2.4          2.3.1.1    95/12/04    2424    3247362897
BE90___.OPF    2.4          2.3.1.1    95/12/13    4392    3806694964
BE90___.PTF    2.4          2.3.1.1    95/12/13    5396    770220629
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BE99___.OPF    2.4          2.3.1.2    95/12/13    4392    1611646767
BE99___.PTF    2.4          2.3.1.2    95/12/13    5456    1980323522
C130___.APF    2.4          2.2.1.1    95/03/03    2424    1047562286
C130___.OPF    2.4          2.3.1.1    95/12/13    4392    910995971
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C550___.APF    2.4          2.2.1.1    95/03/03    2424    728175780
C550___.OPF    2.4          2.3.1.1    95/12/13    4392    1891792649
C550___.PTF    2.4          2.3.1.1    95/12/13    5456    3772714472
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C560___.PTF    2.4          2.3.1.1    95/12/13    5456    1606468529
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CL60___.OPF    2.4          2.3.1.1    95/12/13    4392    1896285997
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File Name      Revision      Last Modification      Size      Checksum
                ( revision      date )                (bytes)
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D328__.OPF    2.4           2.3.1.1   95/12/13      4392      2379077438
D328__.PTF    2.4           2.2.1.2   95/05/18      5456      2960781694
DA01__.APF    2.4           2.2.1.2   95/05/18      2424      3328962461
DA01__.OPF    2.4           2.3.1.1   95/12/13      4392      2997114904
DA01__.PTF    2.4           2.2.1.2   95/05/18      5456      4196859984
DA10__.APF    2.4           2.2.1.2   95/05/18      2424      3754300257
DA10__.OPF    2.4           2.3.1.2   95/12/13      4392      3691516516
DA10__.PTF    2.4           2.2.1.2   95/05/18      5456      805888103
DA20__.APF    2.4           2.2.1.2   95/05/18      2424      1733729756
DA20__.OPF    2.4           2.3.1.2   95/12/13      4392      696726436
DA20__.PTF    2.4           2.2.1.2   95/05/18      5456      3285527825
DA50__.APF    2.4           2.2.1.2   95/05/18      2424      2898763800
DA50__.OPF    2.4           2.3.1.2   95/12/13      4392      460450473
DA50__.PTF    2.4           2.2.1.2   95/05/18      5456      814541089
DA90__.APF    2.4           2.2.1.2   95/05/18      2424      555707354
DA90__.OPF    2.4           2.3.1.2   95/12/13      4392      1162461483
DA90__.PTF    2.4           2.2.1.2   95/05/18      5456      3848694269
DC10__.APF    2.4           2.2.1.1   95/03/03      2424      3500769126
DC10__.OPF    2.4           2.3.1.1   95/12/13      4392      218603850
DC10__.PTF    2.4           2.2.1.2   95/05/18      5456      1325295628
DC8S__.APF    2.4           2.2.1.2   95/05/18      2424      2950057364
DC8S__.OPF    2.4           2.3.1.1   95/12/13      4392      753674757
DC8S__.PTF    2.4           2.2.1.2   95/05/18      5456      1364096626
DC9__.APF     2.4           2.2.1.1   95/03/03      2424      220973113
DC9__.OPF     2.4           2.3.1.1   95/12/13      4392      1935337812
DC9__.PTF     2.4           2.2.1.2   95/05/18      5456      3847965129
DH8__.APF     2.4           2.2.1.2   95/05/18      2424      480369563
DH8__.OPF     2.4           2.3.1.2   95/12/13      4392      463375713
DH8__.PTF     2.4           2.2.1.2   95/05/18      5376      182699117
E120__.APF    2.4           2.2.1.1   95/03/03      2424      3506851536
E120__.OPF    2.4           2.3.1.1   95/12/13      4392      1356086689
E120__.PTF    2.4           2.2.1.2   95/05/18      5416      244512474
EA30__.APF    2.4           2.2.1.1   95/03/03      2424      2463632725
EA30__.OPF    2.4           2.3.1.2   95/12/13      4392      1102586454
EA30__.PTF    2.4           2.2.1.2   95/05/18      5456      3305045975
EA31__.APF    2.4           2.2.1.2   95/05/18      2424      2759942771
EA31__.OPF    2.4           2.3.1.1   95/12/13      4392      4177495559
EA31__.PTF    2.4           2.2.1.2   95/05/18      5456      33758
EA32__.APF    2.4           2.2.1.1   95/03/03      2424      2341068593
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File Name      Revision      Last Modification      Size      Checksum
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EA32__.OPF    2.4           2.3.1.1   95/12/14      4392     1780333799
EA32__.PTF    2.4
EA33__.APF    2.4           2.2.1.2   95/05/18      2424     3167120099
EA33__.OPF    2.4           2.3.1.1   95/12/14      4392     2225296296
EA33__.PTF    2.4           2.3.1.1   95/12/14      5456     3472941936
EA34__.APF    2.4           2.2.1.1   95/03/03      2424     2242876341
EA34__.OPF    2.4           2.3.1.1   95/12/14      4392     2294714806
EA34__.PTF    2.4           2.3.1.1   95/12/14      5456     3511880709
FGTR__.APF    2.4           2.2.1.2   95/05/18      2424     981395725
FGTR__.OPF    2.4           2.3.1.1   95/12/14      4392     2258467108
FGTR__.PTF    2.4           2.3.1.1   95/12/14      5456     2465805146
FK10__.APF    2.4           2.2.1.1   95/03/03      2424     3556928232
FK10__.OPF    2.4           2.3.1.1   95/12/14      4392     1849106580
FK10__.PTF    2.4           2.3.1.1   95/12/14      5456     31757827
FK27__.APF    2.4           2.2.1.1   95/03/03      2424     1374780955
FK27__.OPF    2.4           2.3.1.2   95/12/14      4392     543551331
FK27__.PTF    2.4           2.3.1.1   95/12/14      5356     3983449696
FK28__.APF    2.4           2.3.1.1   95/08/29      2424     3807340606
FK28__.OPF    2.4           2.3.1.1   95/12/14      4392     1823304135
FK28__.PTF    2.4           2.3.1.1   95/12/14      5456     4059719588
FK50__.APF    2.4           2.3.1.2   95/07/13      2424     2823222007
FK50__.OPF    2.4           2.3.1.4   95/12/14      4392     1092046242
FK50__.PTF    2.4           2.3.1.1   95/12/14      5376     1591772080
FK70__.APF    2.4           2.3.1.1   95/12/04      2424     1769137857
FK70__.OPF    2.4           2.3.1.2   95/12/14      4392     2384589977
FK70__.PTF    2.4           2.3.1.1   95/12/14      5456     1576563107
HS25__.APF    2.4           2.2.1.2   95/05/18      2424     2518631659
HS25__.OPF    2.4           2.3.1.1   95/12/14      4392     3452785880
HS25__.PTF    2.4           2.3.1.1   95/12/14      5456     648767229
L101__.APF    2.4           2.2.1.1   95/03/03      2424     1095917081
L101__.OPF    2.4           2.3.1.1   95/12/14      4392     973429452
L101__.PTF    2.4           2.3.1.1   95/12/14      5456     2301178720
LR35__.APF    2.4           2.3.1.1   95/08/29      2424     2498197171
LR35__.OPF    2.4           2.3.1.1   95/12/14      4392     2145817284
LR35__.PTF    2.4           2.3.1.1   95/12/14      5456     3136610654
MD11__.APF    2.4           2.2.1.1   95/05/03      2424     3965471850
MD11__.OPF    2.4           2.3.1.1   95/12/14      4392     2628977386
MD11__.PTF    2.4           2.3.1.1   95/12/14      5456     3035863152
MD80__.APF    2.4           2.2.1.2   95/05/18      2424     1681342567
MD80__.OPF    2.4           2.3.1.1   95/12/14      4392     1233137407
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File Name      Revision      Last Modification      Size      Checksum
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MU2___.APF    2.4          2.2.1.1    95/03/03      2424      2208086585
MU2___.OPF    2.4          2.3.1.1    95/12/14      4392      3863736437
MU2___.PTF    2.4
ND16___.APF   2.4          2.2.1.1    95/03/03      2424      2090071924
ND16___.OPF   2.4          2.3.1.2    95/12/14      4392      1798204349
ND16___.PTF   2.4
PA28___.APF   2.4          2.2.1.2    95/05/18      2424      2177836352
PA28___.OPF   2.4          2.3.1.1    95/12/14      4392      540914439
PA28___.PTF   2.4
PA31___.APF   2.4          2.2.1.1    95/03/03      2424      2201293131
PA31___.OPF   2.4          2.3.1.1    95/12/14      4392      18004561
PA31___.PTF   2.4
PA34___.APF   2.4          2.2.1.2    95/05/18      2424      2840664427
PA34___.OPF   2.4          2.3.1.1    95/12/14      4392      2035451499
PA34___.PTF   2.4
PA42___.APF   2.4          2.2.1.1    95/03/03      2424      1067024817
PA42___.OPF   2.4          2.3.1.1    95/12/14      4392      1211094271
PA42___.PTF   2.4
PAYE___.APF   2.4          2.2.1.1    95/03/03      2424      1104323725
PAYE___.OPF   2.4          2.3.1.1    95/12/14      4392      101449399
PAYE___.PTF   2.4
PAZT___.APF   2.4          2.2.1.1    95/03/03      2424      2691063615
PAZT___.OPF   2.4          2.3.1.1    95/12/14      4392      1923352446
PAZT___.PTF   2.4
SF34___.APF   2.4          2.2.1.2    95/05/18      2424      3425832002
SF34___.OPF   2.4          2.3.1.2    95/12/14      4392      772116252
SF34___.PTF   2.4
SH36___.APF   2.4          2.2.1.2    95/05/18      2424      2274796658
SH36___.OPF   2.4          2.3.1.1    95/12/14      4392      2604258718
SH36___.PTF   2.4
SW3___.APF    2.4          2.2.1.1    95/03/03      2424      1487883665
SW3___.OPF    2.4          2.3.1.1    95/12/14      4392      3263282475
SW3___.PTF    2.4
TB20___.APF   2.4          2.2.1.2    95/05/18      2424      3434521749
TB20___.OPF   2.4          2.3.1.1    95/12/14      4392      861896104
TB20___.PTF   2.4
TU34___.APF   2.4          2.3.1.1    95/11/09      2424      3930745030
TU34___.OPF   2.4          2.3.1.2    95/12/14      4392      2233947676
TU34___.PTF   2.4
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File Name      Revision      Last Modification      Size      Checksum
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TU54__.APF     2.4           2.3.1.1  95/06/28      2424      3363806
TU54__.OPF     2.4           2.3.1.5  95/12/14      4392      3142116788
TU54__.PTF     2.4
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