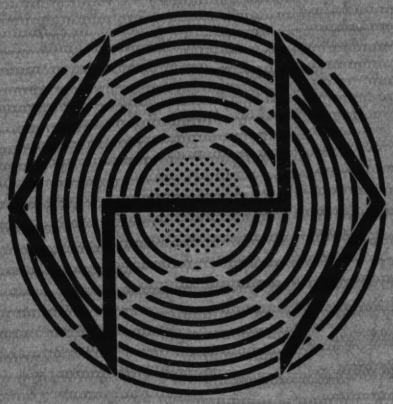

A/S REGNECENTRALEN

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Abstract: System Specifications for a RC 3600 Personnel Control System at KGHM Zakkady Gormicze Polkowice, Poland.

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1. INTRODUCTION

1.1 General

This document is a specification of a Personnel Control System (PCS) for use in KGHM Zakkady Gormicze POLKOWICE in Poland.

The operational procedures of the PCS follow the specification stated in the contract between A/S REGNECENTRALEN, Denmark and METRONEX, Foreign Trade Enterprise, Poland (Agreement No. 31-322/4-0859 dated 11-12-1974). Modifications and extentions have been agreed upon during preparation of this system specification, and have been included in the edition.

1.2 Equipment Configuration

The main components are 1) a RC 3600 central unit with 64 K bytes core memory, 2) a disc store with 2.4 m bytes, 3) a magnetic tape station, 4) an asynchronous multiplexer and 5) a card reader.

Two visual display units with keyboards are employed for the real-time man-machine communication between the system supervisory personal and the PCS.

Reports, commands and other events of interest are recorded on a report printer.

Furthermore a hardcopy printer for operator command output is included.

8 badge reader terminals are employed for the person registration.

The multiplexer channel allocations are shown in figure 1.1.

A list of the proposed hardware items and their main specifications is given in appendix D.

The badge reader and the badges are described in:

RC870, BADGE READER
RCSL 52-AA331, edited August 1975.

1.3 Operational Characteristics

Before the system is taken into normal operation it must be supplied with some fixed information of each person. This information contains among other things an identification code, the name and the position in the company organization.

Furthermore the system is supplied with information of the expected movement and work position of each person.

For the real time registration of the actual movement of persons a number of badge reader terminals are installed at the territory of the company.

When a badge holding the identification code of a person is inserted in a badge reader, the system will registrate date, time, and place of stay for that person.

On the basis of the above mentioned input to the system the PCS performs the following basic functions:

- checking the movement of persons against the preplanned schedule and timetables with automatic reporting of all inappropriate time and sequence registrations.
- output of a number of reports concerning attendance, late arrival, work time etc., at stated time and on request.
- dynamic changing of system parameters and information concerning persons, reports, badge reader terminals, and printers.
- output of surveys holding information of persons, departments, reports, terminals, etc.
- generation of work time data written on magnetic tape to be processed by the personnel and payroll systems on an Odra 1305 computer.

The 2 visual display units (vdu's) with its keyboard are used for entering operator commands into the system. The output from a command can be presentated either on the display or on one of the printers.

All alarm situations due to hardware errors are logged on the operator console.

MULTIPLEXER CHANNEL NO.	SPEED, BPS	INPUT-OUTPUT	TERMINAL NO.	TERMINAL STATION	MULTIPLEXER CHANNEL NO.	SPEED, BPS	INPUT-OUTPUT	TERMINAL NO.	TERMINAL STATION
0		I	1	BRT, Gate 1	16		I	9	VDU 1, Center
1		I	2	BRT, Gate 1	17		I	10	VDU 2, Center
2		I	3	BRT, Gate 2	18				
3		I	4	BRT, Gate 2	19				
	1200					2400			
4		I	5	BRT, Gate 3	20				
5		I	6	BRT, Gate 3	21				
6		I	7	BRT, Gate 4	22				
7		I	8	BRT, Gate 4	23				
8		O	1	BRT, Gate 1	24		O	9	VDU 1, Center
9		O	2	BRT, Gate 1	25		O	10	VDU 2, Center
10		O	3	BRT, Gate 2	26				
11		O	4	BRT, Gate 2	27				
	1200					2400			
12		O	5	BRT, Gate 3	28				
13		O	6	BRT, Gate 3	29				
14		O	7	BRT, Gate 4	30				
15		O	8	BRT, Gate 4	31		O	16	PRT 1, Center

		O	0	Report PRT

BRT = Badge Reader Terminal
VDU = Visual Display Unit
PRT = Printer

Figure 1.1 Multiplexer Channel Allocations.

2. DEFINITIONS

This chapter describes some basic components in the system used in the remaining part of the specification.

2.1 Territories and Gates

The system controls the movement of persons in and out of a given area, hereafter called the total area.

With reference to control the movement of persons inside the total area, this area is divided into a number of subareas, hereafter called territories.

Every point inside the total area belongs to one and only one territory. The area outside the total area is regarded as a special territory.

All movements between the territories take place through controlled gates. To ensure an effective control these gates are orientated, that means that passage in only one direction must be allowed. A gate is defined by two territories, namely the territory you leave and the territory to which you arrive, when you pass the gate.

The passage through a gate is controlled by one or more badge readers. A badge reader is characterized by its terminal number corresponding to the associated multiplexor channels and the gate, where it is placed.

The gate number associated to a badge reader can be changed dynamically by the operator, that means it is possible to move a badge reader from one gate to another.

In the actual system, version 1, the total area comprises the central region. This is divided into 2 territories, the "surface" and the "underground". The area outside the total area comprises the territory "outside".

In the actual system 4 gates are used. The association of the gates to the 3 territories is shown in the following table:

Gate number	From territory	To territory
1	outside	surface
2	surface	underground
3	underground	surface
4	surface	outside

As the structure of gates and territories are very simple in the first version of the system, the PCS uses the number of the last passed gate to decide in which territory a person is staying (the "To territory" in the table).

Figure 2.1 shows the position of the badge readers in the central region.

2.2 Employees and Guests

Each employee is given a factory number and a person number. This identification code has to be punched on the badge of the employee (see chapter 5).

The PCS distinguishes between employees from the parent factory and from foreign factories. A factory is divided into departments, each of which comprising 1 to 250 persons.

The employees are divided into 4 cathegories according to the kind of work:

1	worker, underground
2	worker, surface
3	clerk, underground
4	clerk, surface.

Furthermore a control number is specified for each employee. This number is used in connection with the report generation and divides the employees in the following groups:

1. top management persons
2. surface and underground clerks (department managers)
3. administration staff
4. surface workers
5. underground workers

Guests are registrated by using special guest badges with the factory number: 000.

2.3 Work Period and Time Table

A work period number is specified for each employee. This number describes the possible work periods (shifts) during a week as sketched in the following survey:

1.	work period monday - friday:	07 - 15
	- - saturday:	07 - 13
	- - sunday:	free
	Shift number	1
2.	work period monday - friday:	06 - 14/14 - 22
	- - saturday:	06 - 12/12 - 18
	- - sunday:	free
	Shift number	1/2
3.	work periode all weekdays:	06 - 14/14 - 22/22 - 06
	Shift number	1/2/3

Only approximate times are given in this survey. The system is weekly supplied with the exact information about the work shift and the planned arrival and leaving time. For underground workers these times are valid for passing through gate 2 and 3 (the underground territory) and for all other employees for passing through gate 1 and 4 (the surface territory).

Finally a level number is specified for each underground worker corresponding to the level in the mines where the worker is planned to stay.

2.4 Numbering Formats

The identification code of an employee or a guest has the format:

aaa bcdefg		
aaa	:	factory number, range 000 - 999
bcdef	:	person number, first part, range 00001 - 99999
g	:	person number, check digit, range 0 - 9

The check digit, g, is calculated from the first part of the person number as follows:

g = 11 - ((b * 1 + c * 2 + d * 4 + e * 8 + f * 16) modulo 11)

This method naturally means that all numbers giving values of the check digit larger than 9 cannot be used.

A department is identified by the department code with the format:

abbbb		
a	:	1 numeric
bbbb	:	4 alpahnumerics

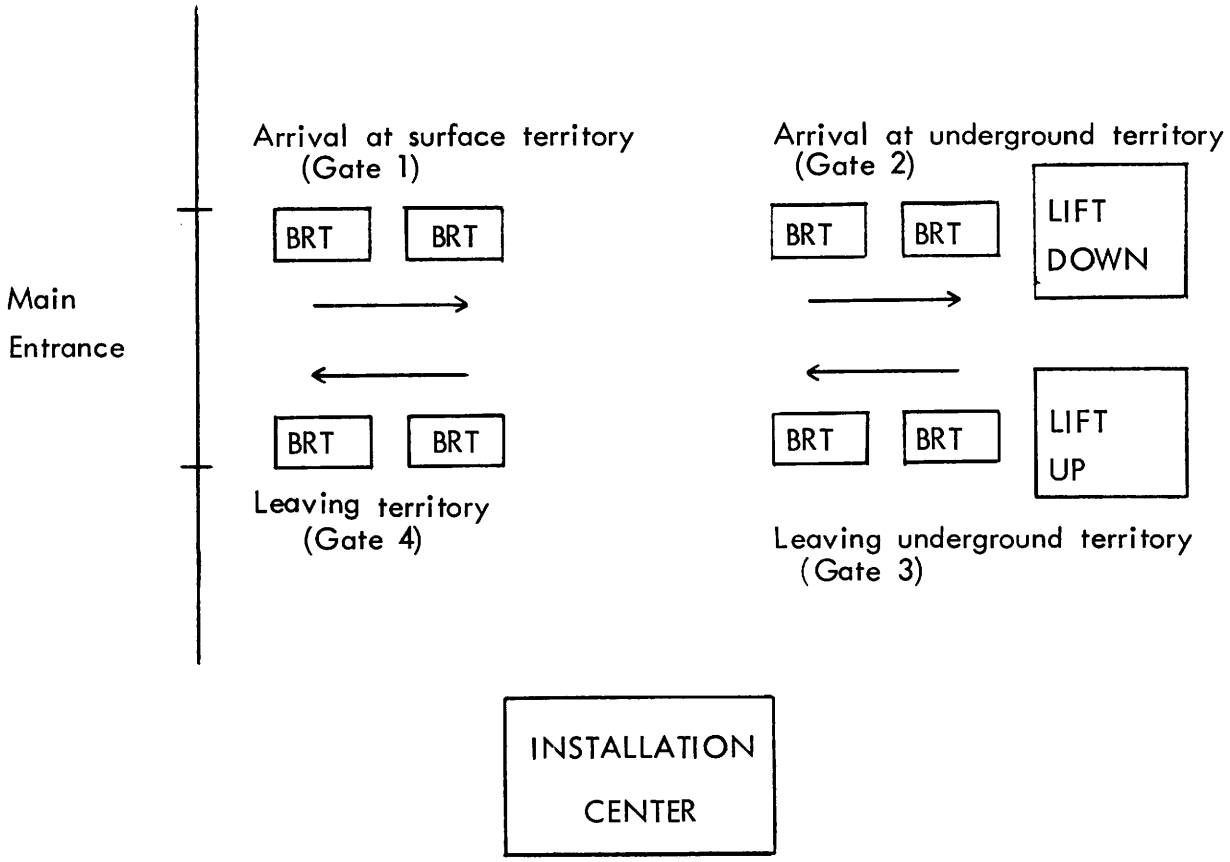


Figure 2.1 Badge Reader Terminal Positions in Central Region.

3. SYSTEM INITIALIZATION

Before the system is taken into normal operation the fixed information of each person and the preplanned timetable have to be input to the system from the card reader. For this purpose the commands INIT and TIMET are entered from the keyboard (see chapter 8 and 11).

3.1 Input of Fixed Person Data

The card deck has to be built up as follows:

Job card 1
Factory card, guests
Department card, guests
Guest cards sorted in ascending person number order

Factory card, parent factory
Department card, first department in the factory
Person cards sorted in ascending person number order
Department card, second department in the factory
Person cards sorted in ascending person number order
.....
Department card, last department in the factory
Person cards sorted in ascending person number order

Factory card, first foreign factory
Department card
Person cards
.....
.....
Factory card, last foreign factory
Department card
Person cards
.....
Finis card

The card formats are described in appendix A.

It is an absolute demand on input of the fixed person data that

a) the input is performed in one run (one call of command INIT)

b) the described sorting order is observed.

3.2 Input of Timetable

The card deck has to be built up as follows:

Job card 2
Time cards
Finis card

The input of the timetable can be divided into more runs if required (more calls of command TIMET).

The card formats are described in appendix A.

4. SYSTEM TABLES AND FILES

The implementation of the PCS involves a number of tables participating in the exact system definitions. The tables constitute the operational parameters of the system, object of modifications through system control work, see chapter 7.

The tables and the data files involving person registration and reporting are described in the following sections.

4.1 Report Table

The PCS holds a Report Table with an entry for each automatically generated report.

An entry holds characteristics about the report as report number, generation time, participating criteria and actual state of the report.

The participating criteria normally concerns time limits in relation to planned passing through a gate and is only relevant to certain reports.

The contents of each entry are described in chapter 6.

Figure 4.1 gives a detailed format description of a Report Table entry.

4.2 Badge Terminal Table

The PCS holds a Badge Terminal Table with an entry for each badge reader terminal connected to the multiplexer.

An entry holds characteristics about each badge terminal as terminal number, gate number and actual state of the terminal.

The multiplexer channels corresponding to the terminal numbers and the initialization values of the gate numbers are given in figure 1.2. Figure 4.2 gives a detailed description of a Badge Terminal Tabel entry.

4.3 Printer Table

The PCS holds a Printer Table with an entry for each printer.

An entry holds characteristics about each printer as terminal number, number of lines per page, and actual state of the printer.

The parameter number of lines per page is utilized by the report programs to generate page shift according to the used paper format.

Figure 4.3 gives a detailed format description of a Printer Table entry.

4.4 Department File

The PCS holds a Department File with a record for each department specified in the initialization of the system.

A record holds characteristics about the department as factory number, department code, actual and maximum number of persons and report code.

Figure 4.4 gives a detailed format description of a Department File record.

4.5 Person File

The PCS holds a Person File with a record for each person to be registrated by the system.

A record holds characteristics of 3 types about each person: fixed information, planned information and real time information.

The fixed information includes identification code, name and other characteristics, which very seldom are to be changed. This information can only be updated by deleting the record and then insert it again with the updated information by entering the command PERS (section 8.6.3).

The planned information is taken from the time table input to the system one time a week.

The real time information comprises the movement through the different gates, worktimes, reason of absence and sought indicator. The automatical updating of this information is described in chapter 5.

By entering the command SET (section 8.5.1) the operator is able to change the contents of every field holding planned or real time information.

One auxiliary file is used in connection with the Person File to facilitate random access to records specified by factory number and department or by factory number and person number.

Figure 4.5 gives a detailed format description of a Person File record.

4.6 Report Files

The PCS holds a file for each automatically generated report.

A report file contains the latest version of the report, and is used when the report is requested from one of the operators.

4.7 Printer Files

The PCS holds a file for each printer connected to the system.

All output to a printer is spooled on the corresponding printer file, currently emptied by the printer program.

4.8 Badge File

The Badge File is used for temporary saving of the input received from the badge terminals before the proper Person File opdating takes place. This feature ensures that the system always is ready for badge receiving.

4.9 Checkpoint File

During normal operation the system will create a checkpoint on the disc store (the Checkpoint File) every 15th second, comprising all operational parameters, among other things the system tables. In case of a serious hardware failure or if the system has been closed down by the operator, the system may restart from the latest checkpoint, i.e. the system is initialized with the parameters stored in the checkpoint.

A Report Table entry holds the fields <report no.> <generation time> <limit 1> <limit 2> <state>

The contents of each field are described below.

Field	Contents
<report no.>	The report number identifying the report (1-6).
<generation time>	Time for generation of the report specified in minutes in relation to a shift.
<limit 1>	Time limit no. 1, the meaning is dependent on the actual report. The field is 0 if not used.
<limit 2>	Time limit no. 2, the meaning is dependent on the actual report. The field is 0 if not used.
<state>	The state as to the report generation. 0: no report generated 1: generation takes place just now 2: report generated in current shift 3: report generated in previous shift 4: skipping report generation.

Figure 4.1. Report Table Entry Format.

A Badge Terminal Table entry holds the fields <terminal no.> <gate number> <state>

The contents of each field are described below.

Field	Contents
<terminal no.>	The terminal number of the actual badge reader terminal, compare with figure 1.1.
<gate no.>	Number of the associated gate. 1: arrival at the territory 2: going down in the mines. 3: coming up from the mines. 4: leaving the territory.
<state>	Terminal state as to the transmission. 0: out of service. >=1: in service 1. badge received in the last 10 second period. 2. badge receiving takes place in this very moment. 3. no badge received in the last 10 second period.

Figure 4.2. Badge Terminal Table Entry Format.

A Printer Table entry holds the fields <terminal no.> <lines per page> <state>.

The contents of each field are described below.

Field	Contents
<terminal no.>	The terminal number of the printer, compare with figure 1.1.
<lines per page>	Lines per page according to the used paper format.
<state>	Printer state. 0: out of service 1: in service

Figure 4.3. Printer Table Entry Format

A Department File record holds the fields <factory no.> <department> <total> <max> <report code>

The contents of each field are described below.

Field	Contents
<factory no.>	The number of the factory, to which the department belongs.
<department>	Department code.
<total>	The actual number of persons in the department.
<max>	The maximum number of persons. Further details concerning this field are found in section 8.6.
<report code>	A number describing a possible participation in report no. 2 (see section 6.2): Attendance Report for selected departments. 0: not included. 1: included in the automatical version. 2: included in the operator requested version. 3: included in both versions.

Figure 4.4 Department File Record

A Person File record holds a number of fields divided into 3 cathegories:

fixed information in field no. 1 - 9
planned information in field no. 10 - 14
real time information in field no. 15 - 24

The number, name and contents of each field are described below.

No.	Field	Contents
1	<factory no.>	Factory number.
2	<person no.>	Person number.
3	<name>	Name of person.
4	<region>	Region code. PG: central region PZ: west region (future version) PW: east region (future version)
5	<department>	Department code.
6	<kind>	Kind of work. 1: underground worker 2: surface worker 3: underground clerk 4: surface clerk
7	<control>	Control number used in the report generation. 1: top management 2: department managers 3: administration staff 4: surface workers 5: underground workers
8	<tlf>	Telephone number (4 digits).
9	<blood>	Blood type (3 alphanumerics, e.g. + AB).

Figure 4.5 Person File Record Format (part 1).

No.	Field	Contents
10	<level>	Number of level to work down in the mines. Underground employees: 1 - 3 Surface employees: 0
11	<shift>	Shift number (0, 1, 2 or 3).
12	<workp>	Work period number (1, 2 or 3).
13	<plan. in time>	Planned arrivel time, measured as number of minutes in relation to the beginning of the day.
14	<plan. out time>	Planned leaving time, measured as field 13.
15	<date>	Number of arrival date (1 - 366) at the territory (gate 1).
16	<in time>	Real arrival time at the territory (gate 1), measured as field 13.
17	<down time>	Real going down time (gate 2), measured as field 13.
18	<up time>	Real coming up time (gate 3), measured as field 13.
19	<out time>	Real leaving time (gate 4), measured as field 13.
20	<gate>	Number of last passed gate.
21	<absent>	Reason of possible absence. 0: normal value 1-12: reason of absence (details in section 6.1).
22	<sought>	Indicator for a sought person. 0: normal value 1: sought person
23	<workt>	Total worktime in minutes.
24	<worku>	Underground worktime in minutes.

Figure 4.5. Person File Record Format (part 2).

5. FORMAT AND PROCESSING OF BADGES

For registration purposes a number of badge reader terminals are included in the system. Each employee is provided with a badge, on which his identification code is punched (see chapter 2).

When an employee is passing a gate, the badge has to be inserted in one of the corresponding readers, and the PCS will registrate the identification code, gate number, date, and time.

The reader and the badges are described in the document:

RC 870, BADGE READER
RCSL 52-AA331, edited August 1975.

5.1 Badge Format

The identification code has to be punched on the badge card with the following format (see figure 6.1 in the above mentioned document).

column 1 - 3	factory number
column 4 - 9	person number
column 10 - 12	not used

5.2 Badge Processing

When a badge is received the check digit control (see section 2.4) is performed. If an error is still detected after 3 successive attempts, the red indicator will be lit for 1 second and the badge ejected.

When the badge is accepted, the green indicator will be lit for 0.5 second, the badge is ejected and the following actions are performed:

a) If the identified person cannot be found in the Person File, an alarm printout is given on the report printer (see section 9.2), and no further processing takes place.

b) If the gate number is different from the expected gate number for the actual person (missed checkpoint), an alarm printout is given on the report printer. The printout is suppressed if the system mode is equal to 1 (see paragraph 8.5.7).

c) If gate number 1 is passed (arrival at the surface territory), the field <date> is updated and the fields <downtime>, <uptime>, and <outtime> are assigned to -1, printed as a dash (-) in reports and surveys.

The same action is performed if the person is expected in gate number 1, but is actually passing gate number 2, 3, or 4 (missed checkpoint).

d) The field <gate> and the corresponding time field in the Person File record are updated.

e) If the person is sought, an alarm printout is given on the report printer and the field <sought> is assigned to 0.

f) The field <workt>, total work time, is updated dependent on the gate number:

gate 1 - First time the person is passing this gate in the current shift the work time is assigned to 0. The same action is performed if the person is expected in gate 1, but is actually passing another gate.

gate 2 - No action.

gate 3 - No action.

gate 4 - The total work time is increased by the difference between <outtime> and <intime>. If gate 1 is missed the planned arrival time is used instead of <intime>.

g) The field <worku>, underground work time, is updated dependent on the gate number:

gate 1 - As described in item f) above.

gate 2 - No action.

gate 3 - The underground work time is increased by the difference between <uptime> and <downtime>. If gate 2 is missed the planned arrival time is used instead of <downtime>.

gate 4 - Normally no action.
If gate 3 is missed and the person belongs to one of the categories underground worker or underground clerk (kind of word: 1 or 3) the underground work time is increased by the difference between <outtime> and <downtime>.

6. REPORTS

On the basis of the fixed, planned and real time information in the Person File after each shift the PCS automatically generates a number of reports concerning attendance, work time, movements of persons not in accordance with the plan, etc.

The reports (numbered from 1 to 6) are generated at the times stated in the report table and are written in the report files and on the report printer.

Besides the automatically generated reports some other attendance reports (numbered from 10 to 12) can be requested from an operator on his display or on one of the printers.

An operator can also request one of the automatical reports. With exception of report no. 2 the PCS in this case prints the last generated version.

The general format of the reports is described in the following points:

- A report is initiated and terminated with 1 page shift. On the VDU a page shift is replaced by 3 line feeds.

- All pages are numbered. The page shift are controlled by the parameter lines per page in the printer table.

- Time fields in a Person File record having undefined values (see section 5.2) are printed as a dash (-).

- All the reports holding list of persons are divided into groups, each of which comprising a department. Page shift and a total report heading are generated for each new department. Furthermore the persons in a department are listed in ascending person number order (compare with chapter 3).

For persons having the work period number equal to 1 or 2 (see section 2.3) the PCS in its first version does not report irregular movement on Saturdays. The same group of persons are omitted from the reports concerning shift 2 (only work period 1) and shift 3 on Saturdays and all the shifts on Sundays.

In report 1, 3, 4, 5, and 6 only persons with the shift number equal to the report shift number will be taken into consideration in the report generation.

The following sections describe each individual report, including the initial contents of the corresponding Report Table entry.

The state is for all the reports initialized to 4, meaning skipping report generation. Changing of parameters in the report table and start/stop of the report generation are described in section 8.5.3.

6.1 Synthetical Attendance Report

Report number:	1
Generation time:	60
Limit 1:	0
Limit 2:	0

The automatically generated report is only printed one time a day (60 min. after the third shift) and concerns the previous day. The operator requested version concerns the previous shift.

The report holds for each employee cathegory (kind of work) the number of expected, present and absent persons. The number of absent persons is divided into 12 groups corresponding to the different reasons for absence. Furthermore the total for the 4 cathegories are specified.

The report is generated for each factory registrated in the system.

The layout is shown in figure 6.1.

6.2 Attendance Report on Selected Departments

Report number:	2
Generation time:	15
Limit 1:	0
Limit 2:	0

The report concerns the current shift.

The report holds a list of all present persons from a selected number of departments accroding to the department report code (see figure 4.4, Department File Record.

Number, name, real arrival time and real going down time are specified for each person.

If a person planned to be absent is present, the value of the reason for absence is printed in the right margin.

Furthermore the following numbers are specified for each department:

- the total of present persons
- the total of present workers (kind of work 1 or 2)
- the number of planned absent persons (reason for absence 1 - 11)
- the number of not planned absent persons (reason for absence 0 or 12)

The layout is shown in figure 6.2.

6.3 Late Arrival List of Surface Employees

Report number:	3
Generation time:	180
Limit 1:	10
Limit 2:	0

When this report is generated, the PCS changes the value of reason for absence from 0 to 12 (absent of unknown reasons) for all expected persons, which have not yet arrived.

The report concerns the current shift.

The report holds a list of the employees with control number 2 and 3 (the department managers and the administration staff) being later in relation to the plan than specified by <limit 1>.

Person number, name, planned arrival time and real arrival time are specified for each employee.

The value of reason for absence is printed in the right margin in 2 cases:

1. the person has not yet arrived,
2. the person is late, but is planned to be absent.

The layout is shown in figure 6.3.

6.4 Work Time Report

Report number:	4
Generation time:	60
Limit 1:	0
Limit 2:	0

The report concerns the previous shift.

The report holds a list of all expected persons.

For each person present at the previous shift the report specifies number, name, arrival time, leaving time, accumulated underground and total work time in minutes (compare with section 5.2).

For underground workers (kind of work: 1) the arrival and leaving times apply to the passing through gate 2 and 3 (the mines) and for all other persons the passing through gate 1 and 4 (the surface territory).

For absent persons number, name and the value of reason for absence are specified.

The total work time is for persons with control number 1 or 2 (department managers) assigned to a fixed size, regardless of the real registrated work time:

Monday - Friday:	480 min. (8 hours)
Saturday:	360 min. (6 hours)

The layout is shown in figure 6.4.

6.5 Irregular Movement List

Report number:	5
Generation time:	60
Limit 1:	10
Limit 2:	10

The report concerns the previous shift.

The report holds a list of the employees arriving/leaving earlier in relation to the planned time than specified by <limit 1> or arriving/leaving later in relation to the planned time than specified by <limit 2>.

For underground workers (kind of word = 1) the times apply to the passing through gate 2 and 3 (the mines) and for all other persons the passing through gate 1 and 4 (the surface territory).

Person number, name, planned and real arrival time, planned and real leaving time are specified for each employee.

The layout is shown in figure 6.5.

6.6 Irregular Movement List of Surface Workers

Report number:	6
Generation time:	120
Limit 1:	5
Limit 2:	60

The report concerns the previous shift.

The report holds a list of the surface workers (control number 4) leaving the territory earlier or later in relation to the planned time than specified by <limit 1> and <limit 2>.

Person number, name, planned and real arrival time, planned and real leaving time are specified for each employee.

Furthermore the total number of listed persons is specified for each department. The layout is shown in figure 6.6.

6.10 Synthetical Report on Underground Totals

Report number: 10

The report concerns only persons present underground.

The report holds for each region the number of present persons from the parent factory and the foreign factories, the number of guests and the total of present persons.

The layout is shown in figure 6.10.

6.11 Attendance Report on Underground Employees

Report number: 10

The report holds a list of all underground employees present from a specified department.

Person number, name, real going down time and planned level of staying are specified for each employee.

Furthermore the total number of listed persons is specified.

The layout is shown in figure 6.11.

6.12 Attendance Report on Underground Guests

Report number: 12

The report holds a list of all underground guests.

Region, number and registrated going down time are specified for each guest.

Furthermore the total number of listed guests is specified.

The layout is shown in figure 6.12.

RAPORT 1 001

SYNTETYCZNY DOBOWY/ZMIANOWY RAPORT OBECNOSCI W ZAKLADZIE
(ZMIANA 9) YY.MM.DD HH.MM

ZAKLAD 999	PRACOWNICY DOŁOWI FIZYCZNI ILOSC	PCT	UMYSLOWI ILOSC	PCT	PRACOWNICY POWIERW. FIZYCZNI ILOSC	PCT	UMYSLOWI ILOSC	PCT	OGOLEM ILOSC	PCT
STAN EWIDENCYJNY	9999	99.9	Z999	Z9.9	9999	99.9	Z999	z9.9	9999	100.0
W TYM:										
OBECNI	Z999	99.9	Z999	Z9.9	Z999	Z9.9	Z999	Z9.9	9999	99.9
NIEOBECNI LACZNIE	ZZZ9	Z9.9	Z99	Z9.9	ZZZ9	Z9.9	ZZ9	Z9.9	ZZZ9	Z9.9
W TYM:										
1 - URLOPY WYP.	ZZ9	Z9.9	Z79	Z9.9	ZZ9	Z9.9	ZZ9	Z9.9	ZZ9	Z9.9
2 OKOL.	Z79	Z9.9	Z99	Z9.9	ZZ9	Z9.9	ZZ9	Z9.9	ZZ9	Z9.9
3 SZKOL.	ZZ9	Z9.9	Z99	Z9.9	ZZ9	Z9.9	ZZ9	Z9.9	Z79	Z9.9
4 MACIERZ.	ZZ9	Z9.9	Z99	Z9.9	ZZ9	Z9.9	ZZ9	Z9.9	ZZ9	Z9.9
5 BEZPL.	ZZ9	Z9.9	Z99	Z9.9	ZZ9	Z9.9	ZZ9	Z9.9	ZZ9	Z9.9
6 - DELEGACJE	ZZ9	Z9.9	Z99	Z9.9	ZZ9	Z9.9	ZZ9	Z9.9	ZZ9	Z9.9
7 - ROZLAKI	ZZ9	Z9.9	Z99	Z9.9	ZZ9	Z9.9	ZZ9	Z9.9	ZZ9	Z9.9
8 - KURSY	ZZ9	Z9.9	Z99	Z9.9	ZZ9	Z9.9	ZZ9	Z9.9	ZZ9	Z9.9
9 - CHOROBY	ZZ9	Z9.9	Z99	Z9.9	ZZ9	Z9.9	ZZ9	Z9.9	ZZ9	Z9.9
10 - NIEOB-SYST.4BR.	ZZ9	Z9.9	Z99	Z9.9	ZZ9	Z9.9	ZZ9	Z9.9	ZZ9	Z9.9
11 - NIEOB.USPR.	ZZ9	Z9.9	Z99	Z9.9	ZZ9	Z9.9	ZZ9	Z9.9	ZZ9	Z9.9
12 - NIEOB.NIEUSPR.	ZZ9	Z9.9	Z99	Z9.9	ZZ9	Z9.9	ZZ9	Z9.9	ZZ9	Z9.9

Figure 6.1. Synthetical Attendance Report.

```
RAPORT 2                                                          001

IMIENNY WYKAZ PRACOWNIKOW OBECNYCH W ZAKLADZIE
ZMIANA 9                                              YY.MM.DD HH.MM

ZAKLAD 999  REJON XX  KOMORKA ORGANIZACYJNA 9XXXX

NR EWID. NAZWISKO IMIE                          CZAS WE   CZAS ZJAZDU
-----------------------------------------------------------------------
999999   xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx       99.99      99.99

999999   xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx       99.99      99.99          *99
-----------------------------------------------------------------------

RAZEM OBECNYCH       999    WTYM PRAC.FIZ.  999

NIEOBECNI PLANOWANI  999    NIE PLANOWANI   999
```

Figure 6.2. Attendance Report on Selected Departments.

RAPORT 3 001

WYKAZ PRAC. PUN. SPÓŹNIONYCH DO PRACY
ZMIANA 9 YY.MM.DD HH.MM

ZAKŁAD 999 REJON XX KOMÓRKA ORGANIZACYJNA 9XXXX

NR EWID.	NAZWISKO IMIĘ	CZAS WE PLAN.	CZAS WE RZECZ.	
999999	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	99.99	99.99	
999999	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	99.99	99.99	x99
RAZEM	999			

Figure 6.3. Late Arrival List of Surface Employees.

```
RAPORT 4                                                          001

RAPORT ZALICZONEGO CZASU PRACY
ZMIANA 9                                              YY.MM.DD HH.MM

ZAKLAD 999  REJON XX  KOMORKA ORGANIZACYJNA 9XXXX

NR EWID. NAZWISKO IMIE                          CZAS WE  CZAS WY  CZAS PRACY
                                                                  DOL.  ZAL.
-----------------------------------------------------------------------------
999999   xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx       99.99    99.99    999   999

999999   xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx                                *99

999999   xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx       99.99    99.99    999   999
-----------------------------------------------------------------------------
RAZEM 999
```

Figure 6.4. Work Time Report.

RAPORT 5 001

WYKAZ OSOB KTORE ZJECHALY-WYJECHALY Z DOLU NIEZGODNIE Z HARMONOGRAMEM
ZMIANA 9 YY.MM.DD HH.MM

ZAKLAD 999 REJON XX KOMORKA ORGANIZACYJNA 9XXXX

NR EWID.	NAZWISKO IMIE	CZAS WE PLAN.	CZAS WE RZECZ.	CZAS WY PLAN.	CZAS WY RZECZ.
999999	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	99.99	99.99	99.99	99.99
999999	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	99.99	99.99	99.99	99.99

RAZEM 999

Figure 6.5. Irregular Movement List.

RAPORT 6 001

WYKAZ OSOB OBECNYCH W PRACY NIEZGODNIE Z PLANEM (POWIERZCHNIA)
ZMIANA 9

ZAKLAD 999 REJON XX KOMORKA ORGANIZACYJNA 9XXXX

NR EWID.	NAZWISKO IMIE	CZAS WE PLAN.	CZAS WE RZECZ.	CZAS WY PLAN.	CZAS WY RZECZ.
999999	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	99.99	99.99	99.99	99.99
999999	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	99.99	99.99	99.99	99.99

RAZEM 999

Figure 6.6. Irregular Movement List of Surface Workers.

Reserved for Future Reports.

Figure 6.7. - 6.9.

RAPORT 10 001

SYNTETYCZNY RAPORT O STANIE ZALOGI NA DOLE YY.MM.DD HH.MM

REJON	ZG.POLKOWICE	INNE ZAKLADY	GOSGIE	OGOLEM
PG	Z999	ZZZ9	ZZ9	Z999

Figure 6.10. Synthetical Report on Underground Totals.

```
RAPORT 11                                                          001

RAPORT OBECNOSCI NA DOLE                                  YY.MM.DD HH.MM

ZAKLAD 999  REJON XX  KOMORKA ORGANIZACYJNA 9XXXX

NR EWID. NAZWISKO IMIE                          CZAS ZJAZDU  POZIOM
-------------------------------------------------------------------
999999   xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx    99.99        9



999999   xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx    99.99        9
-------------------------------------------------------------------
RAZEM  999
```

Figure 6.11. Attendance Report on Underground Employees.

RAPORT 12 001

WYKAZ NUMEROW EWIDENCYJNYCH GOSCINNYCH-POBYT NA DOLE YY.MM.DD HH.MM

REJON	NR EWID.	CZAS ZJAZDU
PG	999999	99.99
PG	999999	99.99
RAZEM 999		

Figure 6.12. Attendance Report on Underground Guests.

7. SYSTEM SUPERVISION AND CONTROL

The operating staff of the PCS is able to supervise and control the system performance by means of a number of commands and some system generated printouts.

7.1 Visual Display Unit

The VDU is used in entering operator commands into the system and the screen serves on an output device for the printouts for several commands, compare with chapter 8. Besides it presents some status information used in system supervision.

The screen is divided into 2 sections:

1. The system monitor section (1st line) holding date/time, the system mode (see paragraph 8.5.7), and the number of closed badge readers.

   The monitor section is updated each time an operator command entered at the VDU is finished, and every 15th second when the VDU is idle.

   Figure 7.1 shows the layout and contents of the system monitor section.

2. The command section (23 bottom lines), used to hold operator commands and the resulting printouts. The commands are always entered at the bottom line with the cursor controlled by the PCS, and printouts during command execution will make the screen lines roll towards the screen top. When a command is finished, the bottom line is blank, ready to hold another command.

7.2 Printers

The PCS comprises printers used in system supervision, and the system distinguishes between 2 different types as to their functions. A printer may be a report printer or a hardcopy printer.

7.2.1 Report Printer

The report printer is used as output medium for all the automatically generated reports and in registrating all system events of any interest by holding alarm printouts and echo printouts of control commands from the supervisor terminal (see paragraph 8.1.3). Also it may be used as output medium for command generated output, e.g. system surveys.

Alarm printouts concern inappropriate gate passing, registration of a sought person, ect. Chapter 9 holds a complete description of the possible printouts.

7.2.2 Hard Copy Printer

A hard copy printer is used to hold command generated output.

7.3 Operator Console

The operator console is used in the system load procedure, for hardware error printouts and for error messages from the basic operating system.

Hardware error printouts concern malfunction on one fo the peripheral units, as a badge reader terminal, a printer, a disc, etc.

A detailed description is found in chapter 9.

7.4 Surveys and Reports

It is possible for the operators to get surveys of system status at the moment and to get a number of different reports. The reports are described in chapter 6.

The surveys comprise:

1. Person survey with the characteristics of a selected person or of all persons from a selected department.

2. Department survey with the characteristics of a selected department

3. Report survey showing the parameters for all the automatically generated reports.

4. Gate survey showing the characteristics for all the badge reader terminals.

5. Printer survey showing the characteristics for all the printers.

A complete description can be found in chapter 8.

7.5 System Control

From the supervisor display unit it is possible to control the system by entering siutable control commands.

The control consists of the change of some operational parameters concerning

- report generation as the generation time and the participating criterion
- the association between badge reader terminals and gates
- departments
- the state of a badge terminal or a printer, as to be in service or out of service.
- the maximum lines per page on a printer.
- the system mode
- the code number an operator has to specify, when he wants to log in as supervisor.

Furthermore any characteristic of a person as described in a Person File record can be changed.

Before changing any operational parameter it is recommended to get a survey printed out, concerned the item to be changed.

The following line shows an example of a System Monitoring Printout.

```
17.08.42    MODE 0    OUTS  02
aa.bb.cc    MODE d    OUTS  ee
```

Term	Contents
aa.bb.cc	Date and time of the printout
d	System mode
	0: normal value
	1: suppress reporting of missed checkpoints
ee	Number of badge readers out of service.

Figure 7.1 System Monitoring Printout.

8. LIST OF COMMANDS

The following sections hold detailed descriptions of the operator commands offered by the PCS as to the syntax and function of the commands.

8.1 General

The command descriptions in the following sections hold the command syntax and the system reaction to the commands, when they are accepted by the system. These sections deal with the general rules of command entering via the display unit.

8.1.1 Command Entering

A command is entered on the display keyboard of an operator terminal by typing the characters of the command followed by a RETURN and the system gives an echo printout of the command on the screen, character by character.

The cursor is under system control as described in section 7.1.

If the operator during command entering detects a mistyping, he may delete one or more characters by pressing the back space key (←——). The whole line may be deleted by pressing the RUB-OUT key.

8.1.2 Command Cycle

Commands are normally effectuated according to the scheme below.

1. The operator enters the command.

2. The system checks the command for syntax and condition errors. If any error is detected, the command processing will be terminated with an error printout and point 5 may be applied.

3. The system executes the command if it has been accepted, and it may produce some output on the specified medium (see paragraph 8.1.5). As only a limited amount of the core storage is reserved for execution of commands and report generation, the execution may be delayed until the necessary resources are available.

   If the operator wants to stop printout on the screen he may press the ESC key, useful in report lookup.

4. The system finishes execution of the command with a printout of the text END on the display.

5. The operator may enter another command.

8.1.3 Supervisor Position

All control commands changing operational parameters can only be entered from an operator position logged in as supervisor (see paragraph 8.8.1). The PCS allows only one supervisor terminal at a time.

8.1.4 Command Classification

Each command in the following sections is classified according to its property as to what operator position could enter the command and the possibility of alternating command generated printouts to one of the printers.

The classification code consists of 2 digits, each of which specifies a property of a command. <classification code> = <user> <output>.

<user> specifies the possible users of the command.

0 Entered from the supervisor position only.
1 Entered from any position.

<output> specified whether the possible printout from the command may be directed to a printer.

0 Output may not be directed alternatively or the command is not producing output.

1 Output may occur on a printer.

If the command may only be entered from the supervisor position, the system will give an echo printout of the command on the report printer whenever entered.

8.1.5 General Syntax

A command has the following syntax:

<command name> $\left\{\text{<parameter> <SP>}\right\}_0^*$ <SP> $\left\{\text{OUT.} \left\{\begin{matrix}\text{R}\\\text{H}\end{matrix}\right\}\right\}_0^1$ <RETURN>

<command name> : name of command.

$\left\{\text{<parameter> <SP>}\right\}_0^*$: a number of parameters dependent on the command, separated by spaces.

$\left\{\text{OUT.} \left\{\begin{matrix}\text{R}\\\text{H}\end{matrix}\right\}\right\}_0^1$: wanted device for the command produced output:
OUT.R: report printer
OUT.H: hardcopy printer
omitted: screen

In the following sections the separator indication, the output device specification and the RETURN are omitted. Figure 8.1 shows a few command examples.

8.2 Traffic Commands

The traffic commands affect the transmission ot and/or from a terminal (badge reader or printer) specified in the command.

The terminal numbers in use are shown in figure 1.1.

Classification code: 00.

8.2.1 Start Transmission, Badge Reader

Command syntax:

TRNS GATE {<terminal no.> / ALL} START

Command condition:

A badge reader with the specified terminal number must exist and the terminal must be out of service.

System reaction:

The badge reader is taken into service ready for badge card reading.

If ALL is specified all closed badge readers are taken into service.

8.2.2 Stop Transmission, Badge Reader

Command syntax:

TRNS GATE {<terminal no.> / ALL} STOP

Command condition:

A badge reader with the specified terminal number must exist and the terminal must be in service.

System reaction:

The badge reader is taken out of service. If a badge card is inserted in a stopped reader, the card is ejected after 5 seconds with the red indicator on.

If ALL is specified all opened badge readers are taken out of service.

8.2.3 Start Transmission, Printer

Command syntax:

TRNS PRINT <terminal no.> START

Command condition:

Analogous with paragraph 8.2.1.

System reaction:

The specified printer is taken into service. If output is stored in the corresponding printer file, printing starts immediately.

8.2.4 Stop Transmission, Printer

Command syntax:

TRNS PRINT <terminal no.> STOP

Command condition:

Analogous with paragraph 8.2.2.

System reaction:

The current printing is terminated and the printer is taken out of service.

It is noticed that output to the printer can still be produced ready for printing when the printer is taken into service again.

8.3 Report Commands

The report commands generate printouts of the reports described in chapter 6. If the command specifies a report automatically generated (numbers 1, 3, 4, 5 or 6), the below mentioned is valid:

a. Command condition:

The report state (see section 4.1) must be 2 or 3, meaning report generated.

b. The latest generated version is printed.

Command classification: 11.

8.3.1 Automatical Reports

Command syntax:

REP <report no.>

System reaction:

The report identified by report number is printed:

1. Synthetical Attendance Report on the Previous Shift.

2. Not allowed, see paragraph 8.3.2.

3. Late Arrival List for Surface Employees.

4. Work Time Report.

5. Irregular Movement List

6. Irregular Movement for Surface Workers

8.3.2 Attendance Report for Selected Departments

Command syntax:

REPO2

System reaction:

The report described in section 6.2 is printed. Only the departments with report code equal to 2 or 3 are included (see figure 4.4).

8.3.3 Synthetical Report on Underground Totals

Command syntax:

REP 10

System reaction:

The report described in section 6.10 is printed.

8.3.4 Attendance Report on Underground Employees

Command syntax:

REP 11 <factory no.> <department code>

Command condition:

The factory number and department code must exist.

System reaction:

The report described in section 6.11 is printed.

8.3.5 Attendance Report on Underground Guests

Command syntax:

REP 12

System reaction:

The report described in section 6.12 is printed.

8.4 Survey Commands

The survey commands generate printouts from the System Tables and Files and show the actual characteristics of terminals, persons, reports, etc. The following sections hold a description of the individual survey commands.

Command classification: 11

8.4.1 Person Survey

Command syntax:

SURV { PERS <factory no.> <person no.> / PERSD <factory no.> <department code> }

Command condition: The identification code must exist.

System reaction:

The PCS prints a person survey of the specified person comprising all the characteristics found in the corresponding record in the Person File (see section 4.5). If PERSD is entered a survey is printed for each person in the specified department.

Figure 8.2 shows the layout and contents of the survey.

8.4.2 Department Table Survey

Command syntax:

SURV DEPT <factory no.> <department code>

Command conditions: The specified department must exist.

System reaction:

The PCS prints a department survey of the specified department holding the characteristics of the corresponding record in the Department File (see section 4.4).

Figure 8.3 shows the layout and contents of the survey.

8.4.3 Report Survey

Command syntax:

SURV REP

System reaction:

The PCS prints a survey comprising the characteristics of each automatically generated report, see the description of the Report Table in section 4.1. Figure 8.4 shows the layout and contents of the survey.

8.4.4 Gate Survey

Command syntax:

SURV GATE

System reaction:

The PCS prints a survey holding the characteristics of each badge reader terminal, see the description of the Badge Terminal Table in section 4.2.

Figure 8.5 shows the layout and contents of the survey.

8.4.5 Printer Survey

Command syntax:

SURV PRINT

System reaction:

The PCS prints a survey holding the characteristics of each printer, see the description of the Printer Table in section 4.3.

Figure 8.6 shows the layout and contents of the survey.

8.5 Parameter Changing Commands

The Parameter Changing Commands are used by the supervisor to make changes in System Tables and Files and the following sections give a detailed description of each possible command.

Command classification: 00

8.5.1 Person Record Changing

Command syntax:

SET PERS <factory no.> <person no.> <field no.> <value>

If <field no.> is a time field (13, 14, 16, 17, 18, or 19) <value> must be specified as hh.mm (hours and minutes) or as a dash (-) meaning not defined, compare with section 5.2.

Command condition:

The identification code of the person must exist.

The field number must specify a field concerning planned or real time information (see section 4.5 and figure 4.5). The new field value must be legal for the actual field.

System reaction:

The PCS changes the contents of a record in the Person File. The record is identified by the factory and person number and the specified field is given the new value.

It is noteced if the fixed information in a person record is wanted to be changed that the command PERS has to be used (see paragraph 8.6.3).

Examples:

SET PERS 121 312837 14 22.15

The planned leaving time is assigned to 22.15.

SET PERS 121 312837 11 0

The shift number is assigned to 0, meaning that the person has to be omitted from all the automatically generated reports (see chapter 6).

SET PERS 121 312837 22 1

The <sought> field is assigned to 1, meaning that an alarm printout is wanted next time the person is passing a gate.

8.5.2 Department Record Changing

Command syntax:

SET DEPT <factory no.> <department code> <report code>

System reaction:

The PCS changes the contents of a record in the Department File, see section 4.4. The entry is identified by <factory no.> and <department code> and the field <report code> is given the specified value.

8.5.3 Start and Stop of Report Generation

Command syntax:

SET REP <report no.> $\left\{\begin{matrix}\text{START}\\\text{STOP}\end{matrix}\right\}$

Command condition:

The <report no.> must identify an automatically generated report.

If START is specified the report state (see fig. 4.1) must be 4, meaning report generation stopped.

If STOP is specified the state must be 0, 2, or 3, meaning report generation started.

System reaction:

a. Start report generation.

The report state is changed from 4 to 0. If the generation time of the specified report is earlier than the current time the generation of the report is started immediately.

After a system scratch start all the report states are initialized to 4. A report should never be started before the relevant data concerning the reporting shift is available in the system.

Whenever a report is generated the state of the PCS is assigned to 2, meaning generated in the current shift.

Passing one of the shift limits (at 06.00, 14.00, or 22.00) the PCS for all started reports changes the state to 3, meaning generated in the previous shift.

b. Stop report generation.
The report state is assigned to 4, meaning report generation suppressed.

8.5.4 Report Table Changing

Command syntax:

SET REP <report no.> <generation time> <limit 1> <limit 2>

Command condition:

The <report no.> must identify an automatically generated report.

The remaining parameters must fulfil the relation 0 < parameter <= 450.

The report state must be different from 1.

System reaction:

The PCS changes the contents of an entry in the report table, see section 4.1. The entry is identified by the report number and the fields in the entry are given the new values specified in the command.

If the new generation time is later than the current time the report state is assigned to 3, meaning generated in the previous shift.

If the new generation time is earlier than the current time the report state is assigned to 2, meaning generated in ths current shift.

8.5.5 Badge Terminal Table Changing

Command syntax:

SET GATE <terminal no.> <gate no.>

Command condition:

A badge reader with the specified terminal number must exist.

The badge reader must be out of service, see paragraph 8.2.2.

System reaction:

The PCS changes the contents of an entry in the Badge Terminal Table, see section 4.2. The entry is identified by the terminal number and the field <gate no.> is given the specified value.

8.5.6 Printer Table Changing

Command syntax:

SET PRINT <terminal no.> <lines per page>

Command condition:

A printer with the specified terminal number must exist.

System reaction:

The PCS changes the contents of an entry in the Printer Table, see section 4.3. The entry is specified by the terminal number and the field <lines per page> is given the specified value.

8.5.7 System Mode Changing

Command syntax:

SET MODE <system mode>

System reaction:

The PCS changes the system mode to the specified value, meaning:

0 - missed checkpoints (inappropriate sequence registration) is reported
1 - reporting of missed checkpoints is suppressed.

The changing of the system mode may be useful if the system of some reasons have been stopped for a long time.

8.5.8 Supervisor Code Changing

Command syntax:

SET CODE <code>

<code> must consist of 6 digits.

System reaction:

The PCS changes the code number to be entered, when an operator wants to log in as supervisor, to the specified value, compare with paragraph 8.8.1.

Notice: this command is not echoed on the report printer.

8.5.9 Underground Totals Changing

Command syntax:

SET TOTAL <parent factory> <foreign factories> <guests>

System reaction:

The PCS changes the number of persons present underground from the parent factory and the foreign factories and the number of guests to the specified values. See also the description of report no. 10 in section 6.10.

The PCS automatically updates the above mentioned parameters, but the command may be useful if the system of some reasons have been stopped for a long time.

8.6 Punched Cards Handling Commands

The fixed information on each person and the preplanned timetable are input to the system from the card reader and the following sections hold descriptions of the associated commands.

Command classification: 01

8.6.1 Person File Initialization

Command syntax:

INIT

Command condition:

The command is to be entered just after the system has been loaded with scratch start specified (see chapter 11, System Load Procedure).

A card deck built up as described in section 3.1 must be ready in the card reader.

System reaction:

The PCS reads and processes the cards effecting the creation of the Person File (see section 4.5). The fixed information fields in each record in the Person File are assigned according to the person cards and the planned and real time information fields given the initial values (-1 in <date> and the time fields and 0 in the other fields).

For each department a certain amount of free records are reserved making room for future insertion of new persons (see section 8.6.3). The masimum number of persons in a department is stored in the corresponding record in the Department File together with the current number of persons and the report code.

If the card deck is too big to be loaded at the same time the operator may divide up the cards into smaller decks. Whenever the PCS detects that the card reader is empty the following message will occur on the operator console:

LOAD CARD READER AND STRIKE RETURN !

requesting the operator to strike the RETURN key on the console, when he has loaded the next card deck.

The INIT command terminates when the FINIS card is encountered.

All messages concerning errors in the contents of the cards are directed to the specified output medium, that means if a hardcopy of the error messages is wanted the operator may enter INIT OUT.R or INIT OUT.H.

If an error is detected in a JOB, FACTORY or DEPARTMENT card the execution of the command is terminated immediately. A PERSON card error only effects the suppression of the creation of the corresponding Person File record.

Important:

A repeated call of the INIT command is only possible after the system has been loaded again with scratch start specified.

8.6.2 Time Table Updating

Command syntax:

TIMET

Command condition:

The card deck has to be built up as follows:

Job card 2
Time cards
Finis cards

The card formats are described in appendix A.

System reaction:

The PCS reads the cards and the planned information fields in the Person File records are updated according to the contents of the time cards. Furthermore the field arrival date is assigned to 0.

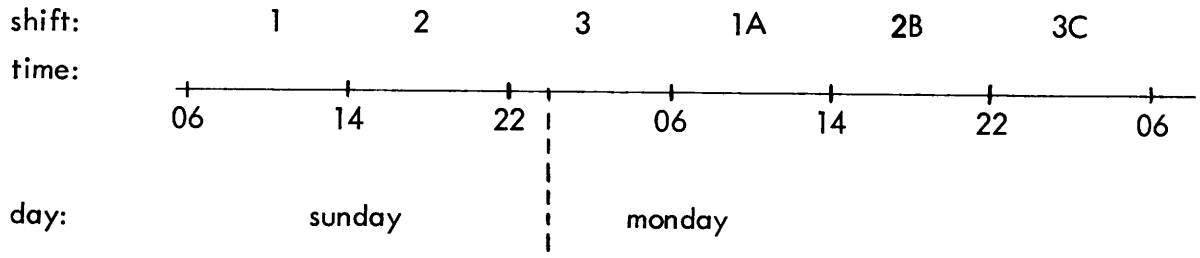
As described in the previous paragraph the card deck may be divided into smaller decks or the operator may perform a repeated call of the TIMET command.

The command terminates when the FINIS card is encountered.

All error messages are directed to the specified output medium.

Since the PCS utilizes the shift number of a person to decide whether he is to be taken into consideration in the report generations concerning a certain shift, the time table updating must be performed with a little circumspection.

In the actual system the weekly shift rotation takes place in the following way:



	old shift	new shift
Rotation 1	2	1A
Rotation 2	3	2B
Rotation 3	1	3C

The time table updating corresponding to rotation 1 must be performed in shift number 3 after all the automatical reports concerning shift number 2 on sunday are generated.

The time table updating corresponding to rotation 2 and 3 must be performed in shift number 1A after all the automatical reports concerning shift number 3 are generated.

8.6.3 Insertion/Deletion of Person File Records

Command syntax:

PERS

Command condition:

The card deck has to built up as follows:

Job card 3
Person cards and/or Delete cards
Finis card

The card formats are described in appendix A.

System reaction:

The PCS reads the cards and dependent on the type of card the following action is performed:

Person card:

A record is created in the Person File with the specified fixed information. The remaining fields in the record are given the initial values as described in paragraph 8.6.1.

The insertion is rejected if:

a. A record with the same factory and person number already exists.

b. No room is available for more persons in the involved department.

c. The department code cannot be found in the Department File.

Delete card:

The record specified by factory and person number is deleted in the Person File.

For both insertion and deletion the field <actual no. of persons> is updated in the Department Table.

The command terminates when the FINIS card is encountered.

All error messages are directed to the specified output medium.

When some of the fixed information concerning a person is wanted to be changed, for instance the department, the corresponding record must be deleted and then inserted again with the updated information.

Introduction of new departments or exeeding of the maximum number of persons in a department is only possible by a new initialization of the system (see also command MERGE in paragraph 8.7.4).

8.7 Tape Handling Commands

There are 2 different categories of tapes associated with the PCS, namely Dump Tapes holding the main data files and the Odra Tapes holding information concerning worktimes to be processed by the Odra 1305 computer payroll system.

The Dump Tapes are introduces to minimize the disturbance of the normal system functions caused by fatal malfunction on the disc drive (see also chapter 10 and 11) and to facilitate the insertion of new departments or excess of the maximum number of persons in a department.

The following sections describe the commands working on either tape category. It is demanded that a tape is mounted and the tape station on line.

Command classification: 00.

8.7.1 Data File Dumping

Command syntax:

DUMP $\left\{\begin{matrix}\text{LABEL}\\\text{FILES}\end{matrix}\right\}$

System reaction:

If LABEL is specified the PCS writes a label on the tape with the following contents:

DUMP : yy.mm.dd hh.mm

specifying year, month, date, hour and minutes of the label generation.

If FILES is specified a labelled Dump Tape must be mounted. The PCS updates the label according to the current date and time and transfers the Person File and the Department File to the tape.

It is recommended to activate a dump at the end of every shift.

8.7.2 Data File Loading

Command syntax:

LOAD {LABEL / FILES}

Command condition:

A Dump Tape must be mounted.

System reaction:

If LABEL is specified the contents of the Dump Tape label is displayed on the screen. If FILES is specified the Person File and the Department File previously dumped on the magnetic tape is transferred to the disc store.

The command may be used if the contents of the disc have been destroyed. In this case the system must be started up again (scratch start) and the LOAD command may be entered to restore the disc contents corresponding to the generation time of the dump.

8.7.3 Person File Merging

Command syntax:

MERGE

Command condition:

A Dump Tape must be mounted.

System reaction:

The PCS reads each Person File record dumped on the tape, and if the identified person is found in the Person File on the disc the planned and real time information fields are updated according to the tape record.

The command may be used in relation to insertion of persons from new factories and departments or excess of the maximum number of persons in an existing department. In these cases the following procedure must be followed:

a. Perform a dump.

b. Stop the system by entering the HALT command (see paragraph 8.8.2).

c. Load the system again with scratch start specified.

d. Enter the INIT command to create the new extended Person File.

e. Enter the MERGE command to restore the planned and real time information on all the persons registrated in the system before the extension.

f. Enter the TIMET command to input the preplanned time table for the new persons (if wanted).

f. The further actions to be performed after a scratch start are described in chapter 11.

8.7.4 Odra Tape Generation

Command syntax:

ODRA { HEAD / NEW / OLD }

System reaction:

The purpose of this command is to generate work time data on magtape to be processed by the personnel and payroll systems on an Odra 1305 computer.

The PCS will produce a record for each person expected on the previous shift holding the following information:

- factory number
- person number
- department code
- total work time in minutes (0 for absent persons)
- underground work time in minutes
- reason for absence (0 for present persons)

Compare with the description of the work time report in section 6.4.

The performance of the ODRA command depends on the second parameter:

a. ODRA HEAD
provides the operator with the opportunity of writing a Header Label on a virgin tape. After this the program terminates.

b. ODRA NEW
checks the Header Label on the tape and writes a new Header Label with the actual date in the field <date written>.

Hereafter the wanted work time data concerning the previous shift is written.

All previously written information on the tape are lost.

c. ODRA OLD
checks the Header Label and writes the wanted work time data on the tape starting just after the last previously written data block. Consequently the command may be used if more than one work time report is wanted on the same tape.

If End of Tape is sensed during writing the following action is performed:

a. ODRA HEAD: The program aborts.
b. ODRA NEW: The program aborts.
c. ODRA OLD: The program does not update the tape and returns if unaltered.

The exact tape format is described in appendix C.

8.8 Special Commands

The special commands comprise a number of commands that do not fit into the command categories established in the previous sections.

8.8.1 Supervisor Position Changing

Command classification: 00

Command syntax:

SUPV IN <code>

<code> is a number of 6 digits.

Command condition:

No operator positions (VDUs) must be logged in as supervisor.

System reaction:

If <code> is different from the code number stored in the system the command is rejected, otherwise the operator position entering the command is logged in as supervisor allowing entering of supervisor commands.

The legal value of the code number may be changed from the supervisor position (see paragraph 8.5.8).

The operator is logged out as supervisor by entering the command SUPV OUT.

8.8.2 System Shut-down

Command classification: 00

Command syntax:

HALT

System reaction:

The following message:

PERSONNEL CONTROL SYSTEM STOPPED AT dd.hh.mm

is printed on the operator console (dd.hh.mm specifies date, hour and minutes) and the running of the system is stopped.

8.8.3 Breaking of Report Printing

Command classification: 10

Command syntax:

BRKPR <terminal no.>

Command syntax:

A printer with the specified <terminal no.> must exist and the printer must be in service.

System reaction:

The PCS terminates in an orderly fashion (at next page shift) the current printing of a report on the specified printer.

8.8.4 Form Feed Generating and Screen Blanking

Command classification: 11

Command syntax:

FORM

System reaction:

The reaction dependt on the specified output medium. If OUT.R or OUT.H are entered a form feed is generated on the corresponding printer, otherwise the

command section of the screen, see section 7.1, is blanked and the cursor is placed at the beginning of the bottom line.

8.9 Command Error Printouts

Appendix C holds a complete survey of the possible error messages that may occur on a VDU or a printer during command entering and execution and of why it occurs and a recommendation of what to do if relevant.

The operator wants to take the report printer into service again after change of the paper and enters the command

```
TRNS   PRINT   0   START
```

The operator wants report no. 11 to be printed on the hardcopy printer and enters the command

```
REP   11   OUT.H
```

The operator wants a department survey of the department 5ABCD in the factory 221 displayed on his screen and enters the command

```
SURV   DEPT    221    5ABCD
```

The operator wants to seek a person with the identification code 221 044243 and enters the command

```
SET   PERS   221   044243   22   1
```

The operator wants to blank the screen after he has changed the supervisor code number and enters the command

```
FORM
```

Figure 8.1. Command Examples.

A Person Survey consists of a heading and 2 lines with the contents of each field in the person record. The heading consists of date/time for the survey generation, a survey identity and short notations for each field.
A printout example is shown in the following 5 lines.

```
28.13.47 PERSON SURV

FAC PERSON NAME                                  RG  DEP   KD CT  TEL  BLO LV SH
             WP  PIN    POUT  DT    T1    T2     T3     T4  GT ABS  SO TWT UMT

121 312837 JOSEF CZESLAW BIENIEK                 PG 7FGHJ   1  5 4723 +AB  2  1
              3 06.10 14.00 271 06.14 06.21 13.40    -     2  00   0 000 439
aaa bbbbbb ccc.............................c dd eeeee  f  g hhhh iii  j  k
              l mm.mm nn.nn ooo pp.pp qq.qq rr.rr ss.ss  t  uu   v www xxx
```

Term	Contents
aaa	Factory number
bbbbbb	Person number
cc...c	Name
dd	Region
eeeee	Department
f	Kind of work
g	Control number
hhhh	Telephone number
iii	Blood type
j	Level
k	Shift number
l	Work period number
mm.mm	planned arrival time
nn.nn	planned leaving time
ooo	Number of arrival date
pp.pp	Real arrival time at the surface territory (gate 1)
qq.qq	Real going down time (gate 2)
rr.rr	Real coming up time (gate 3)
ss.ss	Real leaving time (gate 4)
t	Last passed gate
uu	Reason for absence
v	Sought indicator
www	Total worktime
xxx	Underground worktime

Figure 8.2 Person Survey Layout

A Department Survey consists of a heading and a line with the contents of each field in the specified Department File record.

A printout example is shown in the following 3 lines:

```
28.13.05  DEPART  SURV

FAC DEPART TOTAL MAX REP

221  4abcd      87  102  1

aaa  bbbbb      ccc  ddd  e
```

Term	Contents
aaa	Factory number
bbbbb	Department
ccc	Number of persons in the department
ddd	Maximum number of persons in the department
e	Report code

Figure 8.3 Department Survey Layout

A Report Survey consists of a heading and a line for each automatically generated report.

A printout example is shown in the following 8 lines:

28.15.05 REPORT SURV

REP	GEN	LIM1	LIM2	ST
1	60	0	0	2
2	15	0	0	2
3	180	10	0	3
4	60	0	0	1
5	60	10	10	3
6	120	5	60	3
a	bbb	ccc	ddd	e

Term	Contents
a	Report number
bbb	Generation time, minutes in relation to a shift
ccc	Time limit 1
ddd	Time limie 2
e	Report State

Figure 8.4 Report Survey Layout

A Gate Survey consists of a heading and a line for each badge reader terminal.

A printout example is shown in the following 10 lines:

28.15.42 GATE SURV

TER	GATE	ST
1	1	1
2	1	1
3	2	2
4	2	1
5	3	0
6	3	2
7	4	1
8	4	1

aa bb c

Term	Contents
aa	Terminal number
bb	Gate number
c	Terminal state
bb	Gate number
c	Terminal state

Figure 8.5 Gate Survey Layout

A printer survey consists of a heading and a line for each printer in the system.

A printout example is shown in the following 3 lines:

```
27.09.17  PRINT  SURV

TER      LPP      ST
 0        60       1
16        60       1

aa        bb       c
```

Term	Contents
aa	Terminal number
bb	Lines per page
c	Printer state

Figure 8.6. Printer Survey Layout

9. SYSTEM GENERATED PRINTOUTS

This chapter describes the different types of printouts generated by the PCS when certain events occur.

9.1 Echo Printouts

The echo printouts occur on the report printer and are generated when control commands are entered from the supervisor terminal.

The control commands having the classification code 00 or 01 are described in chapter 8.

The echo printouts all have the layout:

E ttttt <entered control command>

with ttttt marking the date and time of the event.

9.2 Alarm Printouts

The alarm printouts occur on the report printer and they all contain the field ttttt marking the date and time of the alarm event.

The possible printouts are described in the following text through a layout specification and a description of the terms in the layout.

*A ttttt CHECK aaa bbbbbb cc..c dddd ee ff
Inappropriate sequence registration (missed checkpoint) has been detected. A person identified by factory and person number (aaa bbbbbb), name (cc.c) and department (ddddd) expected to pass gate number ee has passed gate number ff.

*A ttttt FOUND aaa bbbbbb cc..c ddddd ee
A sought person identified as above has been registrated passing gate number ee.

*A tttttt UNKNOWN aaa bbbbbb cc

A badge card with the factory number aaa and the person number bbbbbb has been registrated in gate cc. The identification code is unknown in the Person File.

9.3 Hardware Error Printouts

The hardware error printouts occur on the operator console with the following format:

```
>nnnnn
*H  tttttt    aaaa    bbbbbb    ccccc
ddddd
```

Term	Contents
nnnnn	Internal name of the involved program.
tttttt	Date and time of the error event.
aaaa	Device specification: DISC : disc MT : magtape CDR : card reader PRT <terminal no.> : printer BRT <terminal no.> : badge reader VDU <terminal no.> : visual display unit
bbbbbb	Error code (octal status word).
ccccc	Only printed in case of a disc error: the internal name of the involved disc file.
ddddd	Only printed in case of a magtape, card reader or printer error: explanation of the error code.

Examples:

```
>1OAD
*H 24.15.17  MT  000240

BLOCK LENGTH

PARITY

>BAHA
*H  24.16.20  DISC  000040  PERSO

>BAREC
*H  26.02.47  BRT06  040000
```

Further explanation to the error printouts is given in the following sections. The error code may be one or a sum of the codes described.

9.3.1 Disc Alarms

The PCS distinguishes between two kinds of disc errors:

a. Parity error (error code 000040).
   Normally this error is not fatal and the system will continue operation.

b. Remaining errors.
   In this case a completely shut-down of the system is automatically performed.

   The operator is recommended to try a restart of the system before further actions are taken dependent on the error code.

Error Codes

100000, 000004	Catalog i/o error because the disc is disconnected, because the wrong disc has been mounted, or because there is a disc malfunction.
040000	The specified name does not exist as a disc file. Some important system files may have been missing on system start-up.
020000	The specified name already exists as a disc file.
005000	Either to many users of the same disc file or the program is attempting to remove a disc file of which it is not the user.
003000	Illegal, normally meaning disc not initialized.
002020	No more disc resources either because there is no more space in the disc catalog or because there are no internal resources for communication with the disc (area processes).
001000	The disc file is reserved by another system function.
000400	Disc space exhausted.
000200	Block error, possibly due to a hardware malfunction or a bad disc.
000100	Data channel overrun. Possible hardware malfunction.
000040	Parity error, possibly due to a hardware malfunction or a bad disc. The PCS will continue operation.
000020	End of medium. The end of a disc file has been reached during reading.

000010	Position error due to the destruction of a link word in a disc block. The link word is used to gain access to other parts of the disc file.
000002	Time out. Possible hardware malfunction.

9.3.2 Magtape Alarms

Error Codes

040000	Unit off line.
020000	Unit rewinding.
010000	Noise record on tape, i.e. a record of 18 bytes or less has been detected.
002000	Write ring not mounted (when output on tape is desired).
001000	Unit being used by another program.
000400	End of file mark read.
000200	Block length error, i.e. the block is too large for the allocated memory. This is a serious error, either due to a bad (wrong) tape or the fact that the tape and the program do not match.
000100	Data channel overrun. Possible hardware malfunction.
000040	Parity error. It is impossible to recover a parity error after five re-readings or re-writings. Possibly due to a bad tape.
000020	End of tape sensed.

000010	Position error, i.e. a given block does not exist on the tape.
000002	Time out, no block or file mark present on the tape. Check the density of the tape. If it is not correct, select the proper density.

9.3.3 Report Printer Alarms

When an error is detected on the report printer (terminal 0), it is taken out of service and the operator must take the printer into service again (see section 8.2), when the error is repaired.

Error Codes

100000	Unit disconnected.
040000	Unit off line.
001000	Unit being used by another program.
000200	Paper fault, paper torn.
000100	Unit not ready.
000040	Paper movement control character error. This is a serious error. Incorrect record format in input.
000020	Paper low.
000002	Paper run-away. This is a serious error. Carriage control tape not proper for the program.

9.3.4 Card Reader Alarms

Error Codes

040000	Off line, card reader is not ready.
020000	Busy, a card has failed to feed from hopper.
010000	Reject command failed.
004000	51 column cards.
001000	Illegal command, device reserved.
000200	Block length error.
000100	Data late.
000040	Parity error.
000020	Hopper empty, will not occur as the PCS requests the operator to load the reader.
000002	Time out.

9.3.5 Multiplexer Alarms

These alarms concern errors on the different terminals connected to the multiplexor itself.

If the error is detected on a badge reader or on a hardcopy printer, the terminal is taken out of service. When the error is repaired the operator may take the terminal into service again by entering a suitable traffic command (see section 8.2).

In case of malfunction on one of the visial display units the PCS itself every 10th second attempts to repeat the last operation (read or write) transmitted to the terminal until the operation succeeds.

Error Codes

100000	Disconnected.
040000	Data set not ready.
020000	Calling indicator.
010000	Carrier off.
001000	Channel reserved by another user.
000200	Buffer overflow.
000040	Parity error.
000020	Break received.
000004	EOT missed from a badge reader.
000002	Time out during output.

10. SYSTEM VIABILITY

The Personnel Control System presented in this specification is a single processor system and it may survive hardware failures to a certain extent. The following sections describe a variety of provisions introduced to minimize the disturbance of the normal control functions, caused by equipment failures.

10.1 Terminal Back-Up

There is a number of terminals involved in the proper functioning of the PCS. The terminals may be divided into categories as to their part in the system.

a. There is a report printer reserved for printout of all the automatically generated reports and used to log all system events of any interest.

b. There may be a number of separate hardcopy printers used for command generated output.

c. There is a number of badge readers used in the person registration.

d. There is a number of operator terminals, consisting of visual display units, used in system supervision and control.

All terminals with exception of the report printer are connected to multiplexer lines.

The gate number associated to a badge reader can be changed dynamically by the operator (see par. 8.5.4). This facility may be used to move a badge reader from one gate to another, to cope with faulty multiplexer lines and badge readers,

and to take possible spare readers into service.

If a faulty printer is repaired within a certain time, no informations is missed due to the queueing capacity of the PCS as to printouts (a maximum of 256.000 characters may be queued to each printer). In this case the printer failure just causes a delay of the printouts.

The supervisor terminal is a vital part of the system, and it is possible to choose one of the operator terminals to be supervisor terminal (see par. 8.8.1). If the supervisor terminal fails the system may be shut down and restarted. Hereafter another operator terminal may be used as supervisor terminal.

10.2 Magnetic Tape Back-Up

The disc storage is vital to the system in the way that break-down means stopping of all system functions.
The PCS provides the operator with the facility to transfer the most important disc files to magnetic tape for recovery purpose, when the disc contents has been destroyed (see section 8.7).

10.3 System Check Point

Failures in the CPU or the core store or a total break-down of the multiplexer will cause a stopping in the PCS functioning. The disc storage represents a component of high reliability, and this quality is used to provide a restart facility enabling the system to continue operation after repair from a condition very close to the one existing at the time of break-down.
During normal operation the system will create a check-point on the disc store every 15th second, comprising all operational parameters, among other the system

tables. In case of a serious hardware failure or if the system has been shut down by the operator, the system may restart from the latest check-point, i.e., the system is initialized with the parameters stored in the check-point.

11. SYSTEM LOAD PROCEDURE

The PCS is loaded from magnetic tape and is operated from the operator console, the F12 KSR Teletype. This chapter describes the procedure to be followed in system start-up.

11.1 System Start-Up

1. Turn on the main power supply.

2. Switch power to the RC 3600 by turning the POWER key on the F19 Power and Autoload Panel.
   Adjust the RC 824 operator terminals to run in full-duplex mode controlled by mode button marked D/2. If the tape mode lamp lights, it must be extinguished by pressing the mode button marked TAPE.

3. Mount the system tape - labeled PERSONNEL CONTROL SYSTEM - on tape unit number 0.

4. Depress the LOAD button on the tape unit until the LOAD lamp remains lit.

5. Depress the ON LINE button on the tape unit until the ON LINE lamp lights.

6. Press the AUTOLOAD button on the Power and Autoload Panel.
   The AUTOLOAD lamp will be extinguished when the system is initialized.
   If the AUTOLOAD lamp remains lit, the load operation was unsuccessfull.
   Check that the PCS tape is mounted. Check that the density (of a dual-density tape unit) is correct. Depress the ON LINE button on the tape until

the ON LINE lamp is extinguished. Press the REWIND button once. Repeat the load procedure from Point 5.

If this is not successful after several attempts, please fill out an Error Report.

7. On the console, press the CTRL and BELL keys simultaneously. This will cause the text > to appear on the console.

8. Type: S

Press the RETURN key.

If a typing mistake is made on the console, press the RUB OUT key once to delete the last character typed (or repeatedly to delete further characters).

9. Type: INT LOADS

and press the RETURN key.

The first part of the system will now be loaded from the tape unit.

If a load device error occurs, the console will show the text MT ERROR nn, where nn is a numeric code indicating the error in question (described in section 11.3).

10. The following text will appear on the console:

> TIME

DATE, YY.MM.DD=

Type current year, month and day (e.g. 75.09.28)

and press the RETURN key.

Now the text appears

TIME, HH.MM.SS=

Type current hour, minutes and seconds (e.g. 10.52.00)

and press the RETURN key.

11. The following text now appears on the console:

> INITS

INITIALIZATION OF PCS, REV. <revision number>

TYPE NEW, UPD, OLD:

Restart:

If the system is to continue to operate with the existing disc contents and with the old contents of the System Table,

type: OLD

and press the RETURN key.

Operator programs updating:

If only the operator programs corresponding to the operator commands are to be reloaded, depress the ON LINE button on the tape unit until the ON LINE lamp lights,

type: UPD

and press the RETURN key.

This feature should only be performed by the system maintenance staff.

Scratch start:

If the disc and the System Tables is to be initialized (only when the system is loaded for the first time, when the disc contents has been destroyed or when when the Person File must be extended),

depress the ON LINE button on the tape unit until the ON LINE lamp lights,

type: NEW

and press the RETURN key.

This results in the message:

WARNING: START FROM SCRATCH WILL DESTROY
ALL CURRENT CONTENTS OF THE DISC.
TYPE OK TO CONFIRM ELSE TYPE
ANYTHING ELSE:

Type: OK

and press the RETURN key if scratch start actually is wanted.
The text TYPE MAX NUMBER OF PERSONS:
will now appear on the console, type the roughly number of persons to be registered in the system and press the RETURN key.

12. The text ENTER THE S COMMAND: INT LOADR now appears on the console. When the ON LINE lamp on the tape unit lights (after the ON LINE button has been pressed), press the CTRL and BELL keys on the console simultaneously. This will cause the text > to appear on the console.

13. Type: S
Press the RETURN key.
Type: INT LOADR
Press the RETURN key.
The last part of the system will now be loaded from the tape unit. The PCS is operational when the tape is rewound.

11.2 System Initialization

After a system restart the contents of the disc and the System Tables is unchanged compared with the contents, when the system was stopped.
This section describes the procedure to be followed, when a system scratch start has been performed.

1. Log in as supervisor (see par. 8.8.1).

2. Take the printers into service (see par. 8.2.3).

3. Initialize the Person and the Department Files by entering the INIT command (see par. 8.6.1).

4. Input the time table by entering the TIMET command (see par. 8.6.2).

5. Take the badge readers connected to the system into service (see par. 8.2.1).

6. Start the automotical generation of the individual reports as soon as the relevant real time information concerning the reporting shift (previous or current shift) is available in the system (see par. 8.5.3).

If the contents of the Person and Department files is wanted to be restored corresponding to an earlier performed dump on magnetic tape, point 3 and 4 above may be replaced by entering the LOAD command (see par. 8.7.2).

11.3 System Load Errors

If a load device error occurs, the console will show the text MT ERROR nn, where nn is a numeric code explained in the following table:

Code	Meaning
21	Unit off line
22	Unit rewinding
23	Noise record on tape, i.e. a record of 18 bytes or less has been detected
26	Illegal operation
27	End of file mark read
28	Block length error (block too large)
29	Data channel overrun
30	Parity error
31	End of tape sensed

32	Position error
34	Time out, no block or file mark present on the tape. Check the density of the tape. If not correct, select the proper density.

PUNCHED CARDS FORMAT.

Format notation :

In : integer with n digits

An : alphanumeric with n characters

Card	Column	Contents	Format	Remarks
job card 1	1 : 3	JOB	A3	fixed text
	5 : 8	INIT	A4	fixed text
job card 2	1 : 3	JOB	A3	fixed text
	5 : 8	TIME	A4	fixed text
job card 3	1 : 3	JOB	A3	fixed text
	5 : 8	PERS	A4	fixed text
factory card	1 : 7	FACTORY	A7	fixed text
	9 : 11	factory number	I3	zero fill, 000 if guests
department card	1 : 10	DEPARTMENT	A10	fixed text
	12 : 16	department code	I1,A4	00000 if guests
	18 : 18	report code	I1	see section 6.2
person card	1 : 3	factory number	I3	zero fill
	5 : 10	person number	I6	zero fill
	12 : 43	name	A32	blank fill, left justified
	45 : 46	region	A2	
	48 : 52	department	I1,A4	
	54 : 54	kind of work	I1	range 1-4
	56 : 56	control	I1	range 1-5
	58 : 61	telephone no.	I4	
	63 : 65	blood type	A3	
	67 : 67	work period no.	I1	range 1-3

Card	Column	Contents	Format	Remarks
guest card	1 : 3	000	I3	fixed number
	5 : 10	guest number	I6	zero fill
time card	1 : 3	factory number	I3	zero fill
	5 : 10	person number	I6	zero fill
	12 : 12	shift number	I1	range 0-3
	14 : 18	planned arrival time	I2,A1,I2	zero fill range 00.00-23.59
	20 : 24	planned leaving time	I2,A1,I2	zero fill range 00.00-23.59
	26 : 26	level number	I1	range 0-3 0 if not relevant
delete card	1 : 6	DELETE	A6	fixed text
	8 : 10	factory number	I3	zero fill
	12 : 17	person number	I6	zero fill
finis card	1 : 5	FINIS	A5	fixed text

COMMAND ERROR MESSAGES

When an error is detected during command entering from an operator terminal an error message is displayed on the bottom line of the screen with the format:

<error number> <error message>

This appendix holds a survey of the possible error printouts.

1. PROGRAM NIE EGZYSTUJE
   (Program does not exist)
   The command name is not known as a program on the disc.

2. BLAD PAMIECI DYSKOWEJ: nnnnn
   (Disc error)
   During loading of the program corresponding to the command a disc error has occured, where nnnnn is the decimal value of the status word. (compare with the disc error codes in section 9.3). If the error still occurs after several attempts, perform a restart of the system with the option UPD (see section 11.1).

3. NIE PROGRAM
   (No program)
   The command name corresponds to a file on the disc, which does not contain a program.

4. PROGRAM ZA DUCY
   (Program too big)
   This error message should not occur in a debugged system.

5. BLAD W SKLADNI ROZKAZU
   (Syntax error)
   Syntax error in one of the command parameters.
   Notice: Spaces between the last parameter and <return> are not allowed.

6. Not used.

7. CZEKAJ
(Waiting)
This message is an informativ message and means that the execution of the command is delayed until the sufficient space is available in the core storage (another operator and the report generator are working in this very moment).

8. NIELEGALNY PARAMETR: nnnnn
(Illegal parameter)
The text parameter nnnnn is illegal.

9. BRAKUJACE PARAMETRY
(Missing parameters)
Insufficient number of parameters entered for this command.

10. NIELEGALNA SPECYFIKACJA URZADZENIA WYJSCIA
(Illegal output specification)

11. ZA DUZO PARAMETROW
(Too many parameters)

12. KOMORKA ORGANIZACYJNA JEST PUSTA
(No persons in the department)

13. KOMORKA ORGANIZACYJNA NIE ISTNIEJE
(Department does not exist)
The entered identification code of a department, factory number and department code, is unknown in the system.

14. OSOBA NIEZNALEZIONA W SYSTEMIE
(Person unknown in the system)
The entered identification code of a person, factory and person number, is unknown in the system.

15. BLAD W TYPIE PARAMETRU
(Parameter type error)
A parameter expected to be a numeric contains one or more letters.

16. NIELEGALNE ZAKONCZENIE PARAMETRU
(Parameter terminated illegally)

17. NIEISTNIEJACY NUMER TERMINALU
(Terminal number unknown)

18. BLEDNA WARTOSC PARAMETRU
(Improper value of parameter)
One of the entered command parameters is outside the accepted range.

19. NIEISTNIEJACY NUMER RAPORTU
(Report number unknown)

20. OPERATOR NIE SUPERVISOR (NADZORCA)
(Operator not supervisor)
A control command is entered on a operator terminal, which has not logged in as supervisor.

21. BLAD CZYTNIKA KART
(Card reader error)
On execution of one of the punched card handling commands an error on the card reader is detected. Furthermore a hardware alarm is printed on the operator console.

22. BLAD TASMY MAGNETYCZNEJ
(Magtape error)
On execution of one the tape handling command an error on the tape unit is detected. Furthermore a hardware alarm is printed on the operator console.

23. RAPORT W TRAKCIE GENERACJI
(Report under generation)
The specified report is generated in this very moment (report state 1).

24. INNY OPERATOR JEST SUPERVISOR
(Another operator is supervisor)
Only one operator may be logged in as the supervisor.

25. UPRZEDNIO ROZPOCZETY
(Already started)
The specified badge reader or printer is already in service.

26. UPRZEDNIO ZATRZYMANY
(Already stopped)
The specified badge reader or printer is already out of service.

27. ZADEN RAPORT NIE ZOSTAL JESZCZE WYGENEROWANY
(No report generated)
The specified report is not yet generated after the report generation has been started (report state 0).

28. GENERACJA RAPORTU POMINIETA
(Report generation skipped)
The generation of the specified report is suppressed either because a system scratch start has been performed or because an operator has stopped the generation of the report.

29. Not used.

30. DRUKARKA W TRAKCIE POMIJANIA RAPORTU
(Printer already in skip mode)
The system is already skipping a report printing, when the command BRKPR is entered.

31. NIC NIE NA DO POMINIECIA
(Nothing to skip)
No report printing takes place, when the command BRKPR is entered.

32. BLEDNY KOD
(Incorrect code)
The supervisor login command is entered with an incorrect code.

33. BLEDNE OZNAKOWANIE (LABEL) TASMY
(Label error on tape)
A wrong tape has been mounted or the tape is not labelled.

34. BLAD W KARCIE STERUJACEJ ZADANIA
(Job card error)
The card information is shown in the following line. The execution of the command is terminated.

35. BLAD W KARCIE ZAKLADU
(Factory card error)
See error message 34.

36. BLAD W KARCIE KOMORKI ORGANIZACYJNEJ
(Department card error)
See error message 34.

37. BLAD W KARCIE OSOBY
(Person card error)
The card information is shown in the following line. The creation of the person file record is suppressed.

38. SEKWENCYJNY BLAD W KARCIE OSOBY
(Sequence error in person card)
Inside a department the person cards must be sorted in ascending person number order. The person card not fulfilling this condition is shown in the following line. The creation of the person file record is suppressed.

39. INIT ZOSTA JUZ WYKONANY
(INIT already performed)
The INIT command must only be entered after a system scratch start has been performed.

40. SEKWENCYJNY BLAD W STOSIE KART
(Sequence error in card deck)
The required sorting order of the card deck is not observed. The information of the error card is shown in the following line. The execution of the command is terminated.

41. BLAD W KARCIE DELETE
(Deletion card error)
The card information is shown in the following line. The deletion of the person is rejected.

42. OSOBA ZNAJDUJE SIE JUZ W SYSTEMIE
(Person already in system)
A person already registered in the system is inserted again. The insertion is rejected. The card information is shown in the following line.

43. INIT NIE ZOSTAL WYKONANY
(INIT not performed)
Time table updating is not allowed after a system scratch start before the INIT command has been executed.

44. BRAK MIEJSCA W KOMORCE ORGANIZACYJNEJ
(No room in department)
A person is tried to be inserted in a department holding the maximum number of persons (see par. 8.7.3).
The card information is shown in the following line.

45. KONIEC TASMY MAGNETYCZNEJ
(End of tape encountered)

ODRA TAPE FORMAT.

The tape format follows the specification of the file organization required by ICL 1900 series and ODRA 1305 Housekeeping standards.

The ODRA tape holds 3 files with the contents:

File 1: HEADER label
File 2: Datablocks
File 3: TRAILER label

Each word (24 bits) on the tape will either be of the type integer (I) or contain 4 alphanumeric characters (A). Each character is converted into the ICL-ISO code. The HEADER consists of a block of 10 words and is written, updated or checked dependent on the command parameter (HEAD, NEW or OLD) as shown in the following table:

Word	Description	Format	Head	New	Old
0	HDDR	A	HDDR	checked	checked
1	tape seriel no.	I	0	not touched	not touched
2-4	file name	A	ODRA MAG TAPE	checked	checked
5	reel sequence no.	I	0	not touched	not touched
6	file generation no.	I	0	not touched	not touched
7	retention period	I	10007	not touched	not touched
8	date written	I	0	actual date	not touched
9	information	I	0	not touched	not touched

The TRAILER label consists of a block of 20 words and the contents is shown in the following table:

word 0 : (I) trailer identification, 10000
word 1 : (I) data block count
word 2 : (I) 0
word 3 : (I) 0
word 4-19: (A) users information, space fill.

File 2 starts with a qualifier block followed by the data blocks.

The qualifier block consists of 20 words as follows:

word 0 : (I) qualifier identification, 10002
word 1 : (I) maximum data block size
word 2 : (I) 0
word 3 : (I) 0
word 4-19: (A) users information, space fill.

All data blocks consist of 20 records each of 8 words corresponding to a block length of 160 words.

There are three types of records:

a) Identification record holding fixed information concerning all the following person records, until the next identification record or the TRAILER.

b) Person record holding information on a specific person.

c) Skip record used to fill up the last data block in a dump to obtain the fixed block lenght.

The exact format of the records is described in the following figures:

Identification record

word 0 (I)	8	word count
word 1 (A)	I D E N	text
word 2 (A)	YY H H	generation time,
word 3 (A)	D D H H	year, month, day.
word 4 (A)	MM S S	hour, minutes, seconds
word 5 (I)	0	
word 6 (I)	0	
word 7 (I)		previous shift number

Person record

word 0 (I)	8	word count
word 1 (A)	F F F P	F: factory number
word 2 (A)	P P P P	P: person number
word 3 (A)	P D D D	D: department code
word 4 (A)	D D - -	-: space
word 5 (I)		total work time in minutes
word 6 (I)		underground work time in minutes
word 7 (I)		reason for absence

Skip record

word 0 (I)		word count
word 1 (A)	I D E N	text
word 2 (A)	S K I P	text
word 3 (A)	- - - -	-: space
word 4 (A)	- - - -	
word 5 (I)	0	
word 6 (I)	0	
word 7 (I)	0	

EQUIPMENT SPECIFICATION

This chapter contains a list of the hardware items included int the RC 3600 Personnel Control System for KGHM Zakkady Gornicze POLKOWICE. Further information on the equipment is given in the RC 3600 Hardware Catalog and in the document

RC 870, BADGE READER
RCSL 52-AA 331.

QTY	Description	
1	RC 3601C	Central Unit
2	RC 3606	32k byte Memory
1	F12	Operator Console, KSR Teletype
1	F19	Power and Autoload Panel
1	RC 3685	Magnetic Tape Channel
1	F22	NRZI feature
1	RC 3620S	Magnetic Tape Unit, 9 track, 800 bpi
1	RC 3671C	Card Reader, 300 cpm, 80 column
1	RC 3688	Moving Head Disc Channel
1	F52	Disc Cartridge Drive Adapter
1	RC 3652	Disc Cartridge Drive, 2.4 MB
1	RC 3639	Seriel Printer, 330 cps, 132 column, 64 ASCII
1		Centronics 306, 100 cps, 80 column, 64 ASCII
1		RS 232 Seriel Interface, 2400 bps for Centronics 306
1	RC 3683	Asynchronous Multiplexer, 64 lines
1	F83	16 Line Modem Adapter.
1	F82	V.24 Junction Panel, 8 lines
1	F86	8 Line Current Loop Adapter
2	RC 824	Keyboard/Display Terminal 2400 bps, 24 lines each 80 character
8	RC 870	Badge Reader
1	F91	Disc Top Cabinet
1	F93	High Cabinet

BADGE READER TESTPROCEDURE

The purpose of the test described in this appendix should primarily be to check the condition of the contact matrix in the reader.

A number of badges are made as follows:

Testbadge No.	1 :	All holes punched in row		1
-	2 :	-	-	2
-	3 :	-	-	3
-	4 :	-	-	4
-	5 :	-	-	5
-	6 :	-	-	6
-	7 :	-	-	7
-	8 :	-	-	8
-	9 :	-	-	9
-	10 :	-	-	10
-	11 :	-	-	11

Test Program Start-Up

The test program is incorporated on the system tape holding the RC 3600 Personnel Control System and the program is loaded as follows:

1. Perform point 1-10 in the PCS load procedure described in section 11.1 with the following exception:
   Under point 9, INT LOADT must be typed instead of INT LOADS.

2. When the tape has rewound, press the CTRL and BELL keys simultaneously. This will cause the text > to appear on the console.

3. Type: S
   Press the RETURN key.
   Type: START TESTB
   Press the RETURN key.

4. The following text now appears on the console:

   >TESTB
   *** BRT-TEST PROGRAM STARTED ***
   INSERT CARD

5. In the initialization part of the program a read command is executed on each multiplexer line associated to a badge reader.
   If some of the badge readers are disconnected, a hardware alarm is shown on the operator console for each disconnected badge reader (see section 9.3).
   The read command on each line is repeated by restarting the program (described later on in the appendix).

   NOTICE: The program is not designed for test of simultaneous insertion of badge cards.

Test Program Operation

Whenever a badge is inserted in one of the readers the program will make a printout on the operator console of the identification of the reader and the badge information, the latter printing 0 (zero) and blank as 0 (zero). A permanently open contact will be printed as a 0 (zero) and permanently closed contact as its row number. The latter also applies if a less significant row hole is read.
The printout includes the control characters STX, ETX and EOT.

A printout example is shown in the following 3 lines:

```
INSERT CARD
BRT03 STX 777777777777 ETX
BRT03 EOT
BRTaa bbb ccccccccccc ddd
BRTaa eee
```

Term	Contents
aa	Terminal number (see figure 1.1).
bbb	First character received. If the character is different from STX the program prints: <decimal value of the character>.
ccc..cc	Badge information.
ddd	Last character received. If different from ETX, the character is printed as bbb.
eee	The character received after an ACK character has been transmitted. If different from EOT, the character is printed as bbb.

Whenever a hardware error is detected, an alarm is given on the operator console (see section 9.3). Perform a program restart, if a repeated read command is wanted on an error reported line.

Test Program Restart

A program restart is performed as follows:

1. Press the CTRL and BELL keys simultaneously. This will cause the text > to appear on the console.

2. Type: S

   Press the RETURN key.

3. Type: BREAK TESTB

   START TESTB

   Press the RETURN key.