

... Volume VII ...

# Ciba Geigy ... Basel Schweiz (CH)

**B****c****k**

**7-B**



**Volume VII-b**

**Volume VII-b ... ( Chemicals ... System Analysis ) ...**

... **1972 Feb.**      **=>**      **1974 Jan.**      ...

**English is myne Mystress ... Tariq HAMEED**

**Dedicated to :**

... **A Hard MACHINE**      ... **Technique 'n Desolation** ...

... **An ESCAPE : A SURVIVAL**      ... **I Had to Remain Human** ...

*or perhaps*

to Know to Learn to Live ? do Try to Read my **B****c****k**s !

Sans faire mal ni à Soi,, ni à Personne !

# TECHNICAL

# BOOK DATA

(Printer Furnished)

New TH	Gold	Grey-M	Emerald	Ciel	Mauve	Cyan	Canary	Pale	Pepita	Fauchia
Scope	Bil'ghaib ▲-I-▲H▲	Creation ▲-I-▲H▲	Ancient ▲-I-▲H▲	*Dark* ▲-I-▲H▲	Present ▲-I-▲H▲	Actual & Insan	Danger & Insan	Chaos & Insan	Future ▲-I-▲H▲	End/Fin ▲-I-▲H▲
*Created* R G B	.0. Pure 128.128.000	.1. Attrib 128.128.128	.2. Pro-N 000.255.000	.3. [ ] [3] 000.255.255	.4. Conj. 200.000.200	.5. Verb 100.200.200	.6. Concept 200.255.200	.7. .7. 255.100.200	.8.8.8.8.8. 255.200.100	.9. Evil 255.100.200

# Ciba Geigy ... Basel Schweiz (CH)

**Book**

**7-B**



**LIVRE**

**7-B**

-	... <b>I n t r o</b> ... <b>I N D E X</b> ...	Troyes	:	France	<b>2016</b>	<b>1-3</b>
?	... ? ... <b>Who am I ?</b>	Roma	:	Italia	<b>1993</b>	<b>-4-</b>
1.	<b>Preamble</b> ... de Moi-Même	Troyes	:	France	<b>2016</b> (Dec)	<b>-6-</b>
2.	<b>Invitation</b> ... de Catherine Auberger	Strasbourg	:	France	1974 (Jun)	<b>-14-</b>
3.	<b>Programmation</b> ... Mlle. M-M. Lafforgue	Paris	:	France	1974 (Jun/Jul)	<b>-16-</b>

## Primary Presentation

**CIBA-GEIGY ... Global Premier : 1<sup>st</sup>. Chemical DATA Base in History ... (Task Impossible)**

Not a Single ERROR was Permitted ... in Trillions of Combinations

The Beneficiaries were **Mercedes & Porche** ... Car Colours

A Colour could NEVER Crack or Fade ... Hot or Cold or Snow or Storm !

In Industry, *LOOPS* Destroy Structures : Catalytic Agents are *Loops* : So I Cheated Computer !

**... As far as Age & Time ... Nature Plans & Earth Swallows ...**

<b>Ch 0.</b>	<b>BORD Presentation</b> ... Glossary & Concepts	Basel : Schweiz		1972 (Feb)	<b>-14-</b>	
<b>Ch 1.</b>	<b>BORD File Designs</b> ... Preliminary Study	Basel : Schweiz		1972 (Mar-May)	<b>-28-</b>	
<b>Ch 2.</b>	<b>DATA Input Forms</b> ... Chemists Participation	Basel : Schweiz		1972 (Jun/Jul)	<b>-52-</b>	
<b>Ch 3.</b>	<b>ERROR Processing</b> ... Base Preperation (Validations)	Basel : Schweiz		1972 (Aug/Oct)	<b>-61-</b>	
<b>Ch 4.</b>	<b>INDATA Diverse Sources</b> ... Classification	Basel CH : Paris Fr		1972 (Aug-Dec)	<b>-87-</b>	
<b>Ch 5.</b>	<b>INPUT Creation Files</b> ... Technical Consultations	Basel CH : Paris Fr		1973 (Jan-Jun)	<b>-60-</b>	
<b>Ch 6.</b>	<b>Creation</b> ... & ... <b>UPDATING Modules</b> ... Programs	Basel : Schweiz		1973 (Jul-Dec)	<b>-70-</b>	
<b>Ch 7.</b>	<b>Chained Files Management System : CFMS</b> Techniques	Basel CH : Paris Fr		1974 (Jan/Feb)	<b>-70-</b>	
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<b>A-1.</b>	<b>CFMS Programming Notes</b> ... IBM (Macros etc.)	Basel CH : Paris Fr		1972 (Aug-Dec)	<b>-21-</b>	
<b>A-2.</b>	<b>DATA Forms Format</b> ... From Anywhere in Schweiz	Basel : Schweiz		1972 (April-Jul)	<b>-31-</b>	
<b>A-3.</b>	<b>Validation Phase ERROR List</b> ... Node by Node	Basel CH : Paris Fr		1973 (Jan-Dec)	<b>-38-</b>	
<b>A-4.</b>	<b>O.R. RESERVED Filelds in BORD Files</b> ... Technical	Basel CH : Paris Fr		1974 (Jan/Feb)	<b>-54-</b>	

Born 29<sup>th</sup>. Octobre, 1941 ... Tariq Naturalised French 16/01/1978

Papa Khan Sahib Mian Abdul Hameed Hijrat Authorised : Pakistan ... 16/01/2011

Mama Bégun Méraj Hameed Suharwardi UK Accorded : Join Family ... 15/01/2015

Sis Tahira Hameed ... 01/03/1943

Bros. Mian Kausar Hameed ... 16/01/1948 ... Papa pass ... 16/01/1957

Server Ashraf Mian Bihari ... Teller & Confident (Illiterate) ... "Bury me in Thorns as in Life"

Ustad My Masters

1. Qari Muhammad Azeem ... Scribe of Qura'an (Uncle)

2. Feroz Nizami ... Music (Classic)

3. Faiz Ahmad Faiz ... Poetry (Lenin Prize, 1962)

4. Syed Imtiaz Ali Taj ... Theatre (Author 'n History of)

5. Ahmed Mirza Jamil ... Noori Nastaliq (Calligraphy)

(He invented the Modern 'Fonts' in Urdu & Arab)

{TH 'Atomic' : based on studies of Hazrat Amir Khusro ... Darbar-e Balban, 1272}

Primary : St. Anthony's High School ... Lahore

University : Government College (Ravians) ... Lahore, Punjab

Advanced : Institute of 'Chartered Accountants' ... England & Wales

International : Systems of Production (on Computer) ... Europe: Latin (South)

Global Primary National Chart of Accounts on Computer {\*}

1. M.I.S. (Industrial Giant: BSN) {\*} 1970 ... France, Fabrication (Glass) {\*}

2. Data Bases : Liquids (CIBA-Sandoz) 1973 ... Basel, Schweiz (Chemistry)

Inventions

3. 'Atomic' Urdu & Arab Alphabet ... Unicode Consortium

4. 'Atomic' Urdu Key-Board (Computer) ... NADRA Nat. IDs

5. 'Atomic' Urdu Computer (Localisation) ... Microsoft

Concepts

... Quod Erat Demonstrandum ... Euclide

6. Qura'an Evolutive Dimensional Structure ... QEDs Vahis Reveal ...

7. Qura'an Translation Methodology Simplified ... QTM Word Under Word ...



Né **29<sup>ème</sup>**. Octobre, 1941 ... **Tariq** Naturalisé Français **16/01/1978**

**Père** Khan Sahib Mian Abdul **Hameed** Hijrat Autorisé : Pakistan ... **16/01/2011**

**Mère** Bégun Méraj Hameed **Suharwardi** GB Accord : Joindre Famille ... **15/01/2015**

Sœur **Tahira** Hameed ... 01/03/1943

Frère Mian **Kausar** Hameed ... **16/01/1948** ... **Père part** ... **16/01/1957**

**Serviteur Ashraf** Mian Bihari ... **Raconteur & Fidèle (Illettré)** ... La Vie, Enterre-moi en Épines

**Ustad** **Mes Maîtres**

1. **Qari** Muhammad Azeem ... **Scribe de Qura'an (Oncle)**

2. **Feroz** Nizami ... **Musique (Classique)**

3. Faiz Ahmad Faiz ... **Poésie (Prix Lénine, 1962)**

4. **Syed** Imtiaz Ali Taj ... **Théâtre (Écrivain et Histoire d')**

5. **Ahmed Mirza Jamil** ... **Noori Nastaliq (Calligraphie)**

*(Il a inventé des 'Polices' Modernes en Urdu & Arabe)*

{ TH '**Atomic**' : basé sur les œuvres de **Hazrat Amir Khusro** ... Darbar de Balban, 1272}

*Premier :* St. Anthony's High School ... Lahore

*Université :* Government College (Ravians) ... Lahore, Punjab

*Supérieur :* Institut des ' Experts Comptables ' ... England & Wales

*International :* Systèmes de Production (Ordinateurs) ... Europe : Latin (Sud)

**Premier Mondial** **National Plan Comptable sur Ordi** {\*}

1. M.I.S. (Géant Industriel: BSN) {\*} 1970 ... France, Fabrication (Verres) {\*}

2. Base de Données : Liquides (CIBA) 1973 ... Basel, Schweiz (Chimie)

**Inventions**

3. '**Atomic**' Urdu & Arabe Alphabet ... **Unicode Consortium**

4. '**Atomic**' Urdu Clavier (Ordinateur) ... **NADRA Nat. IDs**

5. '**Atomic**' Urdu Ordinateur (Localisation) ... **Microsoft**

**Concepts**

... **Quod Erat Demonstrandum** ... **Euclide**

6. **Qura'an** **E**volutive **D**imensionnelle **s**tructure ... **QEDs** Vahis Révélés

7. **Qura'an** **T**raduction **M**éthodologies **s**implifiées ... **QTM**s **Mot sous Mot** ...



**Strasbourg** était la première ville que j’ai connu en France ... Comme le Hasard fait le Destin ... Bizzare, Bizzare ... et comme on dit ? En 1962, je suis arrivé de Pak à Londres, pour faire mes études d’Expertise Comptable, un projet de cinq ans. J’aimais bien la musique et j’avais une tendance à jouer de l’harmonica (Mund). Même n’étant pas très callé, j’ai réussi à obtenir une participation dans le Cours International, qui en 1963 se tenait, pas étonnant à Strasbourg. À mon inconnu, c’était la pierre posée, qui était destinée à être l’instrument pour tracer ma vie entière, en futur.

Cela ne m’a pas demander trop d’effort d’arriver le dernier en classement, vu ma totale ignorance de ce sujet; par contre, trois événements se sont passé, qui ont tourné cette défaite à ma plus grande réussite dans la vie ... ne soyez pas surpris!

1. La première fois de ma vie, j’ai eu l’occasion de boire le café turc en une soirée; mes amis étant très gentils, ils m’avaient invité et étant bien élevé, malgré que le gout était bizarre bizarre, je l’ai avalé jusqu’à la dernière goutte, coute que coute, y compris le font épais. Quand ils ont compris, ils ont bien rigollé, en apprennant à mon bonheur, ma première grande leçon de la vie ? **Qu’est-ce un café !** Le vrai ? Par la suite, milliards de cafés y sont passé dans les égouts !
2. Mon deuxième bonheur était d’avoir connu l’Alsace ... qui aurait pu dire qu’un jour je viendrai vivre d’une manière permanente en France ... que j’aurais un très grand amour pour le Jura le Rhin; et de l’autre coté la ‘Forêt Noire’ : que je passerais les années de ma vie en sillonnant les collines et les ruisseaux, des coins sombres et cachés et les chutes d’eau ruisselantes de cette région, qui fait le triangle de ‘Al-Bâle-Als-Schwartz’ ... ou dans le mystère des ombres de la magie et la superstition d’une culture mixte, où évolue l’histoire de trois nations semblables et diverses ... ici que j’ai passé vingt ans de ma vie, en honneur en bonheur en beauté en amitié !
3. Et mon troisième et le meilleur coup de destin était ... d’avoir recontrer ma chère Nicole, une harmoniciste, perdu avec ses rêves de gloire, avec une technicité enorme que j’ai eu l’occasion d’améliorer par mes recherches; jusqu’au point qu’à peine 2 ans près, elle a gagné le concours mondial (Delft (1965), laissant derrière 4 allemands bien préparés ... fier de dire que ma grande amie les a surpris en interpretant le 1<sup>er</sup>. mouvement du concerto pour violon en ré majeur de Beethoven, avec tous ses sauts octaviaux, à la perfection : à tel point qu’un critique d’Opéra de Vienne est venu lui faire un compliment, “Mademoiselle, je n’ai jamais entendu Beethoven rendu avec une telle pureté, respect et beauté, qu’à ce moment.” ... on en parlera une autre fois. Nicole m’avait invité, “viens manger à la maison à Paris”, des la fête fini, ayant eu l’honneur de rencontré toute sa famille ... et pendant des années on a échangé les mots de musique, étant un Londonian, en contact avec les autres collègues qui me passaient les informations sur les événements à venir, qui aussi-tôt après étaient communiquées à elle, pour qu’elle se prépare en bonne et due forme ... Pardon, j’ai oublié à dire, qu’à Delft (Nederland), ces bien bons conseiles de Nicole, m’a réussi la 14<sup>ième</sup>. place, en adieu à la dernière : 4<sup>ième</sup>. à Lucerne, plus tard ... hi hi !

Venant maintenant au temps modernes de ma 2<sup>ième</sup>. grande visite d'Alsace (relativement moderne 1974) ... Ayant eu marre de Paris, car mon évolution étant bloqué par ma trop rapide Ascension dans l'Informatique ... J. Christ n'était pas le seul, dans son genre ... la bêtise humaine a essayé de me limiter à la comptabilité, à la place de l'info ; ce qui me représentait quasi une 'cruxifiction' ... donc prennant ma croix, hi hi, je suis parti pour la fameuse 'Clark' à Strasbourg-Meinau ... Pour ma Liberté personnelle et ma Technicité, bien sur avec tout mes remerciements, j'ai vécu 'Le Petit Prince' ... mais la Bêtise Mondiale est partout la Règle Suprême ... Les Paroles des Petits Chefs des Bureaux, sont comme les Paroles des Grands Chefs des Politiciens 'Du Vent' : et comme Aristote énonça, "**Beaucoup de Vent fait du Courant**"; un fait ni bien courant ni très électrifant ... hi hi ! Les Grandes Paroles se tenaient lieu de la Sagesse, les Promesses remplaçaient d'autres Promesses pour le Grand Avenir 'À venir', puis les Réunions n'étaient qu'un moyen de Ré-Unire (pour un Repas, normalement): l'Action Restait toujours InActive, à tel point que pour me faire taire, ils m'ont même payé un voyage, des **USA**.

Heureusement, j'étais pas si bête que ça !

J'avais déjà fait une fois la Foire de Paris 1974  
et malgré mon inexpérience dans ce métier de vente  
me trouvant un bien beau-parleur, même haut-parleur  
j'ai enfin voulu tenter ma chance dans le commerce.

Froidement, je suis allé à la Foire de Strasbourg  
où un Mr. Schwartz pas si loin de ce Wald  
était surpris de voir un Paki en Alsace

parlant bien français comme natale  
voulant présenter les produits

Pakistanaï en Alsace ?

Merveilleux; donc

**stand accord  
de suite.**

**Tout  
est  
la**

نقش فریدی کے جس کی شوچی خرید کا  
کاغذی ہے پیرین ہر سیکر تصویر کا  
غالب

LA VISION DEVOILE CETTE SCENE,  
CE CHEF D'OEUVRE  
EST L'INSPIRATION DE  
QUEL MAITRE INCONNU

VETUS DE ROBES DE PAPIER  
CES PERSONNAGES EPHEMERES  
QUI PASSENT DANS LE  
THEATRE DE LA CREATION

ghalib

۷۸۶

# پاکستان

la terre ou se rejoignent six fleuves dans le calme,  
la philosophie et l'amour s'appelle le pakistan :

"pays des purs"

c'est encore un espoir.....peut-etre, mais ce  
berceau de civilisations anciennes tres exaltees,  
moenjodaro, harappa, taxila, temoigne par un discret  
silence, par les rides du temps sur les visages, les  
paysages varies du terroir, que nous sommes les fiers  
heritiers de cultures ayant constamment recherche un  
plus juste equilibre social et humain

d'une richesse interieure presque illimitee, les pakista-  
nais doues d'une nature affable et un esprit ouvert,  
aimant le monde et l'aventure, forment actuellement une  
main d'oeuvre qualifiee et des techniciens de haut  
niveau qui dirigent d'importants projets en afrique,  
en asie, en europe et en amerique .....  
cette emigration peut - elle etre assimilee a une fuite ?

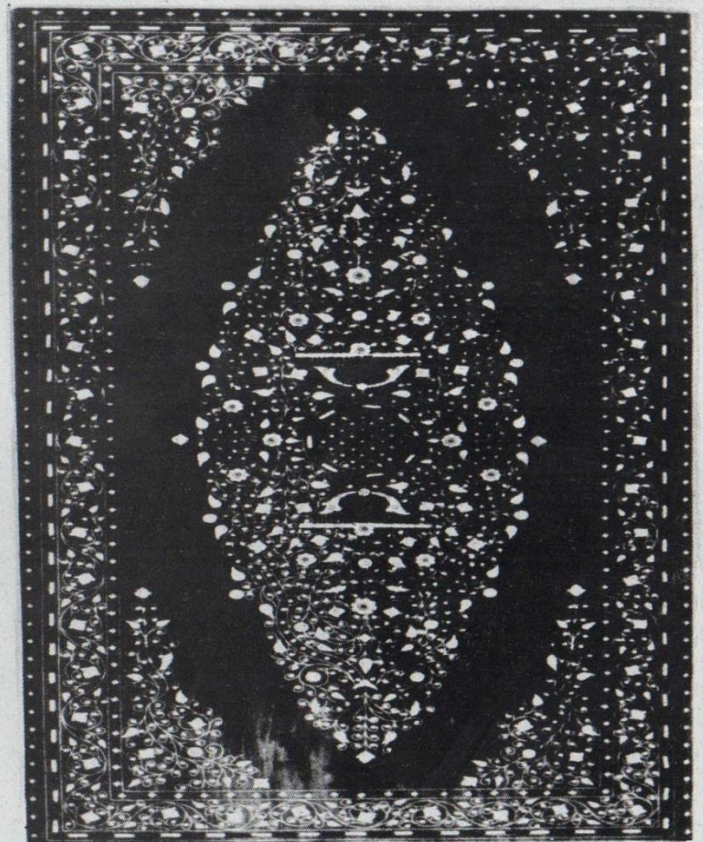
le pakistan est enserre de puissants voisins economiques  
et politiques, l'iran, la russie, la chine et l'inde; ce  
petit pays qui ne represente que trois fois la superficie  
de la france, se trouve dans une situation tres particuli-  
ere pour realiser par sa lutte, l'ensemble des promesses  
que le destin a inscrit dans son nom .....

## le pays des purs





*tapis*  
un ancien metier



*artisanat*  
table en ivoire

la famille  
**HAMEED**  
vous presente  
ses meilleures amities

nous esperons vivement  
avoir l'honneur de vous  
rencontrer lors de nos  
presentations artisanales



M. Tariq Hameed  
M. Kausar Hameed

Mlle. Tahira Hameed  
Mme. Naveed Hameed

Dessin : Zahoor-ul-Akhlaq

PAKISTAN

پاکستان

**NATIVE ENTERPRISES**

TAPIS - VETEMENTS - ARTISANAT

Adresse Commerciale :

54 - Shahrah-e-Quaid-e-Azam

Lahore - Pakistan

Cable : NATEXPORT Tel : 53484

Adresse Privée :

7 bis Rue Thibaud

78160 Marly-le-Roi France

Tel : (16 - 1) 958 - 31 - 52

Black is beautiful, so are you!



27/9/89

Once upon a time there existed on the other side of the river a black forest, a very very black forest, so black was it that people used to call it the Black Forest or the Schwarzwald. Now in the heart of this black forest used to live a fair maiden, a very fair maiden, so fair and white was she, edelweiss, that since her childhood her parents gave her the name of a white angel, "angelina bianca", as it sounded even more prettier in Italian, and everyone who saw her, agreed so!

UPPER SIDE  
11, RUE DE LA PAIX, SUÈDE  
TEL (08) 196 50

"Black is beautiful"  
And so is white:  
specially a white angel!

Letter-postage  
Franqueo carta  
Briefporto  
Taxe de lettre  
Tariff lettera  
Briefporto  
Breviermaksu

Photo: Tommy Backlin © UPSIDE 1987 ART NO. 00468

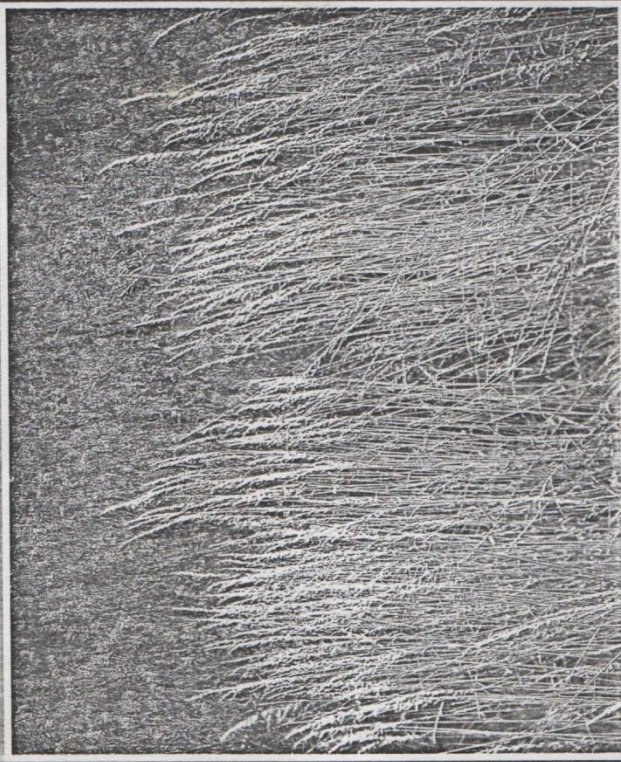
Far far away from this magic realm, used to live a real prince, sad because he had once seen the white angel but did not know where to find her, he only knew that she lived in the heart of the black forest and in his. He was a real prince, very ordinary and common, not like one of those princes of a fairy tale who are very handsome and good looking, only he was very normal and very human.  
To be continued.....

..... continued.....

29/10/89

I had forgot to tell you that this white angel, this fair maiden was also not out of a fairy tale, she was also a very normal person like you and me, a charming house-wife doing cooking and washing dishes and in general keeping her family occupied and happy. And so our Lad prince became sadder and lonelier as he hardly ever saw her, only holding long and sweet conversations with her in his dreams and in his thoughts. "You are so pretty" he used to tell himself with his eyes and his head down, "but you married" she used to reply with a soft blush on her cheeks, "Does a flower become less pretty whether it is in the bush, in the garden or put in a vase" he used to retort, "but a rose might take a different colour depending on whose lapel it is worn" she would answer, "No matter on whose lapel it is worn, a rose never loses its softness if it is looked upon with loving eyes" and he would to close the dialogue. Still, he stopped wearing jackets and lapels so as not to put any flowers in his button-hole and used to roam around for hours in his garden just looking at flowers with tenderness but never managed to find again that flower which he loved and which performed his dreams! To be continued

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dein blühen  
 dein blühen  
 mein wort  
 dein blühen  
 mein blick  
 dein blühen  
 mein anfang

Eugen Ionesco

contd ... 16/01/2017 ... 'twas a mixed sad 'n happy day ... 60 years of memorises ...  
 ... then I dreamt of my 'Black Princess' again ... what she was, where she was, was she ever or never ...  
 didn't know ... she was no-where or now-here ... didn't know ... did she ever thought of me ... didn't know  
 didn't know ... or did she ever dream of me or ever wanted to meet me or see me ... didn't know  
 didn't know ... or nothing or no thing ... didn't know, what I didn't know ... no didn't know  
 but I did know, that she had been, but was not now, fig of my reason, I did know  
 that she be happy where she be ... because she was in my mind's eye  
 a mind's eye faithful 'n unforgetful of what has been gained  
 'n what has been lost, be the battle be lost or won  
 a one time memory, 'n for ever upheld  
 that bye-past be bye-pasts  
 'n that sun rise again on new visions  
 visions of a new 'Black Princess' on Black Bike  
 back in the backs of her so 'Black a Forest' so shaded  
 by the shadows of dreams of reality, only reserved in memory  
 a sadness not creating any harm for anyone, only to console a heart  
 which seemed to have lost a dream, for dreams seldom come true ... but  
 we are beings of flesh 'n of blood gushing 'n flushing out our destinies  
 our fantasies of childhood of youth of maturity of age of death  
 for when we are bye-gone, that all be graced to by-gones

if  
 but  
 so's that  
 I am slow 'n  
 must laboriously  
 work out all words  
 'n Phrases Time 'n Again  
 Arriving at a Worked Beauty  
 My Sincere Artist Compliments  
 "To the Unknown 'Angelina Bianca'  
 A Beauty Clad in Black Biking on a so  
 Black Bike Back to the Backs of her such  
 Black a Forest of Dreams becoming Truth."  
 My last comment was a heart-felt homage ...  
 but a homage to a very pretty lady I once met  
 in the 'Schwartzwald' while on a commercial trip ...  
 she was a faithful lady who never refused to see me,  
 clad in her black robe on her black bike, coming  
 from nowhere from her 'Black Forest' then  
 disappearing again into her nowhere  
 of 'la Forêt Noire' ... only so just  
 not to break my heart as a  
 pure admirer ... a  
 wonderful lady;  
**01/01/2017**  
**Angelina**  
**Bianca**  
**kuss**  
**du**

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**01/01/2017**

**Angelina**

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Arriving at a Worked Beauty

My Sincere Artist Compliments

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My last comment was a heart-felt homage ...

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not to break my heart as a

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**01/01/2017**

**Angelina**

**Bianca**

**kuss**

**du**

**T. HAMEED** : CONSULTANT.  
DR. L. LECOQ : CHEM-GUIDE

16, FEBRUARY 1973

B O R D

B A S I C O P E R A T I O N S R E S E A R C H D A T A

S Y S T E M S A N A L Y S I S

**ELABORÉ**

CREATION

&

UPDATING

\*\*\*\*\*

IT IS SUGGESTED THAT ALL USERS OF THIS MANUAL SHOULD CAREFULLY STUDY THE SECTIONS GLOSSARY AND INDEX BEFORE STARTING INTO THE OTHER DETAILS OF THIS DOCUMENTATION.

WE ACKNOWLEDGE THE HELP OBTAINED FROM THE GUIDELINES SET IN THE PROJECT STUDY OF MR. BARC. PARTS OF THIS STUDY IN THEIR REVISED FORM HAVE ALSO BEEN INTEGRATED.

*Ce BDA  
permet de  
stabiliser  
les couleurs  
"FARDEN"  
pour les marques  
Mercedes  
& Porsche!!!*

PRESENTED BY THE  
PARTICIPATION OF:

- CIBA-GEIGY
- CAP (FRANCE)
- CAP (SUISSE)

*T.H.*

DATE OF THE LAST  
MODIFICATION:

31.03. 1973  
*1st. Chemist  
DB World. Wise*

B O R D

BASIC OPEATIONS RESEARCH DATA

=====  
SYSTEMS ANALYSIS  
=====

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BORD SYSTEMS ANALYSIS

PRESENTATION OF BORD

The decision to develop BORD was taken when the Production Planning Model - one of the main projects in the OR Group - reached its implementation phase.

The model - consisting of a capacity balancing module followed by a scheduling module - had been tested on a pharmaceutical multi-purpose plant, big enough to exhibit a behaviour which could be considered as typical for the company.

The necessary data had been stored on a set of simple direct access files using a rudimentary updating system. These files allowed an easy access to information but could not be used by a fully implemented system working with a greatly increased volume of products and machines. As this rudimentary updating system could not handle efficiently the work load involved, a new approach to the data base became necessary.

The requirements set for the new data base were as follows :

- A high quality of data is necessary.  
The model cannot give useful informations without having a picture, as correct and complete as possible, of the production.
- The updating has to be simple and standardized.  
Individual assistance is not possible because many different plants would be using the model. Consequently, both the updating procedure and the error correcting procedure must be simple and easily understandable.
- The data base must be flexible.  
Other type of work related to production planning is being undertaken, e.g., five years planning etc... Thus a coordination of these models must exist.
- The specific characteristics of the chemical production must be taken into account.  
A product may have an unknown number of components and may use an unknown number of machines; furthermore, there can be an unknown number of possibilities to manufacture such a product.



0.01

BORD SYSTEMS ANALYSISPRESENTATION OF BORD

These requirements pointed, towards the use of a data base operating with chained information. Therefore, it seemed that a file system like CFMS or IMS would be adequate. The CFMS was chosen after a review of the deadlines and because of the imperative requirement that the data base be very reliable. This system is flexible because of its extensive use of chained files and is safe enough because of its built in controls. The inconveniences of CFMS are of two types :

- The access to information is slow and "heavy" because of the passage through the chained files.  
It was foreseen that this could be improved by redesigning the model and the use of workfiles.
- The characteristics of chemical production are not taken into account by the "classical" CFMS, which works with two entities only: the product and the work center or machine.  
It was considered necessary to customize the CFMS to the needs of chemical production by the introduction of two other entities :
  - production possibility - or production rate - consisting of a batch size and a production rate.
  - the machine combination - the set of machines used to implement one production possibility.

The data base structure obtained can be seen on the figure below, entitled "BORD FILES SCHEMA". It consists of seven files which are grouped into three sections :

- A product file and a structure file, which contains for each of the products, the address of its components.
- A machine combination and machine type file with another structure file, containing for each machine combination the address of the machine types belonging to this combination.  
Attached to these machine types exists an overflow routing file, containing for each machine type the supplementary machines which are equivalent to this machine type.
- A production rate file with a chain file containing the routing between a production rate and a machine combination.

BORD SYSTEMS ANALYSIS

PRESENTATION OF BORD

It can be seen that part of the Product information is identical with the Standard Calculation information. These common elements exist specially in the Product and its Structure data. Consequently, to enable us to decrease the user work load, it was decided to coordinate BORD updating with the Standard Calculation updating. This called for the designing of a special loading and updating procedure in order to extract the production information from the Standard Calculation data base and to pass it on to BORD.

Inspite of this special procedure, the manual updating system remains an independent application which can have multiple liaisons. This concept can be seen on the UPDATING FLOWCHART (Chapter 4).

The manual updating has a standard form :

- Error Processing (Synchronisation)
- Formal Checking
- Validation
- Error Reporting
- Updating Proper

The validation is a two step process : first, master information is checked and then chain information is checked.

The updating proper consists of a generated interface and of the standard CFMS updating procedures.

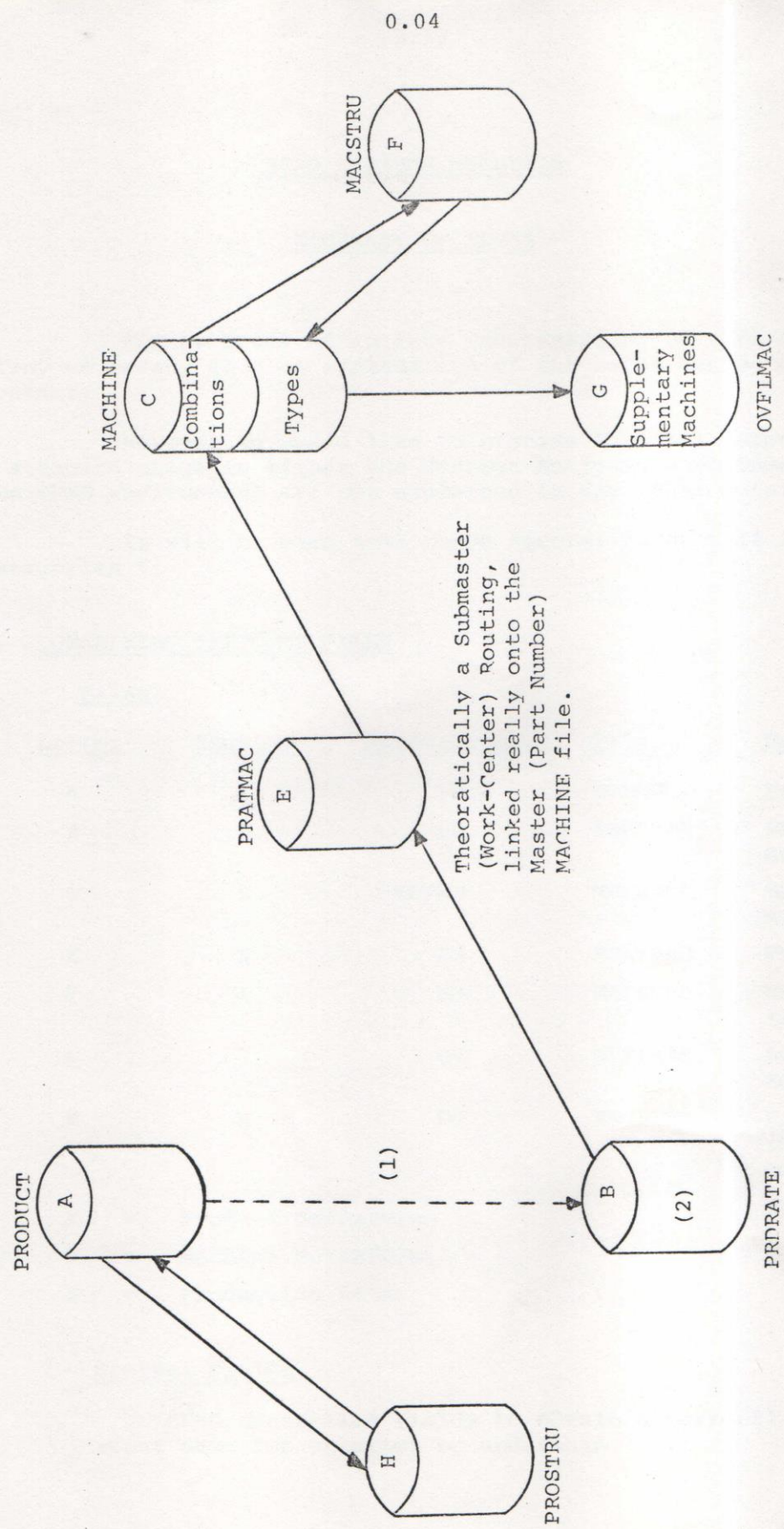
The automatic updating from the standard calculation data base was simplified as much as possible. It consists of only two steps :

- Extraction from the Standard Calculation data base of all informations relating to BORD.
- Comparison with the previous extraction in order to detect changes and to generate the mutations.

BORD SYSTEMS ANALYSIS

PRESENTATION OF BORD

BORD FILES SCHEMA



0.04

User Chains :

- (1) Linking a Product with its first Production Rate
- (2) Linking a first Production Rate with other Production Rates for the same Product.

0.10

BORD SYSTEMS ANALYSIS

GLOSSARY OF TERMS

For purposes of an easy understanding of this documentation, we hereby give an explanation of the terms having a special context.

However we would like to precise that all terms having a standard usage in either the Systems Analysis environment or the CFMS environment are not explained in any other detail.

It will be seen that these special terms fall into three categories :

I. CONCERNING THE CFMS FILES

- Files

<u>Letter</u>	<u>Section</u>	<u>Abreviation</u>	<u>File</u>	<u>Description</u>
A	X	PN	PRODUCT	Product Master
B	Z	PR	PRDRATE	Production Rates Master
C	Y	MC/MT	MACHINE	M/Combinations & M/Types Master
E	Z	PM	PRATMAC	PR/MC Routing
F	Y	MS	MACSTRU	MC Structure (Submaster MT)
G	Y	OV	OVFLMAC	Supplementary MT Routing
H	X	PS	PROSTRU	Product Structure (Submaster Component)

- X = Product Definition
- Y = Machine Definition
- Z = Production Rates

- Control Fields

CFMS controlled fields to obtain a correctly sequenced input data for creation or updatings.

0.12

BORD SYSTEMS ANALYSISGLOSSARY OF TERMS

can be used as an identification (e.g. for PROG 0 & PROG 2 but not for PROG 1).

3. Card (Type) Number : See above. (or Card X)

It can also be written as follows :

Card Type or Card Number or Card X where X would be a value between 0 and 5.

B. Interface File Identification : INDATA

1. Identification Format

Here the variable card identifications are transformed into a standard format of 60 positions. See Chapter 4.

2. Interface Format

Would represent the identification and data format of the interface file named INDATA.

III. CONCERNING THE ERROR PROCESSING

1. Error Processing (See also 7 below)

The Error Processing System is integrated in the Manual Data Collection System.

Thus all the input is done by the same set of forms. The positions 7 and 80 are reserved on all forms for special indications to the Error Processing System.

2. Error File

This is an exact representation of the punched forms, except that 20 positions are added at the end of each record for Control information concerning the input phase as well as the validation phase (ex. Error indications)

Length of record :  $80 + 20 = 100$  pos.

3. E/N = Error Number (See Validation File Format)

E/N FORMAT : For PROG 0 : (if = 22, put to 0 at the beginning of PROG 0 i.e., a record not marked, ready for a complete series of tests)

E/N BORD : For PROG 1 & 2 : (put to 0 at the beginning of PROG 1)

EX:

- E/N FORMAT = 0  
The record is considered as not marked
- E/N FORMAT = 22  
Multiple error, either on the one card or the whole form.
- E/N BORD ≠ 0  
For the entire form, E/N FORMAT takes the value 22.

4. OLDER : This is a special position to control the records which are to be lost and others which are to be corrected. Its values are as follows :

- ∅ = 1st Run
- \* = Old
- 9 = Reject (Lost)
- 1 = Double Card (1st Run)
- 2 = Double Card (2nd Run. If still not corrected, it will be assumed to be correct)

5. Rotation : All errors not corrected within 30 passages will automatically be lost.

6. Validation File : Same format as Error File.

As this is an output file for any one Validation program, its contents are supposed to be correct. There is an absence of error indicators.

- E/N FORMAT = 0 after PROG 0
- E/N BORD = 0 after PROG 1

EX. If any error indicator is found active, PROG 2 would automatically interrupt its functions.

7. Validation Programs / File Generation

Refer to "Error Processing" above.

It will be seen that the term Error Processing in its generalised sense comprises of the following aspects :

- Input of Manual Data
- Error Processing (Synchronisation)
- Validation of Data
- INDATA file Generation

8. Error Indicators

This term includes the following fields in the Validation file :

- E/N FORMAT
- E/N BORD

9. Real # and AGA field

Refer to Chapter 2 "Notes about special fields".

10. S/C : Abreviation for Standard Calculation

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BORD SYSTEMS ANALYSIS

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CHAPTER ONEBORD FILE DESIGNS

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1.10

FILE DESIGN

BORD UPDATING

PRODUCT

REFERENCE RECORD : DSN = RPRODUCT

Label	Field Name	Position Beg End	Length in Bytes	Nature	Comments
<u>CFMS Fields</u>					
	Item Number	1 9	9	B	PN
	Anchor Field	10 13	4	B	
<u>User Fields</u>					
	Future Item Number	14 22	9	B	To be used by New Item Numbers
			<u>LRECL</u> 22		
			==		

PN 

1	4	4
---	---	---

 1 = Character  
4 = Numeric (Binary)

TRACK OCCUPATION

	<u>Reference</u>	<u>Body</u>
Record Length	22	230
Records per Block	39	4
Length of Physical Block	858+9 (Key)	920
Blocks per Track	7	7
Track Utilisation in Bytes	6069	6440
Disk Utilisation Factor	83 %	88 %

NOTES : 1) Chain-Count option is not taken.

1.11

FILE DESIGNBORD UPDATINGPRODUCT

Label	Field Name	Work Beg	Field End	File Beg	Field End	Length in Bytes	Nature	Comments
<u>Work Fields</u>								
	CFMS File Name	1	7			7	C	PRODUCT
	P/I	8	11			4	C	
	Error Bytes	12	13			2	B	
	Address	14	17			4	B	
	Key	18	26			9	B	PN
						===		
<u>CFMS Fields</u>								
A\$PN	Item Number			1	9	9	B	PN
A\$FACA	First Assembly Component Address			10	13	4	B	in PROSTRU
A\$FWUA	First Assembly Where-Used Address			14	17	4	B	in PROSTRU
A\$LLC	Low-Level Code			18	19	2	P	LLCODE
A\$NMRA	Next Product Record in Activity Chain Address			20	23	4	B	in PRODUCT
A\$CPMR	Compare Portion Next Product Record			24	32	9	B	all PN
A\$RACN	Run Activity Control Number			33	34	2	B	RACN
<u>User Chains</u>								
AUSRA	Subordinate Record Address			35	38	4	B	For Future Use
AUFPRA	First Production Rate Address			39	42	4	B	in PRDRATE
AUCPPR	Compare Portion Production Rate			43	44	2	B	Last 2 bytes

1.12

FILE DESIGNBORD UPDATINGPRODUCT

Label	Field Name	Work Field Beg	Field End	File Beg	Field End	Length in Bytes	Nature	Comments
<u>User Data</u>								
APRTY	Structure Priority to be used			45	46	2	B	
ANAME	Product Name			47	76	30	C	
AVB	Verantwortungsbereich			77	82	6	C	Kostenstelle
ACOLR	Color			83	83	1	C	
ACHEM	Name Code of Chemist			84	86	3	P	
ATYPE	Type of Product			87	88	2	B	
ATMDA	Time Delay After			89	90	2	B	
ASTAB	Stability			91	92	2	B	
APGRP	Product Group			93	94	2	B	
APSTG	Product Strategy			95	96	2	B	
AAVMK	Availability on Market			97	98	2	B	
AVCOST	Variable Cost			99	102	4	E	Sum of Costs
ACONCT	Concentration			103	106	4	E	
ABUNIT	Batch Unit			107	110	4	E	
AWPF1	Where Purchased Flags 1			111	114	4	E	
AWPF2	Where Purchased Flags 2			115	118	4	E	
AWPF3	Where Purchased Flags 3			119	122	4	E	
ASFSTK	Safety Stock			123	126	4	E	
AGAP	Time Gap between Batches			127	128	2	B	

1.13

FILE DESIGN

BORD UPDATING

PRODUCT

Label	Field Name	Work Beg	Field End	File Beg	Field End	Length in Bytes	Nature	Comments
	O.R. Reserve			129	144	16		ANNEX 4
	Filler			145	164	20	B	Reserved for special use
	Filler			165	201	37	B	
AWSTK	Weeks after which min. stock must be present			202	203	2	B	
	Real Time Tag			204	204	1	B	Reserved
ATOP	Top for Standard Calculation Products			205	205	1	C	'1'=S/C (Not updated)
ACODE	Item Number			206	225	20	C	Expanded
AUNITC	Measuring Unit			226	228	3	C	from S/C
ADELTAG	DELTAG			229	230	2	B	Tag=C'TT'

====

Reference Record 257 265 9 B Future Item Data Number

(WORK)

265

LRECL

230

(FILE)

=====

=====

Filler = 0 Bin.



1.20

FILE DESIGN

BORD UPDATING

PRDRATE

REFERENCE RECORD : DSN = RPRDRATE

<u>Label</u>	<u>Field Name</u>	<u>Position</u> <u>Beg End</u>	<u>Length</u> <u>in Bytes</u>	<u>Nature</u>	<u>Comments</u>
	<u>CFMS Fields</u>				
	Production Rate Number	1 11	11	B	PR
	Anchor Field	12 15	4	B	
		<u>LRECL</u>	15		
			==		

PR | (9) | | \* Seq. of Production Rate  
PN \*

TRACK OCCUPATION

	<u>Reference</u>	<u>Body</u>
Record Length	15	131
Records per Block	69	10
Length of Physical Block	1035+11 (Key)	1310
Blocks per Track	6	5
Track Utilisation in Bytes	6276	6550
Disk Utilisation Factor	86 %	90 %

- NOTES :
- 1) Low-Level option is not taken.
  - 2) Chain-Count option is not taken.
  - 3) It is generated as a Master File but without structure (Non-allowed CFMS option). See Chapter 6 "Non-Standard Modifications".

1.21

FILE DESIGNBORD UPDATINGPRDRATE

Label	Field Name	Work Beg	Field End	File Beg	Field End	Length in Bytes	Nature	Comments
<u>Work Fields</u>								
	CFMS File Name	1	7			7	C	PRDRATE
	P/I	8	11			4	C	
	Error Bytes	12	13			2	B	
	Address	14	17			4	B	
	Key	18	28			11	B	PR
						===		
<u>CFMS Fields</u>								
B\$PN	Production Rate #			1	11	11	B	PR
B\$RACN	Run Activity Control Number			12	13	2	B	RACN
B\$FROA	First Operation Address			14	17	4	B	in PRATMAC
<u>User Chains</u>								
	(Reserved for Future Use)							Initial Values:
BUANR	Address Next Record			18	21	4	B	END.
BUCPNR	Compare Portion Next Record			22	23	2	B	0 (Bin)
BUPA	Product Address			24	27	4	B	END.
<u>User Data</u>								
	Real Time Tag			28	28	1	B	Reserved
BBTSZ	Batchsize			29	32	4	E	
BPCDBP	+ % Deviation Batchsize			33	34	2	B	- Dev. (below)
BSFID	Shift ID			35	36	2	B	
BWKID	Week ID			37	38	2	B	
BPRTY	Priority of Production			39	40	2	B	
BMICL	Minor Campaign Length			41	42	2	B	
BINCR	Increment			43	44	2	B	

1.22

FILE DESIGN

BORD UPDATING

PRDRATE

Label	Field Name	Work Beg	Field End	File Beg	Field End	Length in Bytes	Nature	Comments
BPRRT1	Production Rate 1		45	48		4	E	
BPRRT2	Production Rate 2		49	52		4	E	
BPRRT3	Production Rate 3		53	56		4	E	
BMANP1	Manpower 1		57	60		4	E	
BMANP2	Manpower 2		61	64		4	E	
BMANP3	Manpower 3		65	68		4	E	
BTMSC	Time Scale		69	70		2	B	
BAVERG	Average		71	72		2	B	
BPCDBM	- % Deviation Batchsize		73	74		2	B	+ Dev. (above)
	Filler		75	119		45	B	
	Address Next Record		120	123		4	B	User Chain
	Compare Portion Next Record		124	125		2	B	User Chain
	Product Address		126	129		4	B	User Chain
BDELTAG	DELTAG		130	131		2	B	Tag=C'TT'
	(WORK)		<u>159</u> =====		<u>LRECL</u>	<u>131</u> ===	(FILE)	

Filler = 0 Bin.

1.30

FILE DESIGN

BORD UPDATING

MACHINE

REFERENCE RECORD : DSN = RMACHINE

<u>Label</u>	<u>Field Name</u>	<u>Position</u> <u>Beg End</u>	<u>Length</u> <u>in Bytes</u>	<u>Nature</u>	<u>Comments</u>
<u>CFMS Fields</u>					
	Identifica- tion	1 12	12	B	MC or MT
	Anchor Field	13 16	4	B	
		<u>LRECL</u>	16		
			==		

MC | C | (9) | | | \* Seq. Number (Choice Number)  
PN \*

MT | T | 0 | (5) | (5) | 0 = Binary Zero (if Blank)  
Build- Machine  
ding

TRACK OCCUPATION

	<u>Reference</u>	<u>Body</u>
Record Length	16	459
Records per Block	46	5
Length of Physical Block	736+12 (Key)	2295
Blocks per Track	8	3
Track Utilisation in Bytes	5984	6885
Disk Utilisation Factor	82 %	94 %

- NOTES :
- 1) Low-Level option is not taken.
  - 2) It is generated as a Master File but in one case is used as Work-Center Submaster (Non-allowed CFMS option). See Chapter 6 "Non-Standard Modifications".

1.31

FILE DESIGN

BORD UPDATING

MACHINE

Label	Field Name	Work Beg	Field End	File Beg	Field End	Length in Bytes	Nature	Comments
-------	------------	----------	-----------	----------	-----------	-----------------	--------	----------

Work Fields

	CFMS File Name	1	7			7	C	MACHINE
	P/I	8	11			4	C	
	Error Bytes	12	13			2	B	
	Address	14	17			4	B	
	Key	18	29			12	B	MT/MC

====

CFMS Fields

C\$PN	MT/MC Number			1	12	12	B	MT/MC
C\$FACA	First MT Component Address			13	16	4	B	in MACSTRU
C\$RCAC	Record Count of MT in MC			17	18	2	B	
C\$FWUA	First MT Where-Used Address			19	22	4	B	in MACSTRU
C\$RCWU	Record Count Where-Used			23	24	2	B	
C\$RACN	Run Activity Control Number			25	26	2	B	RACN
C\$FROA	First Supplementary Machine Address			27	30	4	B	in OVFLMAC
C\$RCRO	Record Count Supplementary Machines			31	32	2	B	

Complementary CFMS  
Chain as Work Center  
Submaster

C\$COMPC	First PR Routing Where-Used Address			33	36	4	B	in PRATMAC
----------	--	--	--	----	----	---	---	------------

1.32

FILE DESIGN

BORD UPDATING

MACHINE

<u>Label</u>	<u>Field Name</u>	<u>Work</u>	<u>Field</u>	<u>File</u>	<u>Field</u>	<u>Length</u>	<u>Nature</u>	<u>Comments</u>
		<u>Beg</u>	<u>End</u>	<u>Beg</u>	<u>End</u>	<u>in</u>		
						<u>Bytes</u>		
	<u>User Data</u>							
CUNITC	Capacity Unit		37		39	3	C	Controlled
CTYP1	Type 1		40		41	2	B	
CTYP2	Type 2		42		43	2	B	
CTYP3	Type 3		44		45	2	B	
CNAME	Name of Machine		46		70	25	C	
CRESM	Responsible for Machine (Kostenstelle)		71		76	6	C	Verantwortungsbereich
CCAP	Capacity		77		80	4	E	
CDELTA	DELTA		81		82	2	B	Tag=C'TT'
	Real Time Tag		83		83	1	B	Reserved
	Filler		84		97	14	B	Reserved

O.R. Reserve                      98      459      362                      ANNEX 4

(WORK)      488                      LRECL      459                      (FILE)

=====

Filler = 0 Bin.

1.40

FILE DESIGN

BORD UPDATING

PRATMAC

BODY RECORD : DSN = PRATMAC

Reference Record :

Being a Chain File (Routing), there is no Reference Record.

Control Fields :

There are two Control Fields.

<u>Description</u>	<u>Input</u>	<u>Control</u>	<u>Stored</u>	<u>Name</u>
MC Seq No. (Choice No)	Last 2 bytes of MC Key	Major	PRATMAC	E\$CPWC
Machine Combination	MC Key {12 bytes)	Inter	MACHINE	C\$PN

TRACK OCCUPATION

Record Length	34
Records per Block	32
Length of Physical Block	1088
Blocks per Track	6
Track Utilisation in Bytes	6528
Disk Utilisation Factor	89 %

- NOTES :
- 1) Bidirectional W/C Chain option is not taken.
  - 2) It uses the Master (Part Number) MACHINE File as a Work-Center Submaster File (Non-allowed CFMS option). See Chapter 6 "Non-Standard Modifications".

1.41

FILE DESIGN

BORD UPDATING

PRATMAC

Label	Field Name	Work Field Beg	Field End	File Field Beg	Field End	Length in Bytes	Nature	Comments
<u>Work Fields</u>								
	CFMS File Name	1	7			7	C	PRATMAC
	P/I	8	11			4	C	
	Error Bytes	12	13			2	B	
	Address	14	17			4	B	
====								
<u>CFMS Fields</u>								
E\$PTMA	Production Rate Address			1	4	4	B	in PRDRATE
E\$CPPN	Compare Portion Production Rate			5	6	2	B	Seq #
E\$OPNO	Operation Seq. #			7	8	2	B	Choice #
E\$NOPA	Next Record (in Forward Chain) Address			9	12	4	B	in PRATMAC
E\$CPWC	Compare Portion MC			13	14	2	B	Choice #
E\$WCMA	MC Address			15	18	4	B	in MACHINE
E\$WWNE	Next Record (Where-Used) Address			19	22	4	B	in PRATMAC
<u>User Data</u>								
	Real Time Tag			23	23	1	B	Reserved
EPMPR	Priority of MC for this Production Rate			24	25	2	H	
	Filler			26	34	9	B	Reserved
	(WORK)	51		<u>LRECL</u>		34	(FILE)	
		==				==		

Filler = 0 Bin.



1.50

FILE DESIGN

BORD UPDATING

MACSTRU

BODY RECORD : DSN = MACSTRU

Reference Record :

Being a Chain File (Structure), there is no Reference Record.

Control Fields :

There are two Control Fields.

<u>Description</u>	<u>Input</u>	<u>Control</u>	<u>Stored</u>	<u>Name</u>
AND/OR Choice	Data	Major	MACSTRU	FANDOR
Machine Type#	Subordinate Key	Inter	MACHINE	C\$PN

TRACK OCCUPATION

Record Length	42
Records per Block	40
Length of Physical Block	1680
Blocks per Track	4
Track Utilisation in Bytes	6720
Disk Utilisation Factor	92 %

NOTES : 1) Reverse Where-Used option is not taken.

1.50

FILE DESIGN

BORD UPDATING

MACSTRU

BODY RECORD : DSN = MACSTRU

Reference Record :

Being a Chain File (Structure), there is no Reference Record.

Control Fields :

There are two Control Fields.

<u>Description</u>	<u>Input</u>	<u>Control</u>	<u>Stored</u>	<u>Name</u>
AND/OR Choice	Data	Major	MACSTRU	FANDOR
Machine Type#	Subordinate Key	Inter	MACHINE	C\$PN

TRACK OCCUPATION

Record Length	42
Records per Block	40
Length of Physical Block	1680
Blocks per Track	4
Track Utilisation in Bytes	6720
Disk Utilisation Factor	92 %

NOTES : 1) Reverse Where-Used option is not taken.

1.51

FILE DESIGN

BORD UPDATING

MACSTRU

LABEL	Field Name	Work Field		File Field		Length in Bytes	Nature	Comments
		Beg	End	Beg	End			
<u>Work Fields</u>								
	CFMS File Name	1	7			7	C	MACSTRU
	P/I	8	11			4	C	
	Error Bytes	12	13			2	B	
	Address	14	17			4	B	
	Key	18	29			12	B	MC or MT
<u>CFMS Fields</u>								
F\$CMRA	Machine Type Address			1	4	4	B	in MACHINE
F\$CPC	Machine Type Key Compare Portion			5	6	2	B	Last 2 bytes of the Key
F\$NACA	Next assembly Component Address			7	10	4	B	in MACSTRU
F\$PMRA	Machine Combina- tion Address			11	14	4	B	in MACHINE
F\$CPP	Machine Combina- tion Compare Por- tion			15	16	2	B	Last 2 bytes of the Key
F\$NWUA	Next Assembly Where-Used Address			17	20	4	B	in MACSTRU
<u>User Data</u>								
FANDOR	Choice			21	21	1	B	AND/OR
FNOMTMC	Number of Occurences of this MT in this MC			22	23	2	H	
FMPCLN	Manpower for Cleaning			24	27	4	E	
FCLNTM	Cleaning Time			28	31	4	E	
FNCAP	Needed Capacity			32	35	4	E	
FRATIO	Ratio			36	39	4	E	
	Real Time Tag			40	40	1	B	Reserved
	Filler			41	42	2	B	Reserved
	(WORK)	<u>71</u>						
		====						
				<u>LRECL</u>				
						<u>42</u>		(FILE)
						====		

Filler = 0 Bin.

FILE DESIGN

1.60

BORD UPDATING

OVFLMAC

BODY RECORD : DSN = OVFLMAC

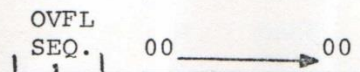
Reference Record :

Being a Chain File (Routing Without Submaster),  
there is no Reference Record.

Control Fields :

There is only one Control Field.

<u>Description</u>	<u>Input</u>	<u>Control</u>	<u>Stored</u>	<u>Name</u>
Sequence ID.	Overflow Seq.	Major	OVFLMAC	G\$OPNO



This Seq. ID is discussed in the input file INOVMC  
description.

Overflow Machines :

If there are n physical machines for one given MT,  
then (n-1) machine records are found in OVFLMAC.

The first physical machine is described in the  
master MACHINE MT record.

TRACK OCCUPATION

Record Length	383
Records per Block	6
Length of Physical Block	2298
Blocks per Track	3
Track Utilisation in Bytes	6894
Disk Utilisation Factor	94 %

NOTES : 1) It is generated as a Routing File without Work-Center  
Submaster (Allowed CFMS option).

1.61

FILE DESIGNBORD UPDATINGOVFLMAC

Label	Field Name	Work Beg	Field End	File Beg	Field End	Length in Bytes	Nature	Comments
<u>Work Fields</u>								
	CFMS File Name	1	7			7	C	OVFLMAC
	P/I	8	11			4	C	
	Error Bytes	12	13			2	B	
	Address	14	17			4	B	
						===		
<u>CFMS Fields</u>								
G\$PTMA	MT Address			1	4	4	B	in MACHINE
G\$CPPN	Compare Portion MT			5	6	2	B	Last 2 bytes of the Key
G\$OPNO	Overflow Machine Seq. #			7	18	12	B	
G\$NOPA	Next Overflow Machine (in Forward Chain) Address			19	22	4	B	in OVFLMAC
<u>User Data</u>								
GREAL#	Real Machine Number			23	34	12	B	Real # or Binary 0
	Real Time Tag			35	35	1	B	Reserved
	Filler			36	53	18	B	

1.62

FILE DESIGN

BORD UPDATING

OVFLMAC

Label	Field Name	Work Beg	Field End	File Beg	Field End	Length in Bytes	Nature	Comments
-------	------------	-------------	--------------	-------------	--------------	--------------------	--------	----------

	Filler		54		73	20	B	Reserved
--	--------	--	----	--	----	----	---	----------

	O.R. Reserve		74		383	310		ANNEX 4
--	--------------	--	----	--	-----	-----	--	---------

(WORK)	<u>400</u>	<u>LRECL</u>	<u>383</u>	(FILE)
	=====		=====	

Filler = 0 Bin.

1.70

FILE DESIGN

BORD UPDATING

PROSTRU

BODY RECORD : DSN = PROSTRU

Reference Record :

Being a Chain File (Structure), there is no Reference Record.

Control Fields :

There are two Control Fields.

<u>Description</u>	<u>Input</u>	<u>Control</u>	<u>Stored</u>	<u>Name</u>
Priority Code	Data	Major	PROSTRU	HPRTY
Component Key	Subordinate Key	Inter	PRODUCT	A\$PN

TRACK OCCUPATION

Record Length	54
Records per Block	20
Length of Physical Block	1080
Blocks per Track	6
Track Utilisation in Bytes	6480
Disk Utilisation Factor	89 %

NOTES : 1) Reverse Where-Used option is not taken.

1.71

FILE DESIGN

BORD UPDATING

PROSTRU

Label	Field Name	Work Field Beg	Field End	File Field Beg	Field End	Length in Bytes	Nature	Comments
<u>Work Fields</u>								
	CFMS File Name	1	7			7	C	PROSTRU
	P/I	8	11			4	C	
	Error Bytes	12	13			2	B	
	Address	14	17			4	B	
	Key	18	26			9	B	PN
====								
<u>CFMS Fields</u>								
H\$CMRA	Component Address			1	4	4	B	in PRODUCT
H\$CPC	Component Compare Portion			5	13	9	B	all PN
H\$NACA	Next Component Structure Record Address			14	17	4	B	in PROSTRU
H\$PMRA	Parent Product Address			18	21	4	B	in PRODUCT
H\$CPP	Parent Compare Portion			22	30	9	B	all PN
H\$NWUA	Next Where-Used Structure Record Address			31	34	4	B	in PROSTRU
<u>User Data</u>								
HPRCT	Percentage			35	38	4	E	Utility Co- efficient
HPRTY	Priority Code of the Structure			39	40	2	H	For Multiple Structures differentia- tion
HTMDB	Time Delay Before			41	42	2	H	
HTSAF	This Structure Active Flag			43	44	2	H	For choosing relevent Structure
	Real Time Tag			45	45	1	B	Reserved
	Filler			46	54	9	B	Reserved
		(WORK)	80		<u>LRECL</u>	54	(FILE)	
		==				==		

Filler = 0 Bin.



1.80

BORD UPDATING

RECAPITULATIVE TABLE OF DISK UTILISATION

The Disk Utilisation Factor (%) has been calculated on the basis of the maximum 7294 bytes per track (for Records without Key).

\* Calculated as Records having a Key (ISAM) - Maximum 7249 bytes. The track of control is also taken into account. In the JOB Control Cards the Key length is not added in the Physical Block length. Also, one supplementary cylinder must be reserved for each ISAM Data Set.

DASD : 2314

Description	Line	A		B		C		E	F	G	H
		PRODUCT		PRDRATE		MACHINE					
		Ref.	Body	Ref.	Body	Ref.	Body				
Record Length	a	22	230	15	131	16	459	34	42	383	54
Records per Block	b	39	4	69	10	46	5	32	40	6	20
Length of Physical Block	axb = c	867 *	920	1046 *	1310	748 *	2295	1088	1680	2298	1080
Blocks per Track	d	7	7	6	5	8	3	6	4	3	6
Track Utilisation in Bytes	cx d = e	6069	6440	6276	6550	5984	6885	6528	6720	6894	6480
Disk Utilisation Factor	%	83	88	86	90	82	94	89	92	94	89
Records per Track	bx d = f	273	28	414	50	368	15	192	160	18	120
Records per Cylinder	fx20 * (x19)	5187 *	560	7866 *	1000	6992 *	300	3840	3200	360	2400

For these calculations the Optimum is not considered as the full track occupation but a reasonable and not too important utilisation of the memory.

FILE DESIGN

RECAPITULATIVE TABLE OF CONTROL FIELDS

CHAIN FILES

File                      Field Description                      Input Field                      Control                      Stored                      Name

Structure

PROSTRU	1) Priority Code	Data	Major	PROSTRU	HPRTY
	2) Component Key	Subordinate Key	Inter	PRODUCT	A\$PN
MACSTRU	1) AND/OR Choice	Data	Major	MACSTRU	FANDOR
	2) Machine Type #	Subordinate Key	Inter	MACHINE	C\$PN

Routing

OVFLMAC	1) Sequence ID.	Overflow Seq.	Major	OVFLMAC	G\$OPNO
PRATMAC	1) MC Seg # (Choice #)	Last 2 bytes of MC Key	Major	PRATMAC	E\$CPWC
	2) Machine Combination	MC Key (12 bytes)	Inter	MACHINE	C\$PN

1.81

FILE DESIGN

BORD UPDATING

Recapitulative Table of Options

NOTE: Following the guidelines set by the S/C Application, in the BORD CFMS Modules, the following routines are systematically excluded from the updating procedures :

- 1) Tag Masters
- 2) Link and Unlink W/C
- 3) Multiple Delete (Except PROSTRU)
- 4) Replacement of Chains (This operation is possible by doing a simple suppression followed by a separate addition).

1.82

Files	Master						Chain					
	Chain Count	Low-Level	Bidirectional Primary Chain	Used as W/C	Having Structure	Having Routing	Master Having		Routing			
							Chain Count	Low Level	Reverse Where-Used	Having Sub-Master	Bidirectional W/C Chain	
PRODUCT	N	Y	N	N	Y	N						
PRDRATE	N	N	N	N	N	Y						
MACHINE	Y	N	N	Y	Y	Y						
PRATMAC							N	N		Y		N
MACSTRU							Y	N	N			
OVFLMAC							Y	N		N		N
PROSTRU							N	Y	N			

Y = Option taken      N = Option not taken

2.00

CHAPTER TWO

DATA INPUT FORMS

- Form Codification Objectives 2.10
- Error Processing 2.11
- BORD Updating Treatment 2.12
- Codification - 4101xx 2.20
- Codification - 4102xx 2.21
- Codification - 4103xx 2.22
  
- Notes about special fields 2.24

DATA FORMS

BORD UPDATING

FORM CODIFICATION

REFER : ANNEX 2

OBJECTIVES

The objectives of designing a codification for the treatment of forms have been multi-level.

1. - Multi-purpose forms have been designed which collect a large amount of information at the same time. Whereas data having the same technical aspects is all gathered on the same form, the user is not obliged to fill it completely, selecting only the elements which interest him.
2. - The Error Processing System is integrated in Manual Data Collection System. Thus the user always works on one and the same set of forms.
3. - Least possible amount of information is to be rejected once it has been fed in.
4. - The most possible amount of information must be saved even in case of severe errors.
5. - Errors will be corrected automatically, where possible, following its nature and gravity concerned.
6. - By memorising a rotation number all errors not corrected within 30 treatment passages are rejected automatically.
7. - In case of BORD compatibility errors, as far as possible, the entire form is restored into the Validation File, rather than do a piece-meal treatment. This is done to avoid incomplete and hence erroneous structures on BORD Files.
8. - All numeric fields can be put to zero. However in the character fields, if information has been introduced already, this information can never be reduced to blank.

## 2.11

DATA FORMSBORD UPDATINGERROR PROCESSINGCODIFICATION CONCEPT

The codification of the updating data forms is divided into two sections :

- Special treatment of forms
- BORD Updating treatment

1. SPECIAL TREATMENT

The special treatment itself can be of two types :

- Authorisation of Master Delete (Col. 7)
- Error Processing (Col. 7 and Col. 80)

COL. 7 :

The values to be indicated in this Column are as follows :

Authorisation of Master Delete (Obligatory)

X Product, PR and MT  
(Must be used with delete code 32 only)  
Possible values : 410132X, 410232X, 410332X

Error Processing

- S Suppress : The entire form relating to the given identification is to be eliminated from the Validation File. (Only one input card is necessary).
- M Modify : Certain elements of the form identified are to be modified according to the specifications in Col. 80. (As many input cards as changes desired).

COL. 80:Used only for Error Processing

- S Suppress the line concerned
- M Modify the line concerned only with the data field not equal to blank. (All information not modified is conserved as before).

- NOTE 1. Use same card # as on the original form.
2. The additions of supplementary lines in any group would be fed in by a separate form having the same identification. This form must not contain any indications in either Col. 7 or Col. 80.  
The Error Processing programs themselves reconstitute homogeneous groups by merging the old and new informations.

DATA FORMS

2.12

BORD UPDATING

2. BORD UPDATING TREATMENT

All input information has been gathered in three forms. These forms do not need to be completely filled since they can be used to introduce only partial or complete data.

The forms are subdivided into three Sections :  
Identification; Master; Structure and Routing.

The identification will appear on every card, hence only two types of cards will exist :

- 0/1/2 containing Master information
- 3/4/5 containing Structure & Routing information

For each form, therefore, can exist only one card number 0/1/2 each, whereas there can exist many cards number 3/4/5.

The card number 0 is always unique.

The details of cards for each form are given in the following table :

FORM	IDENT.	SUB-IDENT.	CARDS		COMMENTS
			Normal	Delete	
4101	PN	Component	0/1/2	0	Product Number
	PN		3/4/5	0	Product Structure
4102	MT	Overflow	0	0	Basic Mac. Type
	MT		5	0	Supplementary Machines
4103	PN/PR		0/1	0	Production Rates
	PN/MC				Machine Combination
	PN/MC	MT	5	0	Machine Structure
	PN/PR/MC	Routing	0	0	PRATMAC (PR & MC liaisons)

DATA FORMS

BORD UPDATING

Codification - 4101XX - Product Definition Data

- The identification, i.e., the Code and PN are necessary fields.
- For CFMS compatibility, the input data would be treated on the following sequence of priorities :  
04-0/1/2, 13-3, 66-3, 32, (04-4, 66-4), 55-0/1/2, 66-5  
This order of treatment, on ascending sequence of PN is automatically recognised by the validation programs.
- Either the groups of cards 0/1/2 (Product) and 3/4/5, (Structure) or the individual cards as such, can be used seperately or together depending on the various cases

Code	Description	Fields	
		Necessary	Optional
04	<u>Addition</u> New Product With/without Structure	Card 0 (VB)	Cards 1,2,4
13	<u>Delete</u> Entire Structure	Card 3 (1st Structure)	None
32 (X Col.7)	<u>Delete</u> Product	Code & PN (Card ∅)	None
55	<u>Modification</u> Product Data only (Never Cards 3/4/5)	Fields to be modified	
66	<u>Modification</u> Structure (Never Cards 0/1/2)	3 Delete 4 Add 5 Mod. Data only	These cards can be used seperately or togehter.



DATA FORMS

BORD UPDATING

Codification -4103XX- Production Data (PR & MC)

2.22

Y = Must Exist

N = Must not Exist

Code	DESCRIPTION	FILES			IDENTIFICATION			PRTY	CARDS		COMMENTS
		PR	PM	MC	PN	PR	MC		Nec.	Op.	
04	<u>ADDITION</u> Introduction of a Production (PR, MC, PM)	N	N	N	Y	Y	Y	Y	0	1 5	
40	Introduction of Routing (PR & MC already on File)	Y	N	Y	Y	Y	Y	Y	Ø		Full identifica- tion only
41	Introduction of PR and Rou- ting (MC already on File)	N	N	Y	Y	Y	Y	Y	0	1	Card 5 not allowed
42	Introduction of MC and Rou- ting (PR already on File)	Y	N	N	Y	Y	Y	Y	5	5	Cards 0/1 not allowed
45	<u>Addition</u> of a MT to MC already existing on File			Y	Y	N	Y	N	5	5	Card 0/1 not allowed

DATA FORMS

BORD UPDATING

Codification -4103XX- Production Data (PR & MC)

2.23

N = Must not Exist

Y = Must Exist

Code	DESCRIPTION	FILES			IDENTIFICATION			PRTY	CARDS	COMMENTS
		PR	PM	MC	PN	PR	MC			
13	DELETE ===== Machine Combination			Y	Y	N	Y	N	∅	
31	Routing	Y	Y		Y	Y		N	∅	
32	Production Rate	Y			Y	Y		N	∅	
33	MT within MC already existing on Files			Y	Y	N	Y	N	5	Cards 0/1 not allowed
55	MODIFICATIONS <u>Data only</u> ===== Production Rates	Y			Y	Y		N	0 1	At least one card with fields to be changed
56	Routing	Y	Y	Y	Y	Y		Y	∅	Modify PRTY
57	MT within MC (Structure Data only)		Y		Y	N	Y	N	5	Cards 0/1 not allowed

2.24

DATA FORMS

BORD UPDATING

Notes about the utilisation of some special fields in the input Data Forms

1. MT & Real # Identification (Forms 4102/4103)

Before introducing any production rates it is the responsibility of the user to verify that any MT referred to in new PR, exists already on the BORD files.

Care must also be taken that no MT or Real # is duplicated.

2. ANZ. GLW. APE. (Form 4102)

The AGA field signifies the existing supplementary machines for a certain basic machine type :

New MT addition

Ex MT 0000000013 AGA 32

means 1 MT = Real # = 0000000013

+ 31 supplementary machines (with significant Real #s if stated, the others being supposed equal to zero).

Existing MT

The AGA field always represents the number of supplementary machines to be added or deleted.

This field is only to be used for the addition and deletion in the BORD files, but never for the data modification.

3. ANZAHL DER GLEICHW. APE. (Form 4103)

This field represents the number of machines of the same type belonging to a machine combination.

It should not exceed the number of machines of this type already introduced in the file.

4. PR & MC Identification (Form 4103)

In order to be able to refer to a production rate, the user must assign a number to each production rate. Responsibility will be left to the user not to assign the same number to two different production rates concerning the same product. It should be kept in mind that this identification number will only be used for purpose of identification. No preference will be given to lower production rate numbers (Ex. PR 0001) during any of the scheduling operations.

The same holds true for the machine combination numbers.

It is the responsibility of the user to verify that all referred PN must already exist on the BORD files.

3.00

CHAPTER THREE

ERROR PROCESSING

- Validation File Format 3.10
- PROG 0 : Decision Table - Valid Card Groups 3.11
- PROG 1 : Decision Table - Form Groups Compatibility 3.12
- PROG 2 : Decision Table - Interface Transformation 3.13  
(Card Records)
- Decision Table - Interface Generation 3.14  
(CFMS parts for PROG 1 & 2)
  
- PROG 0 : Formal Check and Validation with Error Correction 3.20
- PROG 1 : CFMS Master Validation and Form Groups Compatibility 3.30
- PROG 2 : CFMS Chain Validation and Transformation of Correct Card Records into Interface Format 3.40
- PROG 3 : List of Validation File (with Error Details, if any) 3.50

3.10

ERROR PROCESSING

BORD UPDATING

Validation File

<u>Field</u>	<u>Length in Bytes</u>	<u>Nature</u>	<u>Comments</u>
<u>Data Field</u>			
Card Contents	80	C	Forms
<u>Validation Fields</u>			
Filler	5	C	
Nature of Old Err (OLDER)	1	C	Ø = 1st Run * = Old 9 = Reject (lost) 1 = Double (1st Run) 2 = Double (2nd Run)
E/N FORMAT	2	B	<u>Ex:</u> Error Number (Numeric) 000 = Correct 022 = Multiple Err.
Rotation	2	B	Run Number (Err.)
Date of Creation	4	B	1st Run
Card Number	2	B	Input seq. for 1st Run
E/N BORD (Mater & Chain Com- patibility)	2	B	If E/N BORD ≠ 0 in a card, for the entire group E/N FORMAT = 022
Filler	2	C	
	<u>LRECL</u> 100		
	====		

3.11

ERROR PROCESSING

BORD UPDATING

PROG 0 : VALID CARD GROUPS

DECISION TABLE

CODE 410	Formal Check & Validation			Cards			COMMENTS
	Max	Nec	Op.	Only 1	Not < 1	Not >30	
104	30	0	1,2,4			x	Prog 1: For same PN only smallest component consi- dered
113	30	3			x		
132	1	∅		x			Not > 3 cards (1 of each) Prog 1: For same PN, if 113 exists, only smaller components are considered.
155	3		0,1,2		x		
166	30		3,4,5		x	x	
204	30	0	5			x	
213	30	0	5			x	*
232	1	∅		x			
240	30	0	5			x	*
255	30		0,5		x	x	
304	30	0	1,5			x	Not > 2 cards (1 of each)  Not > 2 cards (1 of each)
313	1	∅		x			
331	1	∅		x			
332	1	∅		x			
333	30	5	5		x	x	
340	1	∅		x			
341	2	0	1		x		
342	30	5	5		x	x	
345	30	5	5		x	x	
355	2		0,1		x		
356	1	∅		x			
357	30	5	5		x	x	

Max = Maximum number of cards possible

Nec = Necessary Card Type Number

Op. = Optional Card type number

ERROR PROCESSING

3.12

BORD UPDATING

PROG 1 : CFMS MASTER VALIDATION

DECISION TABLE : FORM GROUPS COMPATIBILITY

Mutation- Numbers in their order of priority	File Relationship : Error if not existing					If accepted, status of other mutations		Lost or Saved	If rejected next priori for mutation
	PN	MT	MC	PR	END.	Accepted	Rejected		
132	Y			N	Two		All others	*	104
104	N						All others	T	113
113	Y					< 166 all 155	All 113. 166 with >=component	T	166
166	Y					155	None		155
155	Y								
=====									
232		Y			Four		All others	*	204
204		N					All others	T	240
240		Y				255	Mutation 213	T	213
213		Y				255	None		255
255		Y							
=====									
304			N	N			All others	*	341
341			Y	N			All others	*	342
342			N	Y			All others	*	340
340			Y	Y			All others	*	345
345			Y				All others	*	332
332				Y	One		All others	*	313
313			Y		Four		All others	*	331
331			Y	Y			All others	T	333
333			Y				All others	T	355
355				Y			All others	T	356
356			Y	Y			All others	T	357
357			Y						

T = Individual card lost

END.= Number of Chain anchors  
which should be disactivated  
before deleting a Master Rec.

\* = All others will be lost (T), except  
340 (1 card), 345 (30 cards maximum),  
332 (1 card) and 313 (1 card), which  
will be saved. Also 232 (1 card); &  
132 (1 card, if due to PR or END.).

BORD UPDATING

INTERFACE TRANSFORMATION  
DECISION TABLE

Prog 2 : Transformation of Card Records into CFMS Interface File Format

1st Test	Correct Records			3rd Test	Subject to Total Reject (Individual Card Lost)			Chain Error	2nd Test	Subject to Partial Reject (Entire Form Saved for Next Run)				
	Card	File	Card		File	Card	File			Card	File	Master/Submaster (M) (S) # Exist (Error)		
Code	Seq	Mast	Chn.	Name	Code	Seq	Mast	Chn.	Name	Code	Seq	Mast	Chn.	Name
132	Ø	132		PN	113	3		113	PS	104	0	104		PN
155	0	150		PN	166	3		123	PS	104	1			
	1				166	5		154	PS	104	2			
	2				166	4		104	PS	166	4			
204	0	204		MT	213	0 *		213	OV					
	0 *		240	OV	240	5		213	OV					
	5		240	OV	240	0 *		240	OV					
232	Ø	232		MT	255	5		240	OV					
255	0	250		MT	255	5		252	OV					
313	5	232		MC	331	Ø		323	PM	304	0	304		PR
332	Ø	332		PR	333	5		223	MS					
					340	Ø		340	PM					
355	0	350		PR	356	Ø		352	PM					
	1				357	5		254	MS					
					345	5		241	MS					

\* Represents the data only in the AGA field (Form 4102). Many CFMS Records can be generated for one card.  
 - For 166-4 & 345-5 no CFMS Record is generated during the Partial Reject' tests.  
 - } Signify the different cards which are cumulated on the same CFMS Record.



ERROR PROCESSING

BORD UPDATING

DECISION TABLE : INTERFACE GENERATION

1 = Prog 1 : Master Validation  
 2 = Prog 2 : Chain Validation  
 P = Entire form rejected (Saved for next passage) T = Individual Card eliminated (lost for next pas- sage  
 Y = Must exist N = Must not exist

(Y) = (Only applies to Prog 2) If not existing in Master file, must exist in Addition table. In no case should be marked in Delete table. For details see "PROG 2 : CFMS Chain Validation".  
 END. = Number of chain anchors which should be deactivated before deleting a Master Record.

Sort Value	Code 410			Description	Verification Files & Tables				REJECT							
	Dec.	Hex.	File		Form	Act.	PN	MAST	SUB	TAB	PS	PR	MAST	END.	1	2
000	00															
004	04	104	104	104	Add											
013	0D	113	113	113	Del											
023	17	123	166-3	166-3	Del											
032	20	132	132	132	Del											
040	* 28	140	104-4 166-4	104-4 166-4	Add											
050	32	150	155	155	Mod											
054	36	154	166-5	166-5	Mod											

\* For S/C Input one can generate Value 008 to alter the treatment sequence in CFMS programs.

ERROR PROCESSING

BORD UPDATING

DECISION TABLE : INTERFACE GENERATION

Sort Value	Code 410			Description		Verification Files & Tables										REJECT						
	Dec.	Hex.	File	Form	Act.	File	PN	MAST	TAB	PR	MAST	PM	MC	MT	TAB	MS	OVF	END.	1	2	MAST	CHN
104	68	204	204	204	Add	Machine	MT						N1						T		P	
			304-0				MC															
			342-5				Y2 once per form	(Y)														
113	71	213	213	213	Del	Ovflmac							Y1			Y2			T			T
123	7B	223	333	333	Del	Macstru							Y1			Y2			T			T
132	84	232	232	232	Del	Machine	MT						Y1					Four	P			
			313				MC															
140	8C	240	204	204	Add	Ovflmac													T			T
			240																			
141	8D	241	304-5	342-5	Add	Macstru							N1						T			T
			345-5										Y1						T		P	
150	96	250	255-0	255-0	Mod	Machine	MT												T			
152	98	252	255-5	255-5	Mod	Ovflmac													T			T
154	9A	254	357	357	Mod	Macstru										Y2			T			T
204	CC	304	304-0	304-0	Add	Prdrate							N1						T		P	
			341-0										Y1									
223	DF	323	331	331	Del	Pratmac													T			T
232	E8	332	332	332	Del	Prdrate												One	P			
240	FO	340	304	304	Add	Pratmac							N1						T			
			341										Y1									
			342										N1									
			340										Y1									
250	FA	350	355	355	Mod	Prdrate													T			T
252	FC	352	356	356	Mod	Pratmac													T			T

\* This test is included : If Col 75 # \*, UNIT = UNIT on MT.

ERROR PROCESSINGBORD UPDATINGPROG 0 : FORMAL CHECK AND VALIDATION

The input files are sorted on the code card (positions 1 to 6) and the full identification (8 to 51), with a view to checking formally the input data and the compatibility of card sequences permitted.

This program is divided into two phases :

- A. First Phase : Verification card by card : Formal checking of identification and merging of the new and old data.

Thus there are two input files present:

- New data sorted as above, is checked for double cards and valid identification (depending on the code card and card number). If an error occurs the card is rejected on a new error file (to be lost in the next run). For double cards only the first is acceptable all others being rejected (lost).
- Old data which has already been sorted during the previous treatment is on an "Error File". This data can be of two types :
  - Lost records (with OLDER = 9) which will be ignored
  - Saved records which can be corrected by the new data (upto a maximum of 30 passages).

The corrected and uncorrected data is then merged with the new data in the proper sequence and the whole is written onto a "work file".

- B. Second Phase : Verification form by form : The work file just created is read form by form into the array FELD1 , which implies that at the most, only 30 cards per form will be allowed (if more, the whole form goes onto the new error file).

- In each form the entire user data is checked for correct format as well as valid card sequences. If an error occurs, the whole form is rejected on the new error file (for being saved).

NOTE : In the 1st phase, if E/N FORMAT = 22, it is put to 0 (Bin). This would enable us to do a complete series of tests on the form in question.

3.22

ERROR PROCESSING

BORD UPDATING

PROG 0 : GENERAL FLOWCHART

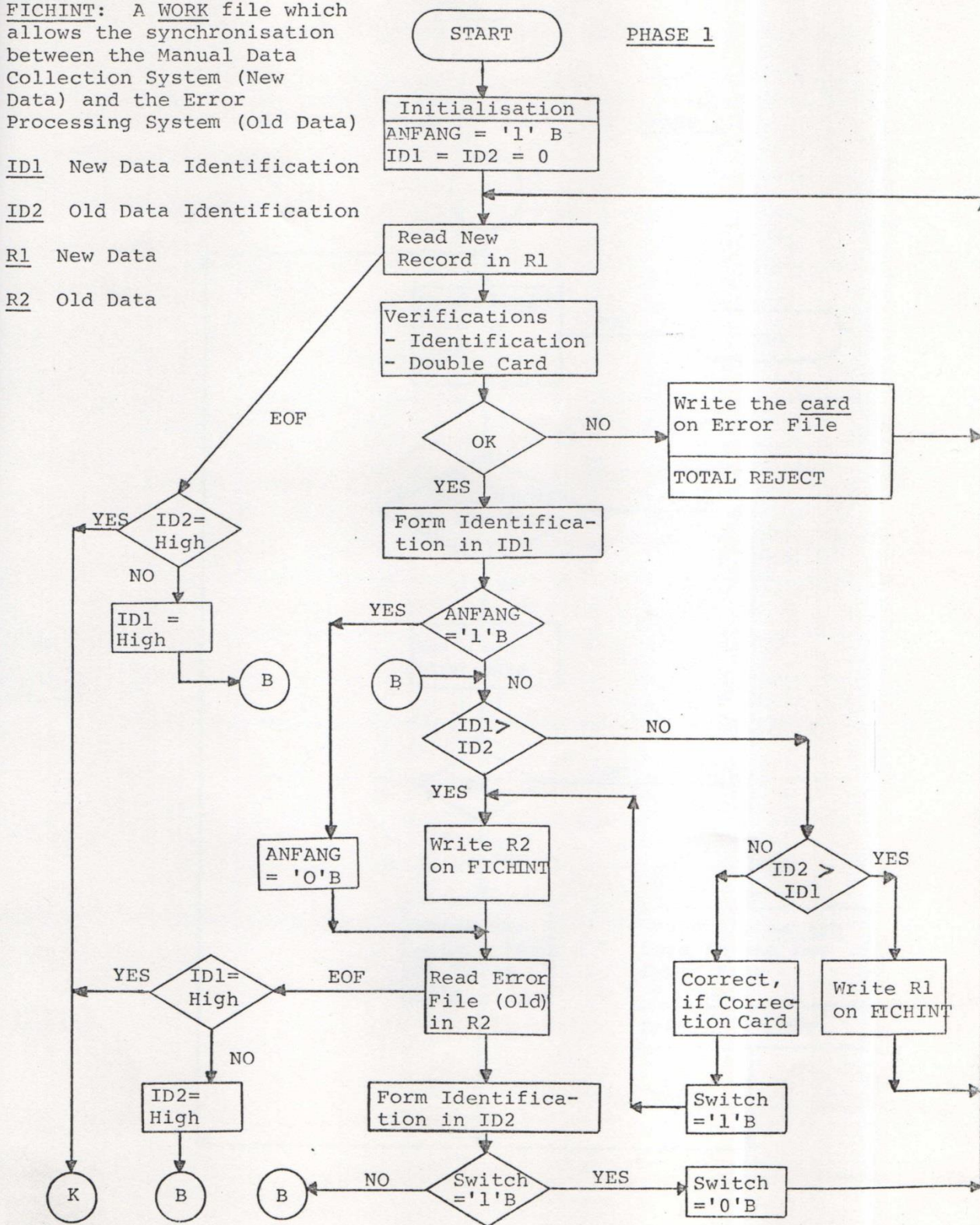
FICHINT: A WORK file which allows the synchronisation between the Manual Data Collection System (New Data) and the Error Processing System (Old Data)

ID1 New Data Identification

ID2 Old Data Identification

R1 New Data

R2 Old Data



3.24

ERROR PROCESSING

BORD UPDATING

PROG 0 : IDENTIFICATION FORMATION

The identification is formed in the following manner :

For each form it is composed of the total length as described in the table below always ignoring the correction code i.e., position 7 is never taken into account.

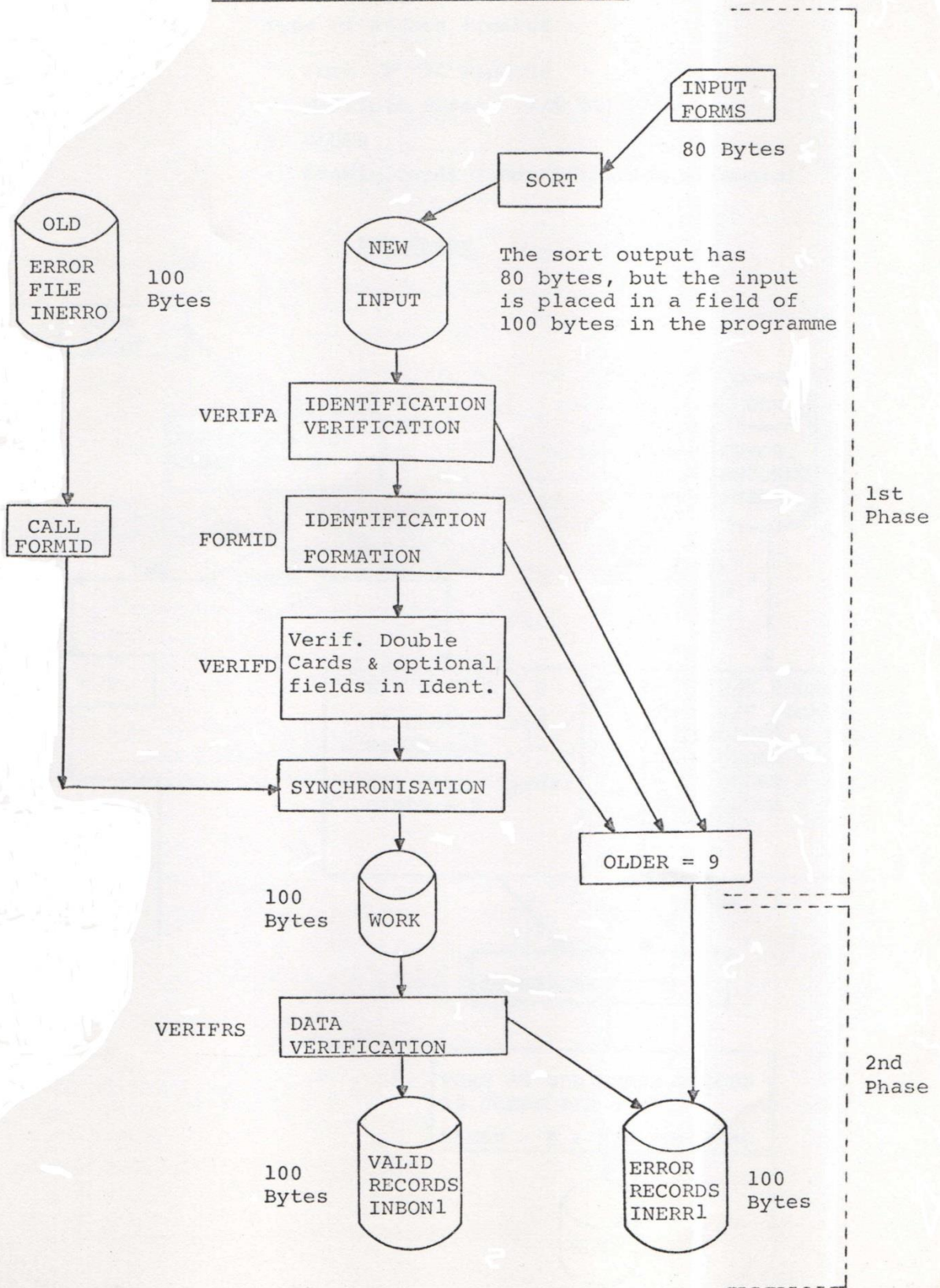
FORM	CARD TYPE	IDENTIFICATION LENGTH	MASTER	CHAIN
4101	∅	27	1 to 27	
	0	28	1 to 28	
	1	28	1 to 28	
	2	28	1 to 28	
	3	50	1 to 28	29 to 50
	4	50	1 to 28	29 to 50
	5	50	1 to 28	29 to 50
4102	∅	18	1 to 18	
	0	19	1 to 19	
	5	41	1 to 19	20 to 41
4103	∅	37	1 to 37	
	0	38	1 to 38	
	1	38	1 to 38	
	5	51	1 to 38	39 to 51

3.25

ERROR PROCESSING

BORD UPDATING

PROG 0 : FLOWCHART OF PRINCIPLE



3.26

ERROR PROCESSING

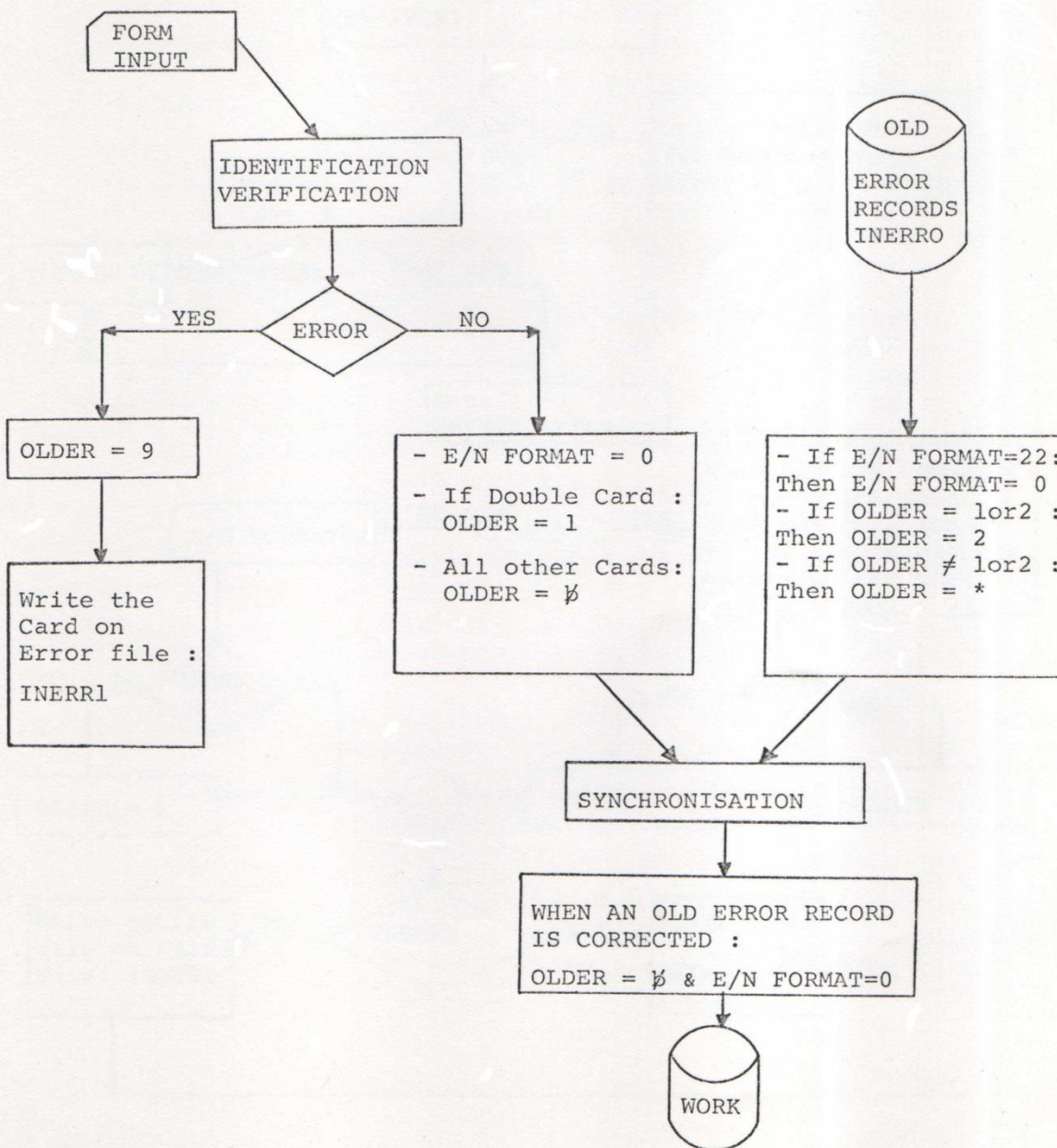
BORD UPDATING

PROG 0 : ERROR HANDLING

Type of errors treated :

- Form > 30 Records
- Multiple Errors (E/N 22)
- OLDER
- Double Cards (Identification elements)

1st Phase



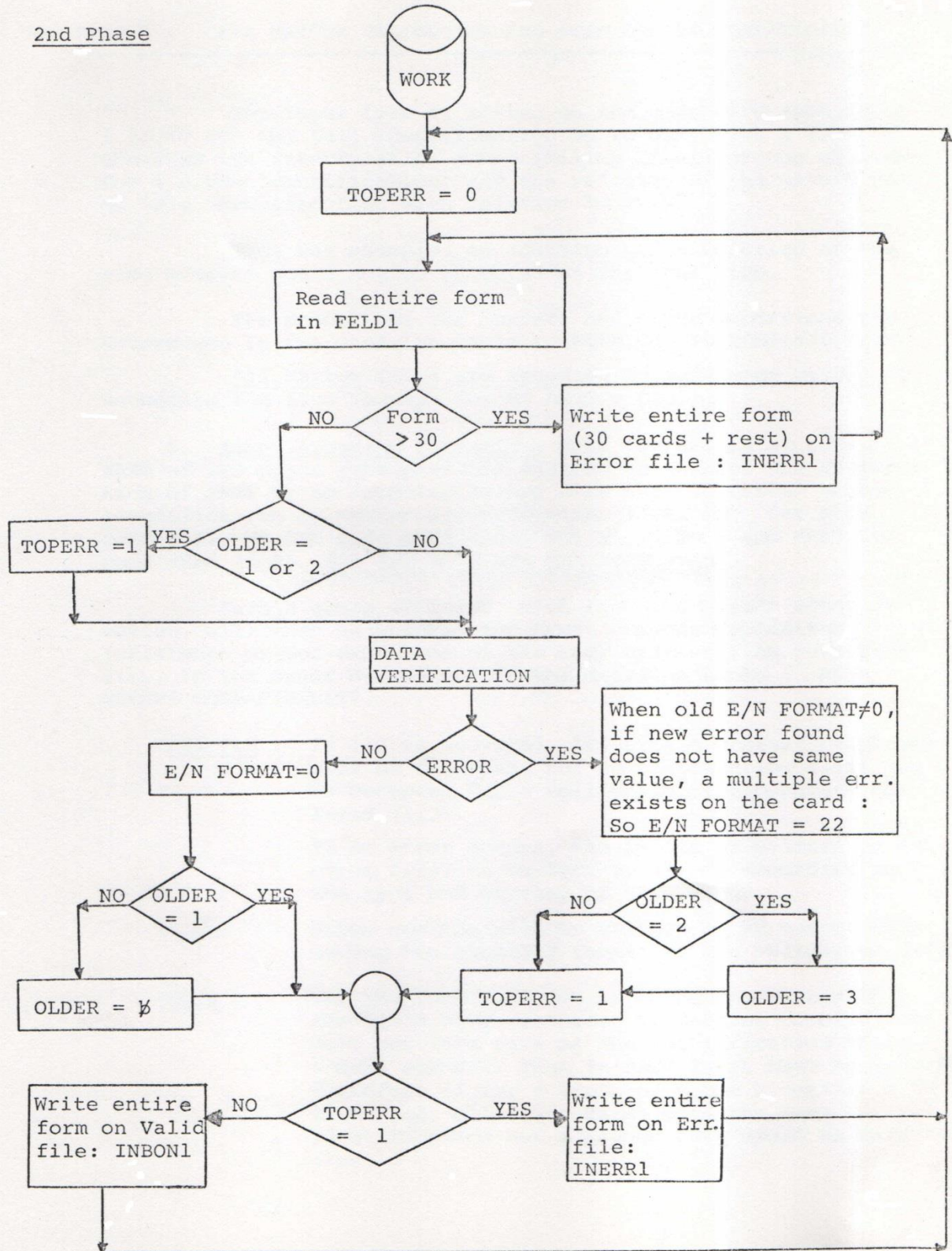
3.27

ERROR PROCESSING

BORD UPDATING

PROG 0 : ERROR HANDLING

2nd Phase





3.30

ERROR PROCESSING

BORD UPDATING

PROG 1 : CFMS MASTER VALIDATION AND FORM GROUPS COMPATIBILITY

The input file is sorted on the code card (positions 1 to 4) and the full identification (8 to 51), with a view to checking the interrelation compatibility of all groups of forms, for a given identification, and the validity of the master part of this identification with relation to BORD.

Thus for example, an addition and a deletion of the same product would not be accepted at the same time.

The priorities for correct and error conditions are determined in the decision table : FORM GROUPS COMPATIBILITY.

All Master files are accessed on Reference record to economise run time (except for MT UNIT & END.).

A. Identification Formation: Data is read in an array TABR of 160 posts (the possible maximum because of the restriction of PROG 0, no formular having more than 30 cards) master identification by master identification (i.e. PN for code card 4101, MT for code card 4102, and MC , PR and PRTY for code card 4103). All E/N BORD are put to 0 (Bin).  
=====

Such a group of forms, with the same master identification, will then be checked for CFMS Master Validation (existence or non-existence of the key) and mutation compatibility, in the order determined in the decision table : FORM GROUPS COMPATIBILITY.

EXAMPLE : If 113 is accepted, 166 with a greater component will be rejected, for no modification (166) can be accepted for a full chain of components deleted (113).

If an error occurs, the record is written on an error file, to be lost or saved, according to the type and gravity of this error.

Other records will be written on an output file having the standard format of the validation file.

NOTE : For the form 4103, it is to be remembered that the field PRTY (priority of machine combination) does not form part of the identification being a data element. Thus in PROG 1, it must be ignored. Therefore if for a group of forms a certain PRTY is marked, all other cards with the same initial identification but a higher PRTY would be rejected (lost).

ERROR PROCESSING

BORD UPDATING

B. Use of Tables

WORK TABLES

<u>NAME</u>		<u>USED FOR</u>	<u>INITIAL SIZE</u>
<u>Level 1</u>	<u>Level 2</u>		
TABMU		memorising all the mutations that can be found in the same group	12 x 2 bytes = 24 bytes
ERTAB	MUTER KEYER	memorising all the rejected mutations of this group (in MUTER) as well as some information about the nature of the error (in KEYER)	12 x (2+2) bytes = 48 bytes
ST1	TABR	memorising a whole group of forms (in TABR) having the same identification	160 x 100 bytes = 16000 bytes
TABL1		redefining of ST1 (details)	same as before

DISK TABLE : MTABM (Created by PPOG 1 to be used by PROG 2)

Another table will be written on a file (MTABM). This table represents the addition - suppression of master elements in the BORD files. Each of its posts is 16 bytes long and contains information about the type of mutation (addition or suppression), the type of element (PN, MT, MC or PR) and its key. The configuration is as follows :

for machine - combination	A S	C	PN (9)	MC 	filler(3)
for product - number	A S	N	PN (9)	0000	
for production - rate	A S	R	PN (9)	PR 	
for machine - type	A S	T	MT (11)		UNIT

D. Record Formats

Error File, Validation Files	100	Validation File Format
MTABM File	16	See Disk Table

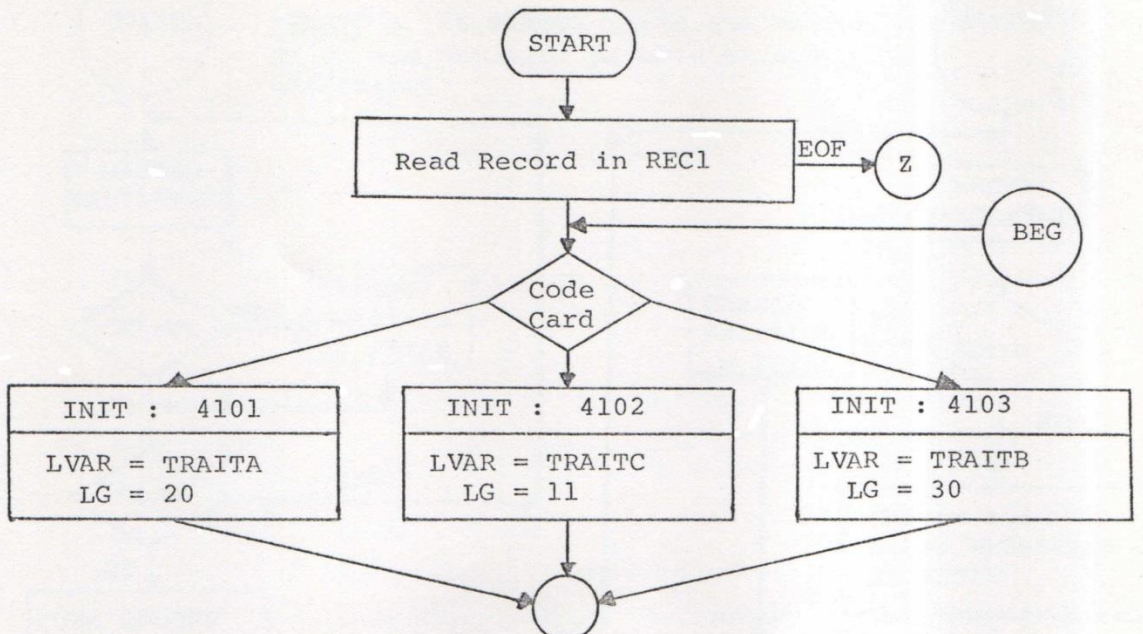
E. Error List

Refer to the Section entitled "Error List : PROG 1 "

ERROR PROCESSING

BORD UPDATING

PROG 1 : GENERAL FLOWCHART

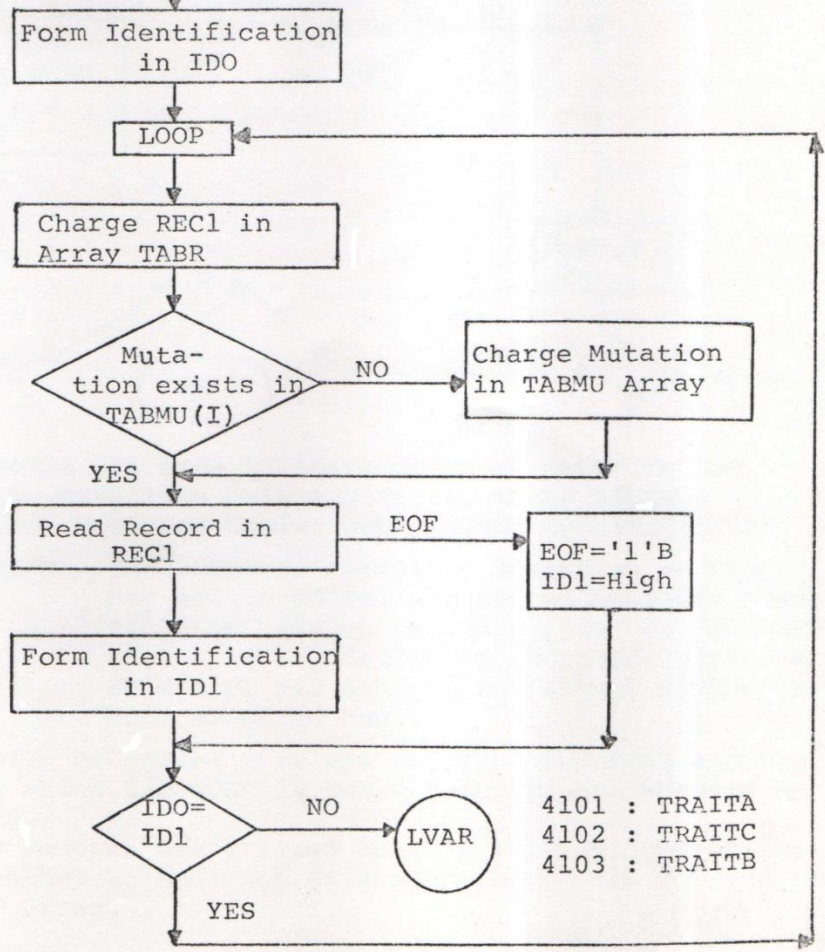


INIT: Initialisation of the Master search fields and of the fields for charging ADSUP Array

LG: Length

IDENT: f (Code Card, LG) (i.e. Master Identification without the Mutation Code)

LOOP: At the end of this loop all the forms with a given identification are loaded in TABR and all the Mutation Codes used are in TABMU

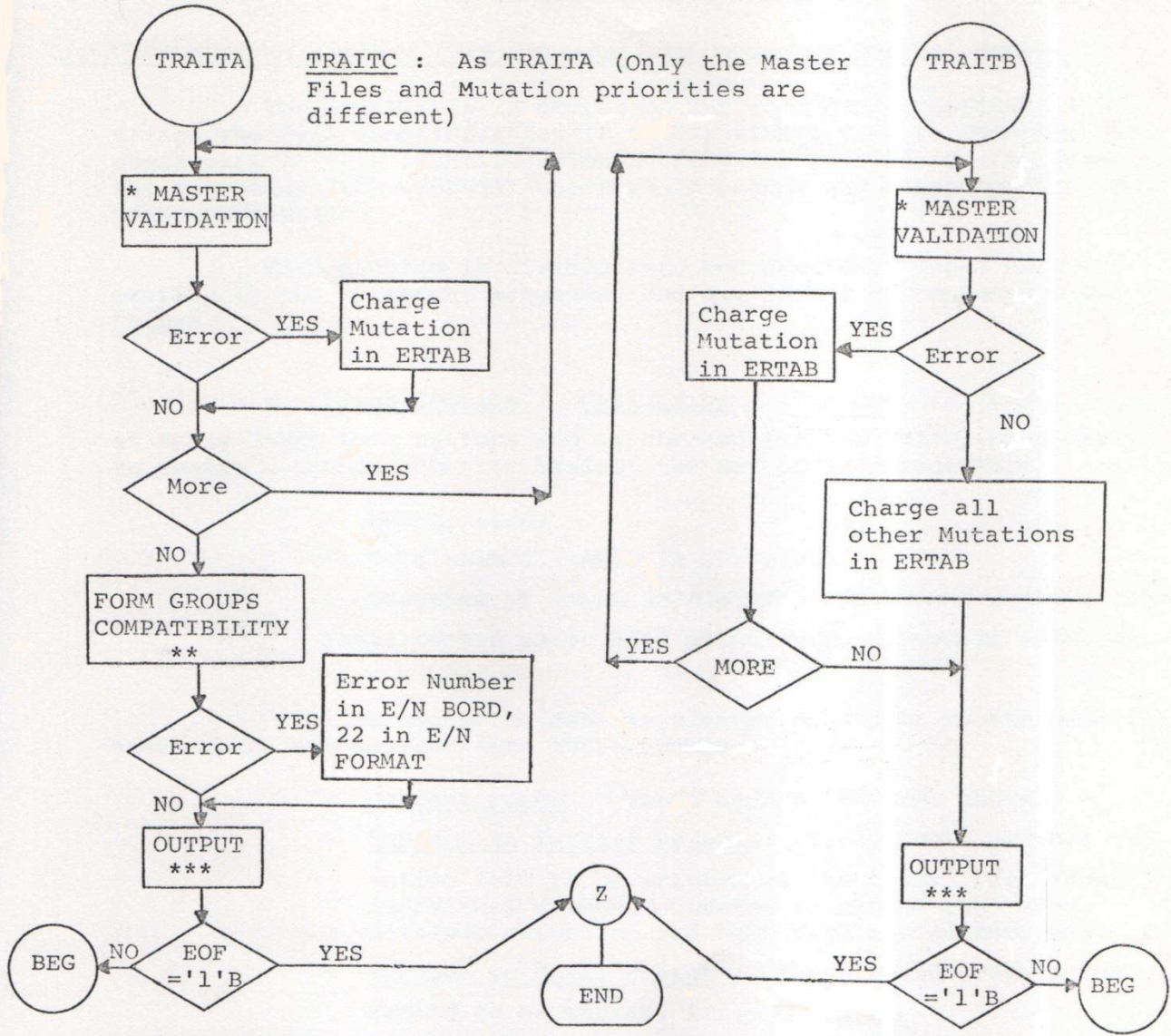


4101 : TRAITA  
4102 : TRAITC  
4103 : TRAITB

ERROR PROCESSING

BORD UPDATING

PROG 1



TRAITC : As TRAITA (Only the Master Files and Mutation priorities are different)

- \* MASTER VALIDATION : Tests are done in their order of priority for the mutations existing in the array TABMU (See Decision Table: FORM GROUPS COMPATIBILITY)
- \*\* FORM GROUPS COMPATIBILITY: The accepted mutations (existing in TABMU but not in ERTAB) are tested on their compatibility, always in their order of priority. (i.e., if a mutation is accepted, there is a reject of all other mutations not allowed with this accepted one).
- \*\*\* OUTPUT :
  - 1) Records with mutations that are existing in ERTAB and records for which E/N BORD is not = 0 (bin), are written on an Error File.
  - 2) All other Records are written on a Valid File, and in the case of either an addition or a suppression are charged on the ADSUP Array.

3.40

ERROR PROCESSING

BORD UPDATING

PROG 2 : CFMS CHAIN VALIDATION

Transformation of Correct Card Records into Interface Format (INDATA)

The input file is sorted on the code card (positions 1 to 6) and the full identification (8 to 51) with a view to checking the chain part of this identification in relation to BORD, and to generate the interface file (INDATA) which would become the input for the CFMS updating modules.

This program is divided into two Sections. These Sections overlap in the treatment sequences and are not to be confused with Phases.

A. First Section : Validation : The data is read into an array TABRE form by form and is checked for the following points to ensure a double security against the use of incorrect files.

- Double cards
- More than 30 cards in one group
- Presence of error indicators (E/N FORMAT and E/N BORD)

These severe cases lead directly to a Program Interrupt.

Afterwards the data is classed according to the mutation codes which are divided into three groups :

- Correct cards : These need no further tests.
- Subject to Partial Reject : These would provoke the entire form to be written on the error file. (Every individual element is tested to ensure that even multiple errors on the same form are registered).
- Subject to Total Reject : These would provoke the record to be marked, i.e., OLDER = 9.

During the verification on the chain part of the identification, the order of tests is as above. Refer to the Section "PROG 2 : INTERFACE TRANSFORMATION - DECISION TABLE".

If an error occurs, data is written on an error file, either with the entire form, or only with one card.

The case of simultaneous errors does not exist because the partial rejects would invalid the whole form.

## 3.41

ERROR PROCESSINGBORD UPDATING

Remark : In certain cases we test the existence or non existence of elements on a master file.

Details of such tests, in the case of PN and MT, are as follows :

See "DECISION TABLE : INTERFACE GENERATION"

Test Desired	Master		Table		Result
	Exist	≠ Exist	Exist Add.	Exist Delete	
Must Exist (Y)	X			None	OK
		X	X		OK
	All other cases				Error
Must not Exist (Possibility reserved but not yet used)	X			X	OK
		X	None		OK
	All other cases				Error

B. Second Section : Generation : This generation is done in a completely haphazard manner, i.e., when all the tests on a certain card group or individual cards, have been finished.

It is to be noted, that the CFMS updating modules would rebind the correct sequences by the values generated in the field #SORT.

The records generated, with their new mutation-codes, their sort-numbers, indicators etc. ... are written on INDATA (CFMS Interface file).

One characteristic of this transformation is, that one card may generate several interface records while, elsewhere, several correct cards are cumulated on the same interface record.

C. Noté about mutations 204, 240, 213 and 255.

A special treatment exists for the supplementary Machines File (OVFLMAC). This is due to the fact that :

- a) The users indicate only the number of supplementary Machines to be treated.
- b) The "Operation Sequence Number" (CFMS requirement) is entirely generated and controlled by the Validation Programs.
- c) All additions and deletions are done at the beginning of chain Records (rather than at the end) to save computer time.

Remark : In certain cases we test the existence or non existence of elements on a master file.

Details of such tests, in the case of PN and MT, are as follows :

See "DECISION TABLE : INTERFACE GENERATION"

Test Desired	Master		Table		Result
	Exist	≠ Exist	Exist Add.	Exist Delete	
Must Exist (Y)	X			None	OK
		X	X		OK
	All other cases				Error
Must not Exist (Possibility reserved but not yet used)	X			X	OK
		X	None		OK
	All other cases				Error

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One characteristic of this transformation is, that one card may generate several interface records while, elsewhere, several correct cards are cumulated on the same interface record.

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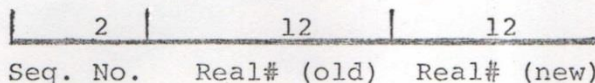
- a) The users indicate only the number of supplementary Machines to be treated.
- b) The "Operation Sequence Number" (CFMS requirement) is entirely generated and controlled by the Validation Programs.
- c) All additions and deletions are done at the beginning of chain Records (rather than at the end) to save computer time.

ERROR PROCESSING

BORD UPDATING

D. Use of Tables

	<u>NAME</u>		<u>USED FOR</u>	<u>INITIAL SIZE</u>
	<u>LEVEL1</u>	<u>LEVEL2</u>		
<u>WORK TABLES</u>	ADSUP		memorising the addition-suppression array kept on MTABM.	ADJUSTABLE
	WKASP		read MTABM in ADSUP array (place freed after use)	1000x 16 bytes = 16000 bytes
	ST1		memorising a whole form in TABRE during processing	30x 100 bytes = 3000 bytes
	RCA1, RCA2,... RCA9	TABRE	redefining of ST1 (details)	same as above
	TABOV		memorising a whole chain (from OVFLMAC) regarding a given machine.	200x 26 bytes = 5200 bytes



DISK TABLE

MTABM : for details see PROG 1.

E. Program interrupt

The program is interrupted in the following severe cases :

- Double Cards
- More than 30 cards in one group
- Presence of error indicators
- Errors in call CFMS-Masters
- Severe errors in call CFMS-Chains
- Errors which ought to be checked in PROG 1 (i.e., upon existence or non existence of Master elements)

For details see PROG 1.

F. Record Format

Error File	100 Validation file Format.
MTABM File	16 Disk Table
INDATA File	333 Interface file Format

G. ERROR List

Refer to the Section entitled : "Error List : PROG 2"



3.44

ERROR PROCESSING

BORD UPDATING

PROG 2 : GENERAL FLOWCHART

\* A form is identified with its Master Identification

ORDER OF TESTS

It is as follows:

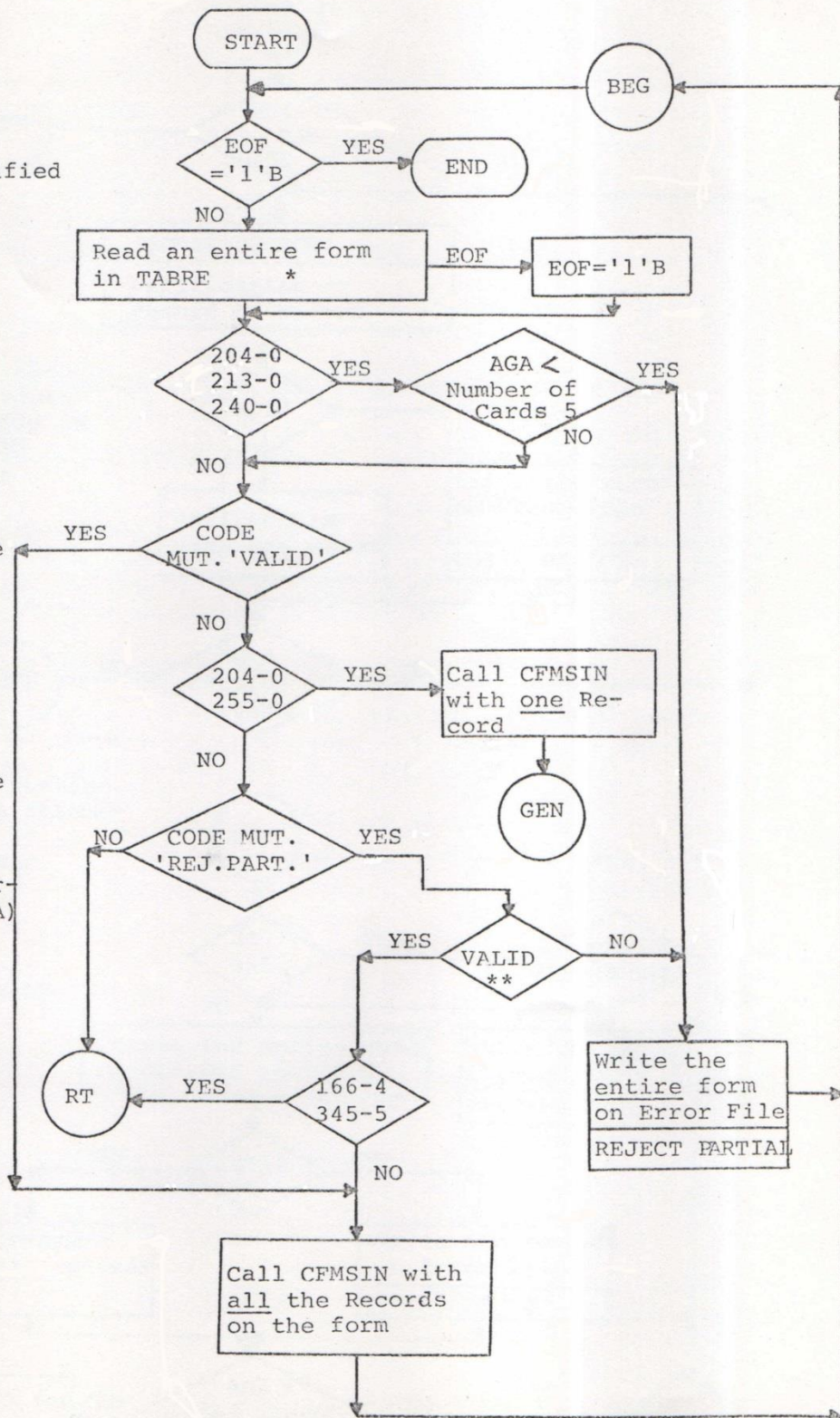
- Valid Codes
- Codes subject to Partial Reject
- Codes subject to Total Reject

(See Decision Table INTERFACE TRANSFORMATION)

CFMSIN :

A special procedure which transforms the valid card records into the standard CFMS Interface Format (INDATA)

\*\* This includes the test on the compatibility of UNIT in MS & MT (for MS additions)

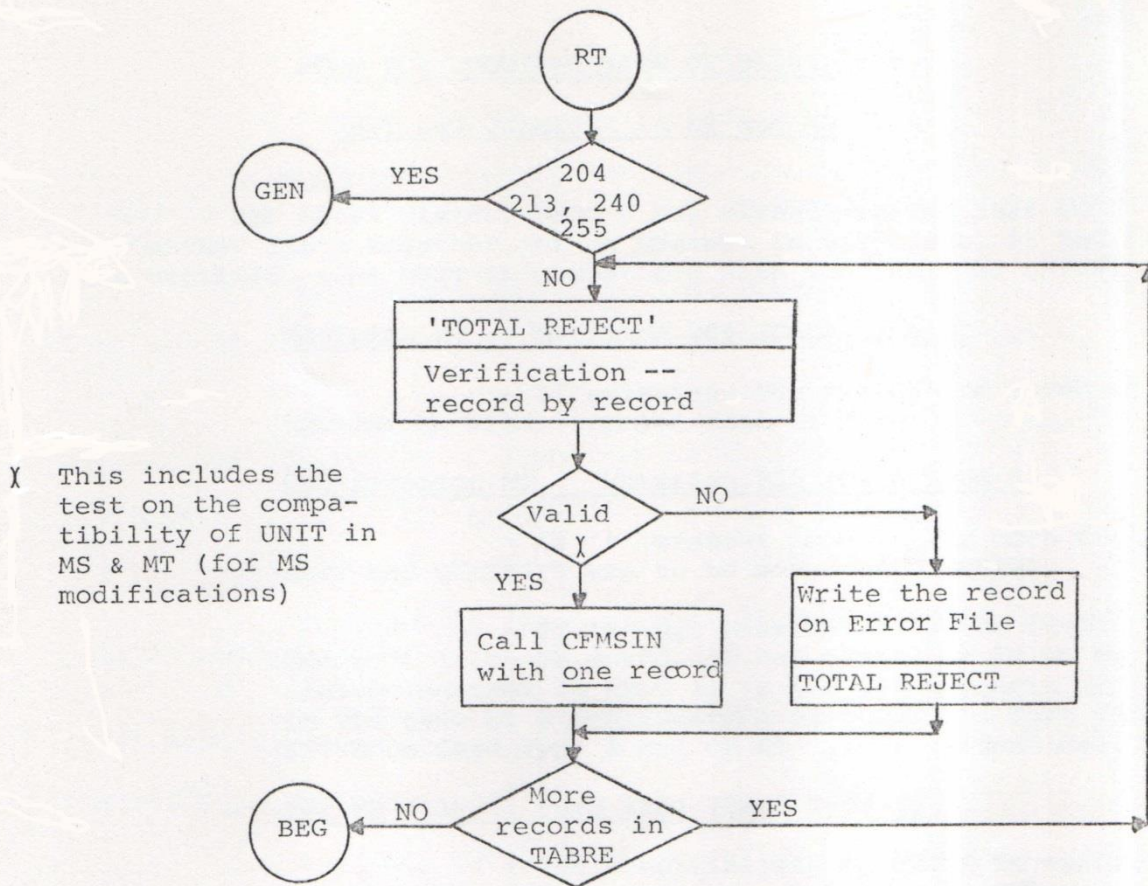


3.45

ERROR PROCESSING

BORD UPDATING

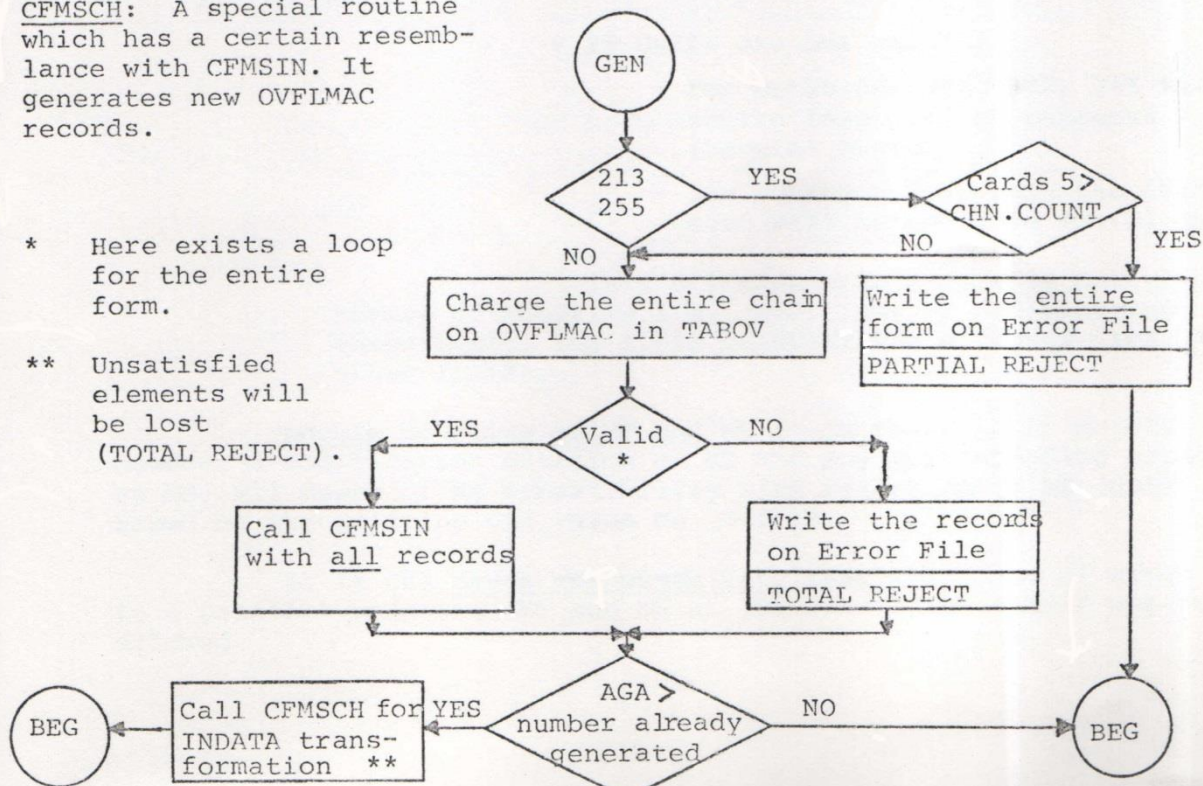
PROG 2



CFMSCH: A special routine which has a certain resemblance with CFMSIN. It generates new OVFLMAC records.

\* Here exists a loop for the entire form.

\*\* Unsatisfied elements will be lost (TOTAL REJECT).



ERROR PROCESSINGBORD UPDATINGPROG 2 : MODIFICATION OF 31.03.73UNIT and QUANTITY in MT and MS

For these fields, PROG 0 had already tested that both must either exist together, or be absent. In all cases, it had also been verified, that UNIT is compatible with the table of UNITS.

- Addition MT : Mutation 204 (Card Type 0)
  - If existing, the fields are moved on INDATA. No other special test is done.
- Modification MT : Mutation 255 (Card Type 0)
  - If '\*' present in col. 75, both fields UNIT and QUANTITY are to be moved onto INDATA.
  - If '\*' not present, only the field QUANTITY is to be moved, if not blank. It is to be remembered that in PROG 1, it had already been verified, in the case of a modification of QUANTITY, that the UNITS on Card Type 0 and on MT file are identical.
- For MS file : Form 4103 (Card Type 5)
  - The compatibility of UNITS is verified on MT file ; or in case of a new machine which has just been added, on an array ADSUP.
  - If UNITS are not equal :
    - for mutations 304, 342, 345 the entire form will be rejected (Partial Reject).
    - for mutation 357, only the incorrect card will be rejected (Total Reject).

This difference in errors is due to the nature of mutation i.e., additions or modification. After these tests, the field QUANTITY can be moved like all other fields.

Double updating of MT and MS : As there is no correlation between a modification mutation on MT and any corresponding mutation on MS, all tests of MS compatibility with reference to MT (UNIT) are based on the existing old value on MT file.

It is the users responsibility that this type of error due to a parallel updating (MT and MS at the same time) should not be allowed.

3.50

ERROR PROCESSING

BORD UPDATING

PROG 3 : LIST VALIDATION FILE

This program can list all the Validation Files, with or without errors, taking into account the corresponding error messages if any.

A. Program-Description : To start with, an array TAB2 is initialized with all the existing error messages and their error-numbers.

The Validation File is then read, record after record and checked for the error number to be used :

E/N FORMAT = 22, E/N BORD ≠ 0 : E/N BORD  
All other cases : E/N FORMAT

A search is now conducted on TAB2 to find the corresponding message, which then is listed.

If this error number is not found in the table, a constant message is used :

"UNBESTIMMT. FEHLER".

The list format has the following configuration :

Error & Other						
Data Field	Indicators	Message	CONS			
80	1	26	1	18	1	5

The value of CONS depends upon the OLDER Indicator. The following possibilities exist :

OLDER	CONS	Comments
9	*LOST	Total Reject
*	-OLD-	The record was already on error file
∅,1,2	-SAVE	Partial Reject

ERROR PROCESSING

BORD UPDATING

B. Use of Tables

	<u>NAME</u>		<u>USED FOR</u>	<u>INITIAL SIZE</u>
<u>WORK TABLES</u>	TAB		memorising error-numbers (in N) and messages (in M) with a view to listing these errors	300x (2+18)bytes = 6000 bytes
<u>CONSTANT TABLES</u>	TAB2		memorising error-numbers and messages char-gered by initialization of the array.	300x21 bytes = 6300 bytes
	TAB1	N1 M1	redefining of TAB2	same as above 300x (3+18)

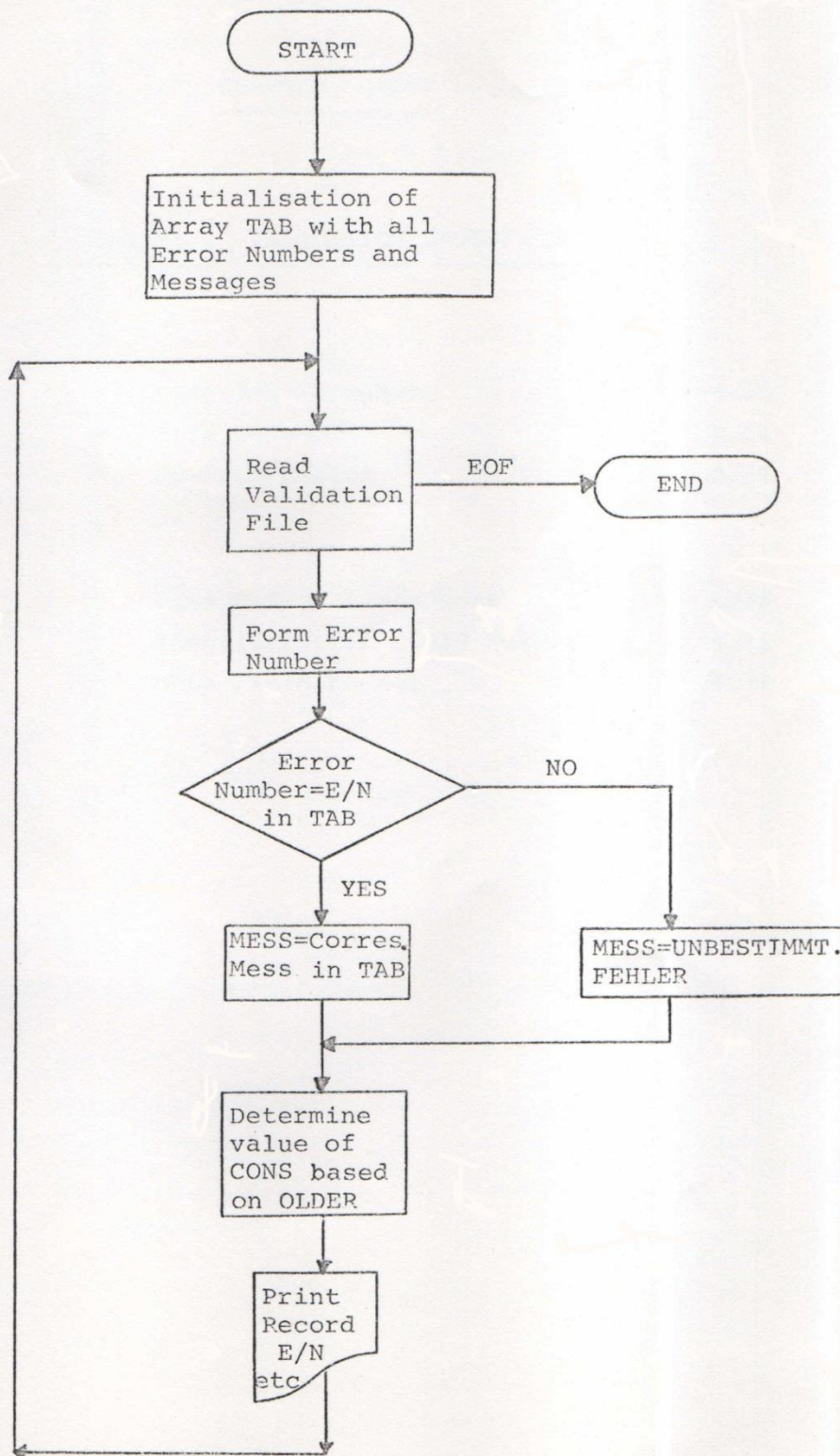
C. Record Format

Error File (Input)	100	Validation file Format
Error List	132	Refer to the configuration given above.

D. Error List

- Error Number not found in the table  
"UNBESTIMMT. FEHLER"
- Error Number = 0  
The record is considered as not marked.
- For details of other Error Numbers :  
Refer to ANNEX 3.

PROG 3 : GENERAL FLOWCHART



3.42

ERROR PROCESSING

BORD UPDATING

- In the first Section : For mutations 204, 240 and 213 if the number of cards to be treated (AGA on Card 0) is smaller than the number of cards 5 physically present, the whole form will be rejected.

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