FIG. 1

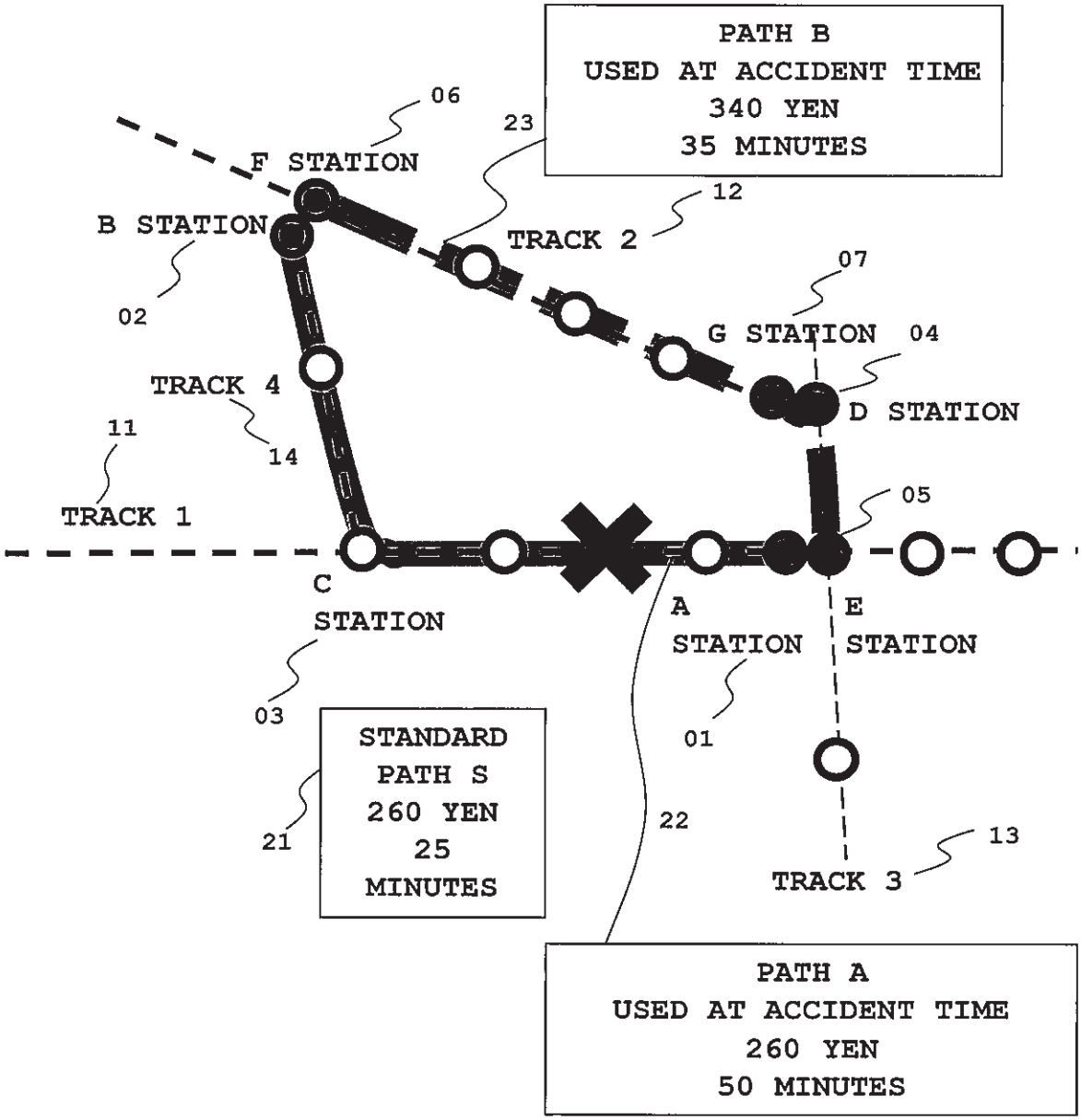

PATH B
USED AT ACCIDENT TIME
340 YEN
35 MINUTES
06
23
F STATION
12
B STATION
TRACK 2
07
02
G STATION
04
TRACK 4
D STATION
11
14
05
TRACK 1
C
STATION
A
STATION
E
STATION
03
01
STANDARD
PATH S
260 YEN
25
MINUTES
21
22
13
TRACK 3
PATH A
USED AT ACCIDENT TIME
260 YEN
50 MINUTES

FIG. 2

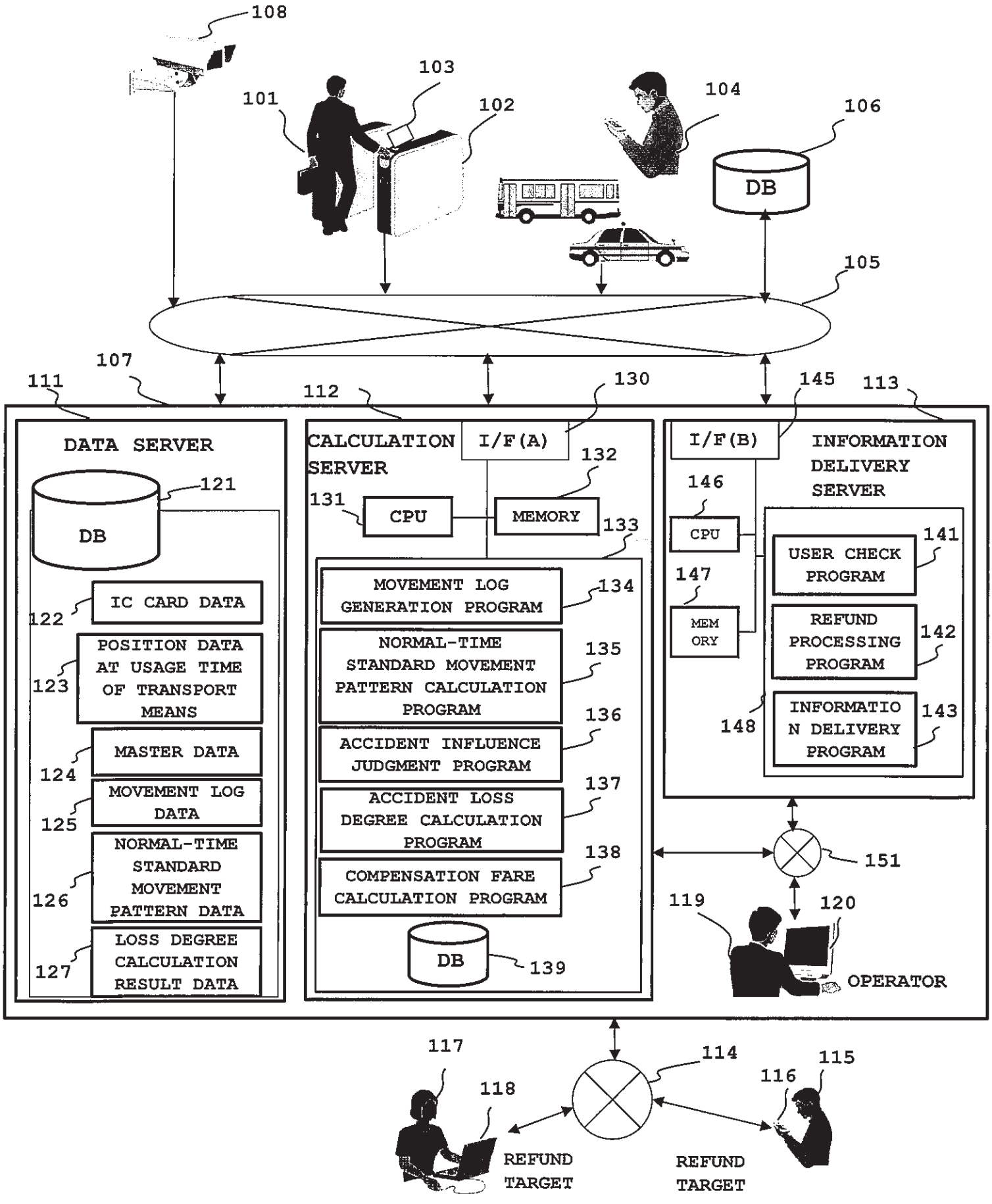

108
103
101
102
104
106
DB
105
107
111
112
130
145
113
DATA SERVER
DB
121
IC CARD DATA
122
POSITION DATA AT USAGE TIME OF TRANSPORT MEANS
123
MASTER DATA
124
MOVEMENT LOG DATA
125
NORMAL-TIME STANDARD MOVEMENT PATTERN DATA
126
LOSS DEGREE CALCULATION RESULT DATA
127
CALCULATION SERVER
I/F(A)
132
131
CPU
MEMORY
133
MOVEMENT LOG GENERATION PROGRAM
134
NORMAL-TIME STANDARD MOVEMENT PATTERN CALCULATION PROGRAM
135
ACCIDENT INFLUENCE JUDGMENT PROGRAM
136
ACCIDENT LOSS DEGREE CALCULATION PROGRAM
137
COMPENSATION FARE CALCULATION PROGRAM
138
DB
139
I/F(B)
INFORMATION DELIVERY SERVER
146
CPU
147
MEM ORY
148
USER CHECK PROGRAM
141
REFUND PROCESSING PROGRAM
142
INFORMATIO N DELIVERY PROGRAM
143
151
119
120
OPERATOR
117
118
114
115
116
REFUND TARGET
REFUND TARGET

FIG. 3

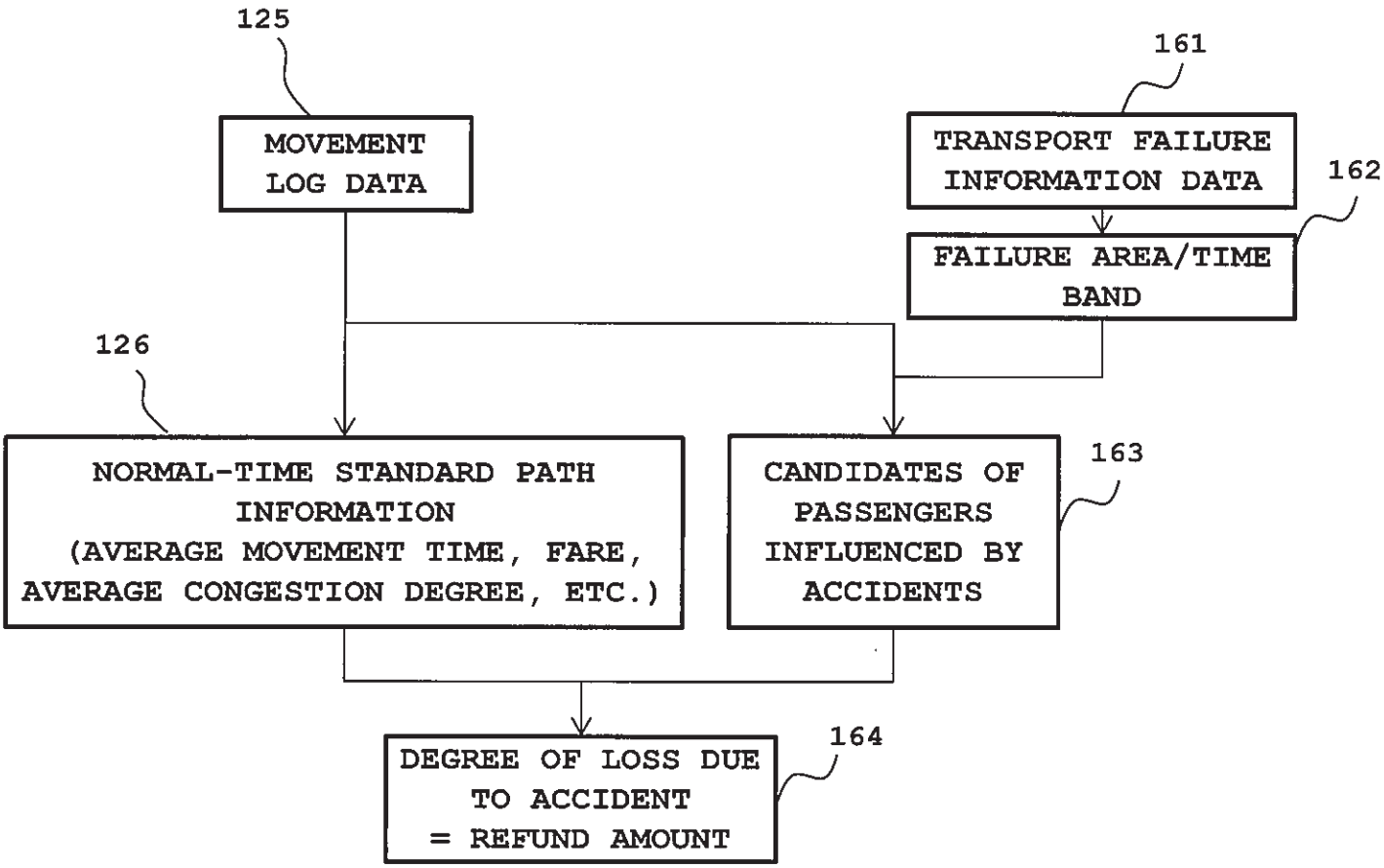

125
MOVEMENT LOG DATA
161
TRANSPORT FAILURE INFORMATION DATA
162
FAILURE AREA/TIME BAND
126
NORMAL-TIME STANDARD PATH INFORMATION (AVERAGE MOVEMENT TIME, FARE, AVERAGE CONGESTION DEGREE, ETC.)
CANDIDATES OF PASSENGERS INFLUENCED BY ACCIDENTS
163
DEGREE OF LOSS DUE TO ACCIDENT = REFUND AMOUNT
164

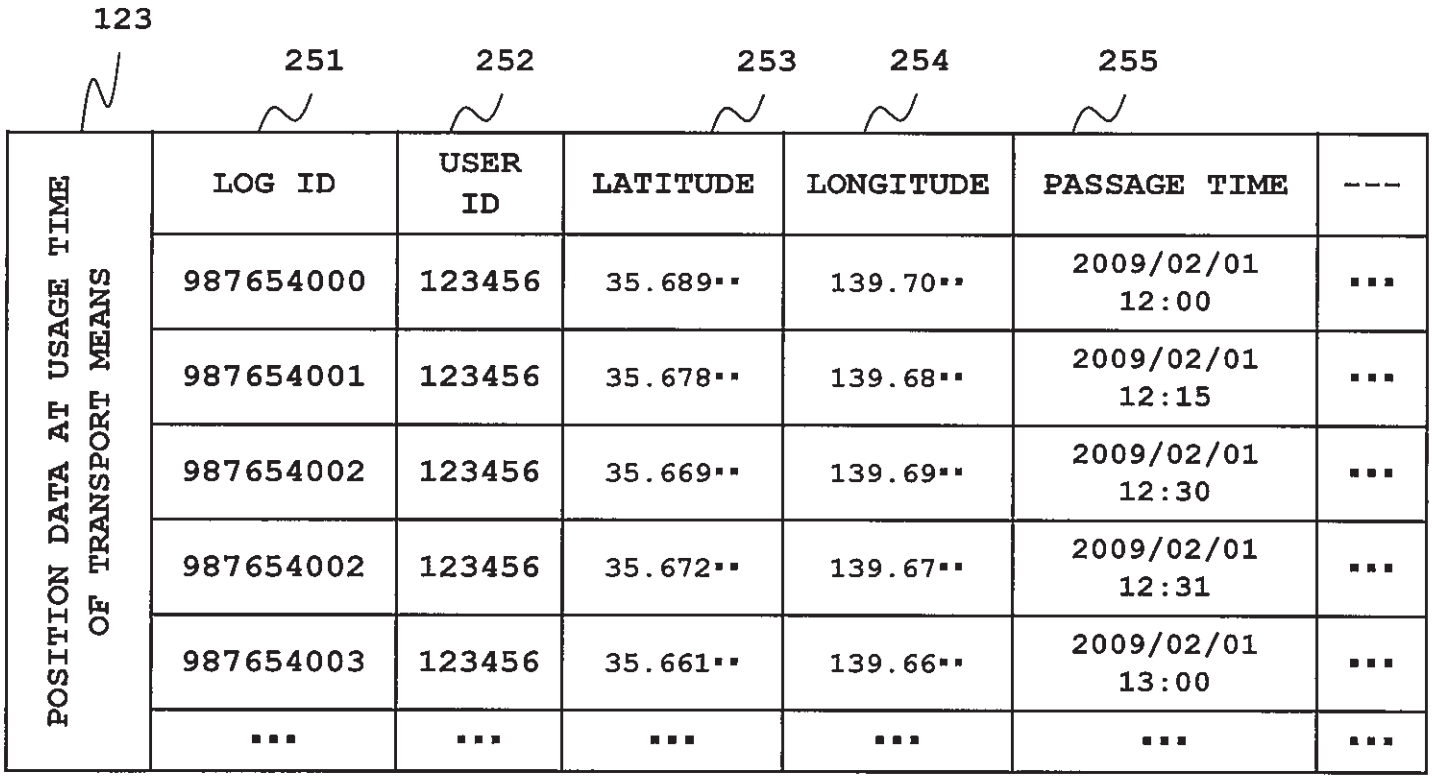
FIG. 4

122

TRANSPORT IC CARD DATA

LOG ID (241)	USER ID (242)	STATION/ BUS STOP ID (243)	USAGE TIME (244)	USAGE TYPE (245)	---
87654000	1234567	10001	2009/01/01 12:00	ENTRANCE	...
87654001	1234567	10002	2009/01/01 12:15	EXIT	...
87654002	1234569	10003	2009/01/01 12:30	ENTRANCE	...
87654002	1234569		2009/01/01 12:31	PURCHASE	...
87654003	1234569	10004	2009/01/01 13:00	EXIT	...
...	...	...	...	...	...

FIG. 5



123

POSITION DATA AT USAGE TIME OF TRANSPORT MEANS

251 LOG ID	252 USER ID	253 LATITUDE	254 LONGITUDE	255 PASSAGE TIME	---
987654000	123456	35.689••	139.70••	2009/02/01 12:00	•••
987654001	123456	35.678••	139.68••	2009/02/01 12:15	•••
987654002	123456	35.669••	139.69••	2009/02/01 12:30	•••
987654002	123456	35.672••	139.67••	2009/02/01 12:31	•••
987654003	123456	35.661••	139.66••	2009/02/01 13:00	•••
•••	•••	•••	•••	•••	•••

FIG. 6

124

MASTER DATA

300 301 302 303 304 305

STATION/BUS STOP MASTER

STATION/BUS STOP ID	STATION/BUS STOP NAME	PROPRIETARY COMPANY	LOCATION	LATITUDE /LONGITUDE	---
10001	STATION A	○○	αα-SHI, αα-KEN▪▪	139.xxx, 34.xxx	
10002	STATION B	△△	ββ-KU, ββ-TO▪▪	139.ww, 34.ww	
10003	BUS STOP C	××	δδ-SHI, χχ-KEN▪▪	140.yyy, 35.vv	
10004	BUS STOP D	××	αα-KU, ββ-TO▪▪	138.xx, 35.mm	

310 311 312 313 314

TRACK MASTER

TRACK ID	TRACK NAME	OPERATION COMPANY	TRACK TYPE	---
20001	X LINE LOCAL	○○	ORDINARY TRAIN	
20002	X LINE LIMITED EXPRESS	○○	LIMITED EXPRESS TRAIN	
20003	δ BUS 300 ROUTE	××	ROUTE BUS	
20004	B BUS 300 ROUTE	××	ROUTE BUS	

320 321 322 323 324 325

STATION/BUS STOP & PATH MASTER

TRACK ID	STATION/BUS STOP ID	SEQUENCE NUMBER	TYPE	TIMES REQUIRED FROM STARTING POINT	---
20002	10001	1	STOP	0	
20002	10002	2	PASS	3	
20003	10003	1	STOP	0	
20003	10004	2	STOP	5	

330 331 332 333 334 335 336 341 342 343

PATH MASTER

PATH ID	BOARDING STATION /BUS STOP ID	EXIT STATION /BUS STOP ID	TRACK ID 1	TRANSFER STATION /BUS STOP ID 1	TRACK ID 2	▪▪▪	NUMBER OF BOARDING TRACKS	STANDARD TIME REQUIRED	FARE	▪▪
30001	10001	10002	20001				1	10	180	
30002	10001	10031	20002	10002	20004		5	42	520	
30003	10003	10004	20003				1	5	200	
30004	10003	10006	20003	10004	20004		2	23	400	

FIG. 7

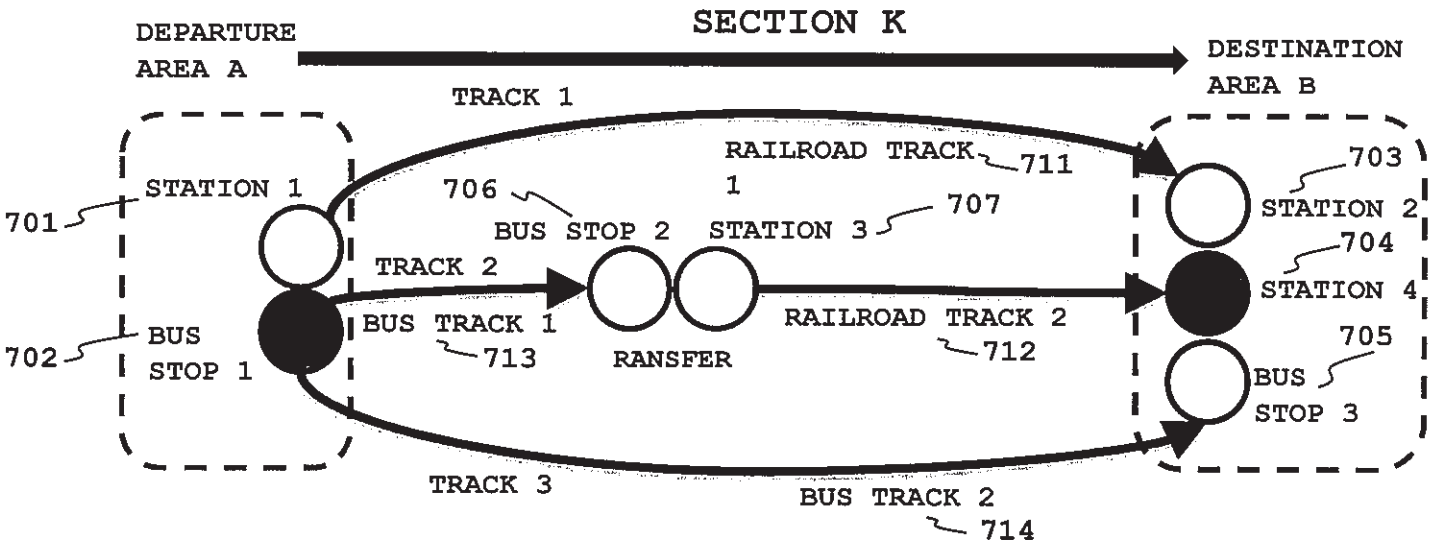

SECTION K
DEPARTURE AREA A
DESTINATION AREA B
TRACK 1
RAILROAD TRACK 1
711
703
STATION 2
706
BUS STOP 2
STATION 3
707
701
STATION 1
704
STATION 4
TRACK 2
BUS TRACK 1
713
RANSFER
RAILROAD TRACK 2
712
705
BUS STOP 3
702
BUS STOP 1
TRACK 3
BUS TRACK 2
714

FIG. 8

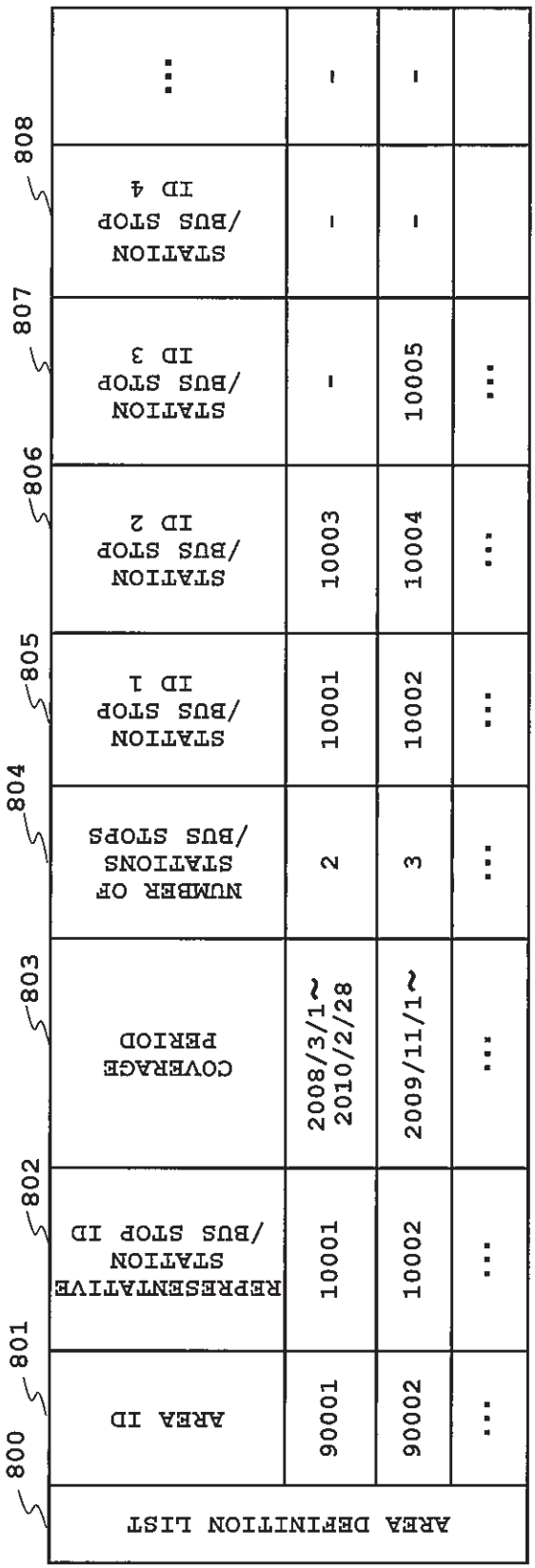
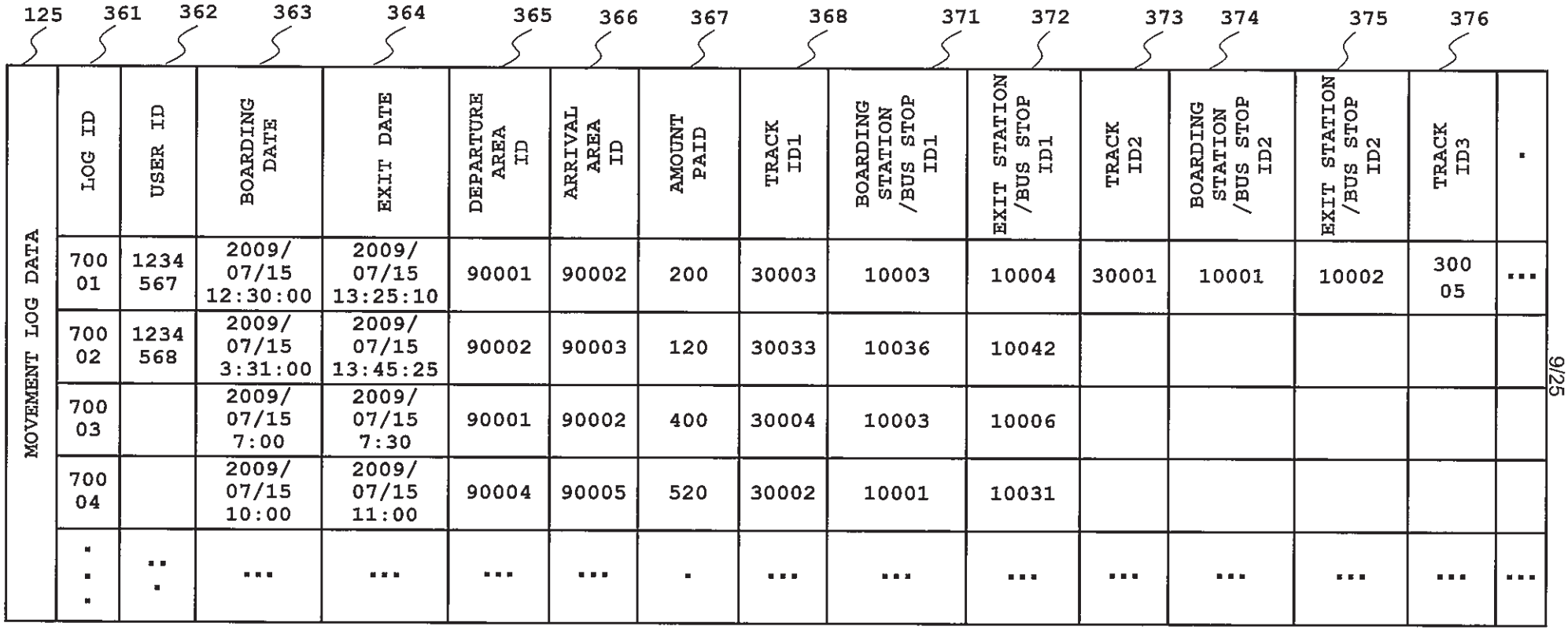

AREA DEFINITION LIST
800
AREA ID
801
REPRESENTATIVE STATION /BUS STOP ID
802
COVERAGE PERIOD
803
NUMBER OF STATIONS /BUS STOPS
804
STATION /BUS STOP ID 1
805
STATION /BUS STOP ID 2
806
STATION /BUS STOP ID 3
807
STATION /BUS STOP ID 4
808
90001
10001
2008/3/1~ 2010/2/28
2
10001
10003
-
-
90002
10002
2009/11/1~
3
10002
10004
10005
-
...
...
...
...
...
...
...
...

FIG. 9



125	361	362	363	364	365	366	367	368	371	372	373	374	375	376	
MOVEMENT LOG DATA	LOG ID	USER ID	BOARDING DATE	EXIT DATE	DEPARTURE AREA ID	ARRIVAL AREA ID	AMOUNT PAID	TRACK ID1	BOARDING STATION /BUS STOP ID1	EXIT STATION /BUS STOP ID1	TRACK ID2	BOARDING STATION /BUS STOP ID2	EXIT STATION /BUS STOP ID2	TRACK ID3	.
	70001	1234567	2009/07/15 12:30:00	2009/07/15 13:25:10	90001	90002	200	30003	10003	10004	30001	10001	10002	30005	...
	70002	1234568	2009/07/15 3:31:00	2009/07/15 13:45:25	90002	90003	120	30033	10036	10042					
	70003		2009/07/15 7:00	2009/07/15 7:30	90001	90002	400	30004	10003	10006					
	70004		2009/07/15 10:00	2009/07/15 11:00	90004	90005	520	30002	10001	10031					
	...	..	...	...	...	...	.	...	...	...	...	...	...	...	...

FIG. 10

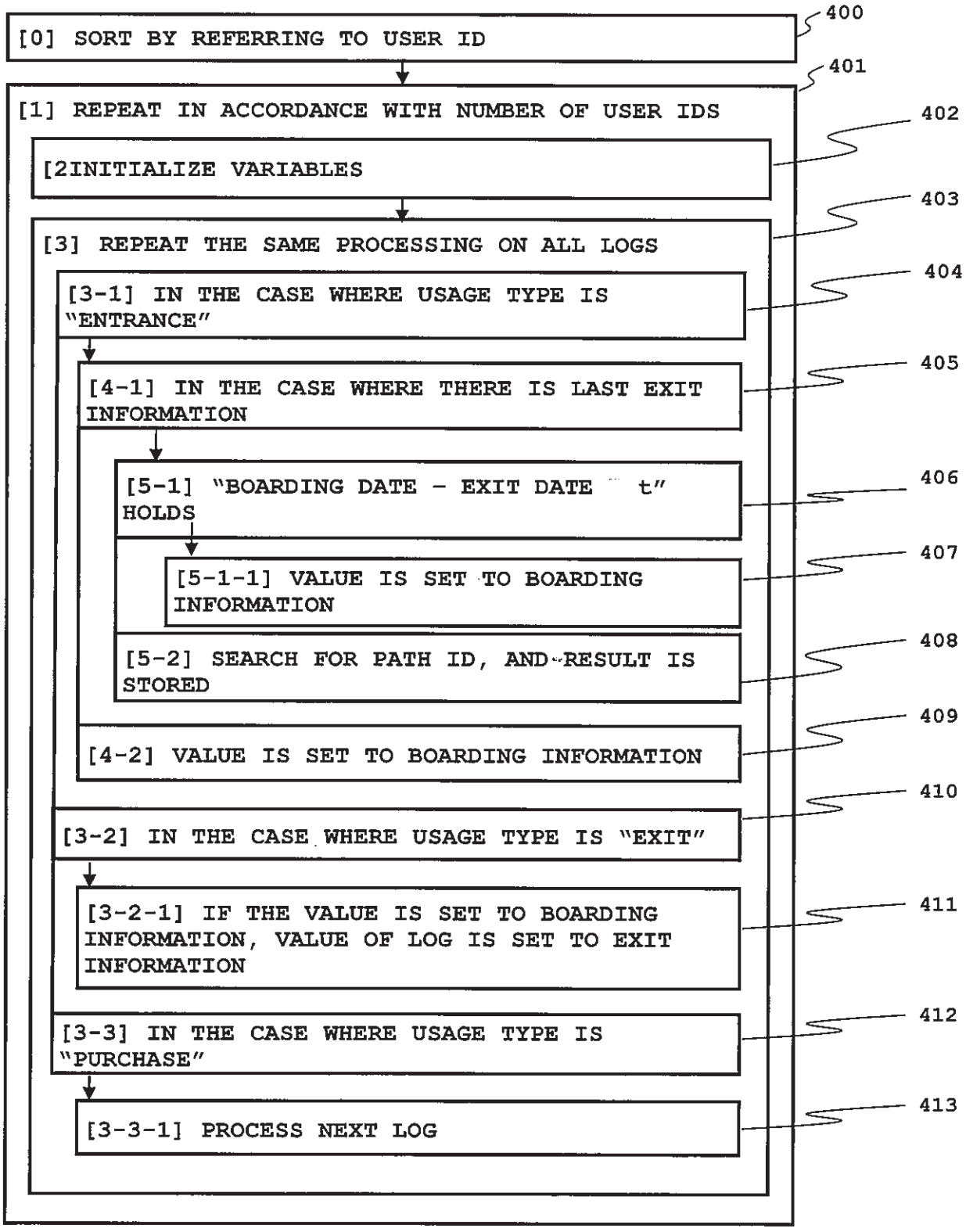

[0] SORT BY REFERRING TO USER ID
400
[1] REPEAT IN ACCORDANCE WITH NUMBER OF USER IDS
401
[2INITIALIZE VARIABLES
402
[3] REPEAT THE SAME PROCESSING ON ALL LOGS
403
[3-1] IN THE CASE WHERE USAGE TYPE IS "ENTRANCE"
404
[4-1] IN THE CASE WHERE THERE IS LAST EXIT INFORMATION
405
[5-1] "BOARDING DATE - EXIT DATE t" HOLDS
406
[5-1-1] VALUE IS SET TO BOARDING INFORMATION
407
[5-2] SEARCH FOR PATH ID, AND RESULT IS STORED
408
[4-2] VALUE IS SET TO BOARDING INFORMATION
409
[3-2] IN THE CASE WHERE USAGE TYPE IS "EXIT"
410
[3-2-1] IF THE VALUE IS SET TO BOARDING INFORMATION, VALUE OF LOG IS SET TO EXIT INFORMATION
411
[3-3] IN THE CASE WHERE USAGE TYPE IS "PURCHASE"
412
[3-3-1] PROCESS NEXT LOG
413

FIG. 11

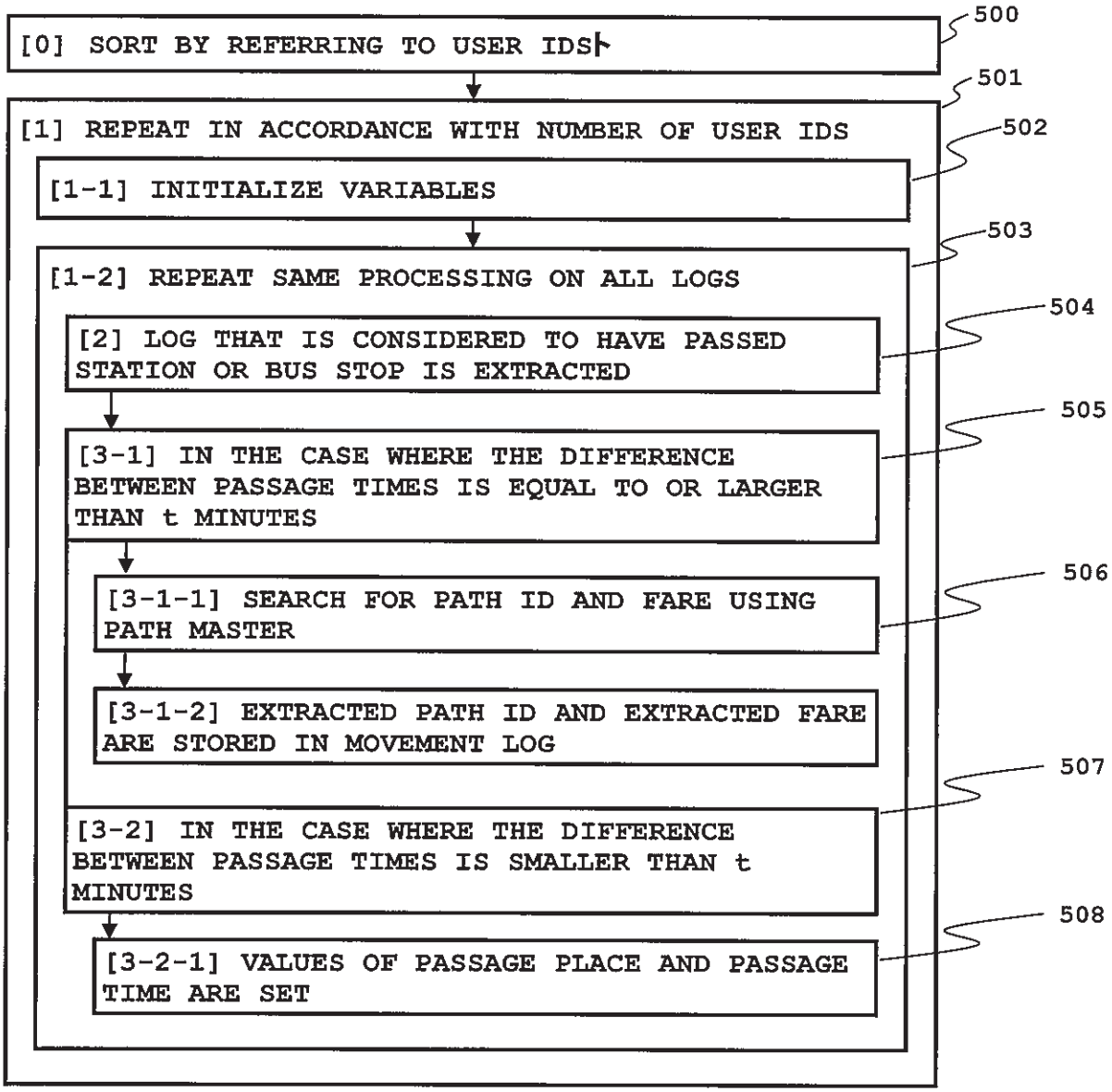
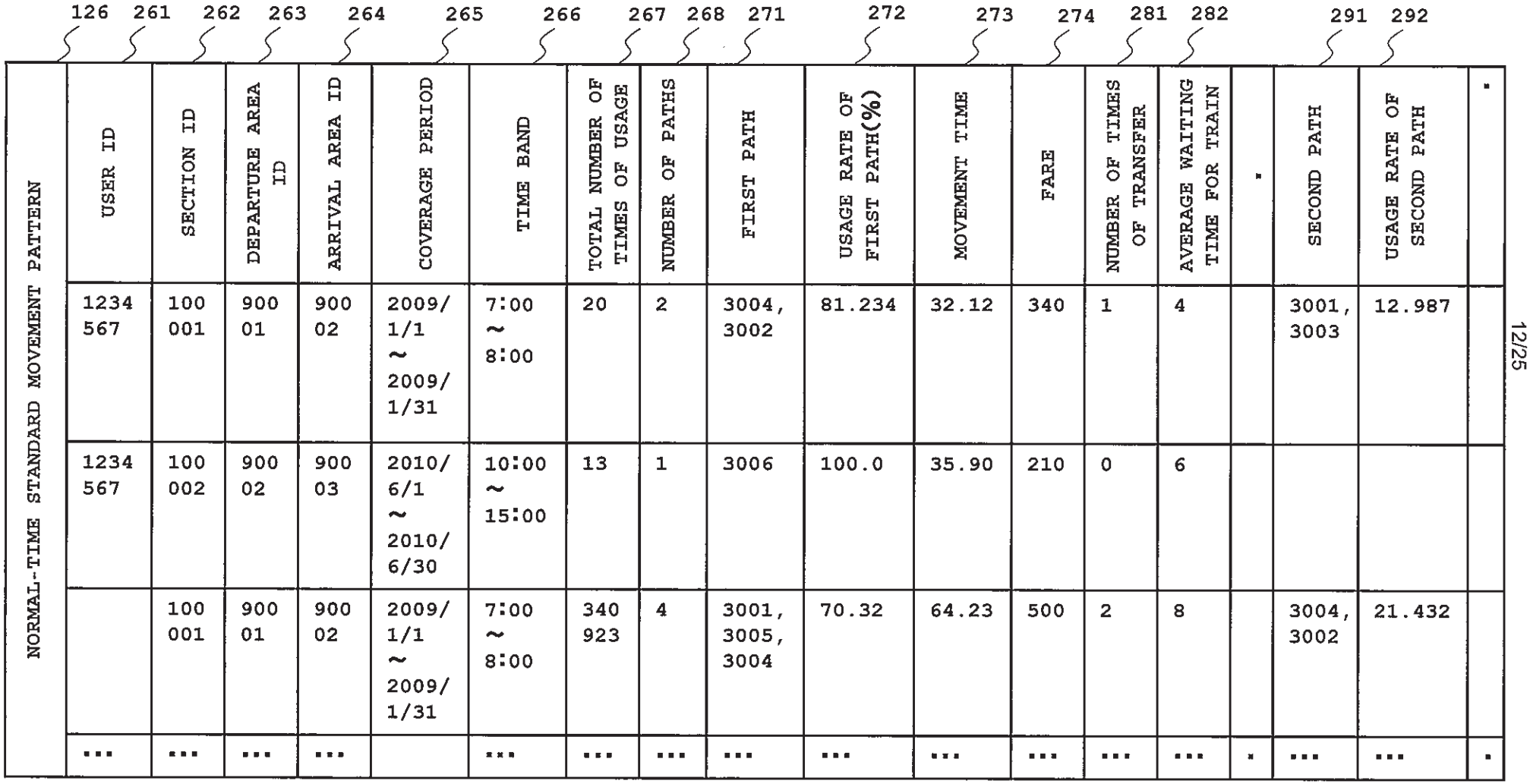

[0] SORT BY REFERRING TO USER IDS
500
[1] REPEAT IN ACCORDANCE WITH NUMBER OF USER IDS
501
[1-1] INITIALIZE VARIABLES
502
[1-2] REPEAT SAME PROCESSING ON ALL LOGS
503
[2] LOG THAT IS CONSIDERED TO HAVE PASSED STATION OR BUS STOP IS EXTRACTED
504
[3-1] IN THE CASE WHERE THE DIFFERENCE BETWEEN PASSAGE TIMES IS EQUAL TO OR LARGER THAN t MINUTES
505
[3-1-1] SEARCH FOR PATH ID AND FARE USING PATH MASTER
506
[3-1-2] EXTRACTED PATH ID AND EXTRACTED FARE ARE STORED IN MOVEMENT LOG
[3-2] IN THE CASE WHERE THE DIFFERENCE BETWEEN PASSAGE TIMES IS SMALLER THAN t MINUTES
507
[3-2-1] VALUES OF PASSAGE PLACE AND PASSAGE TIME ARE SET
508

FIG. 12



NORMAL-TIME STANDARD MOVEMENT PATTERN

126 USER ID	261 SECTION ID	262 DEPARTURE AREA ID	263 ARRIVAL AREA ID	264 COVERAGE PERIOD	265 TIME BAND	266 TOTAL NUMBER OF TIMES OF USAGE	267 NUMBER OF PATHS	268 FIRST PATH	271 USAGE RATE OF FIRST PATH(%)	272 MOVEMENT TIME	273 FARE	274 NUMBER OF TIMES OF TRANSFER	281 AVERAGE WAITING TIME FOR TRAIN	282	291 SECOND PATH	292 USAGE RATE OF SECOND PATH	
1234567	100001	90001	90002	2009/1/1 ~ 2009/1/31	7:00 ~ 8:00	20	2	3004, 3002	81.234	32.12	340	1	4		3001, 3003	12.987	
1234567	100002	90002	90003	2010/6/1 ~ 2010/6/30	10:00 ~ 15:00	13	1	3006	100.0	35.90	210	0	6				
	100001	90001	90002	2009/1/1 ~ 2009/1/31	7:00 ~ 8:00	340923	4	3001, 3005, 3004	70.32	64.23	500	2	8		3004, 3002	21.432	
...	...	...	...		...	...	...	...	...	...	...	...	...	...	...	...	...

FIG. 13

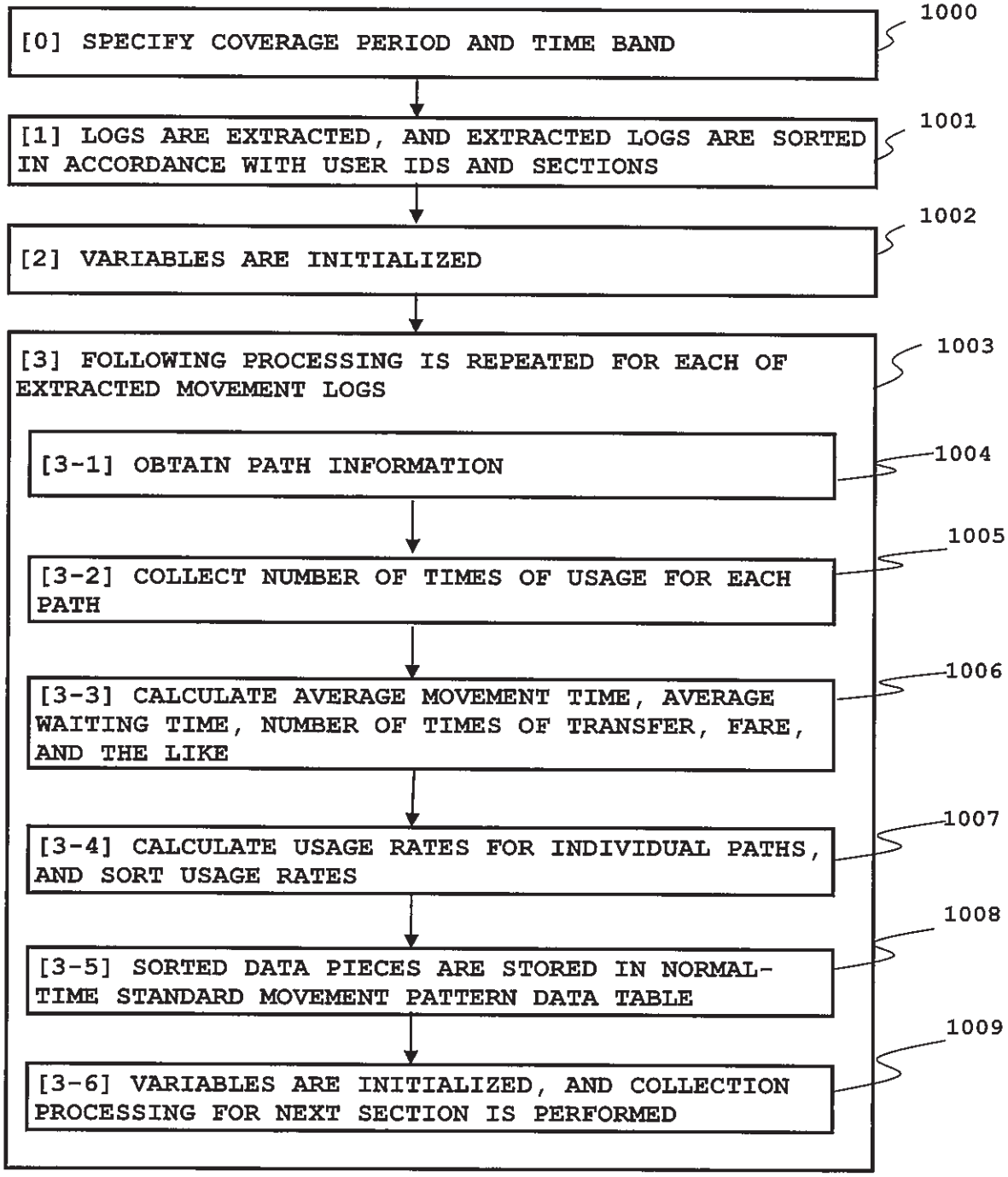

[0] SPECIFY COVERAGE PERIOD AND TIME BAND
1000
[1] LOGS ARE EXTRACTED, AND EXTRACTED LOGS ARE SORTED IN ACCORDANCE WITH USER IDS AND SECTIONS
1001
[2] VARIABLES ARE INITIALIZED
1002
[3] FOLLOWING PROCESSING IS REPEATED FOR EACH OF EXTRACTED MOVEMENT LOGS
1003
[3-1] OBTAIN PATH INFORMATION
1004
[3-2] COLLECT NUMBER OF TIMES OF USAGE FOR EACH PATH
1005
[3-3] CALCULATE AVERAGE MOVEMENT TIME, AVERAGE WAITING TIME, NUMBER OF TIMES OF TRANSFER, FARE, AND THE LIKE
1006
[3-4] CALCULATE USAGE RATES FOR INDIVIDUAL PATHS, AND SORT USAGE RATES
1007
[3-5] SORTED DATA PIECES ARE STORED IN NORMAL-TIME STANDARD MOVEMENT PATTERN DATA TABLE
1008
[3-6] VARIABLES ARE INITIALIZED, AND COLLECTION PROCESSING FOR NEXT SECTION IS PERFORMED
1009

FIG. 14

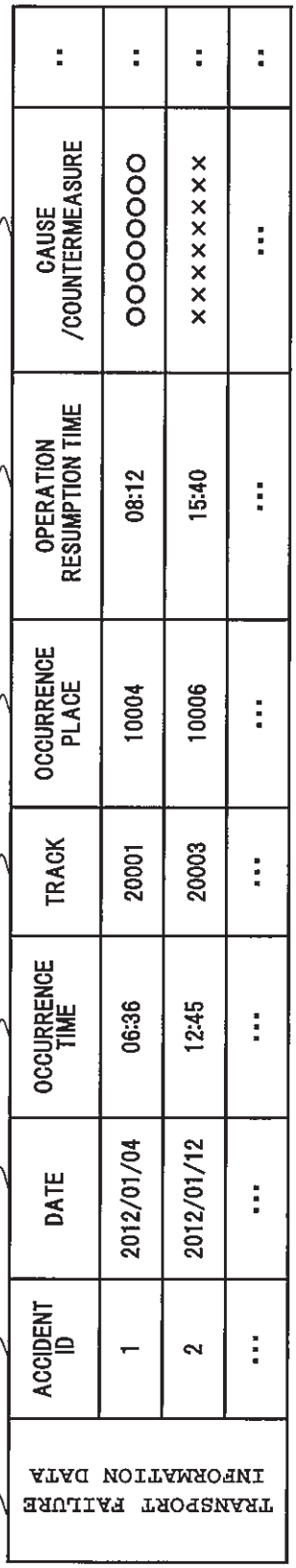

1100
TRANSPORT FAILURE INFORMATION DATA
1101
ACCIDENT ID
1102
DATE
1103
OCCURRENCE TIME
1104
TRACK
1105
OCCURRENCE PLACE
1106
OPERATION RESUMPTION TIME
1107
CAUSE /COUNTERMEASURE
1 2012/01/04 06:36 20001 10004 08:12 OOOOOOOO
2 2012/01/12 12:45 20003 10006 15:40 ××××××××
... ...

FIG. 15

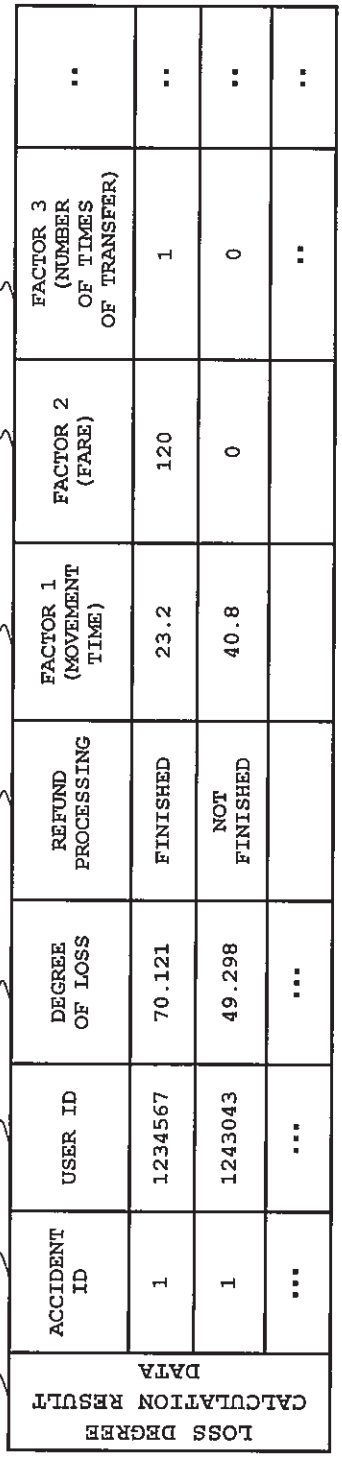

127
LOSS DEGREE CALCULATION RESULT DATA
901
ACCIDENT ID
902
USER ID
903
DEGREE OF LOSS
904
REFUND PROCESSING
905
FACTOR 1 (MOVEMENT TIME)
906
FACTOR 2 (FARE)
907
FACTOR 3 (NUMBER OF TIMES OF TRANSFER)
1
1234567
70.121
FINISHED
23.2
120
1
1
1243043
49.298
NOT FINISHED
40.8
0
0
...
...
...
..
..
..
..

FIG. 16

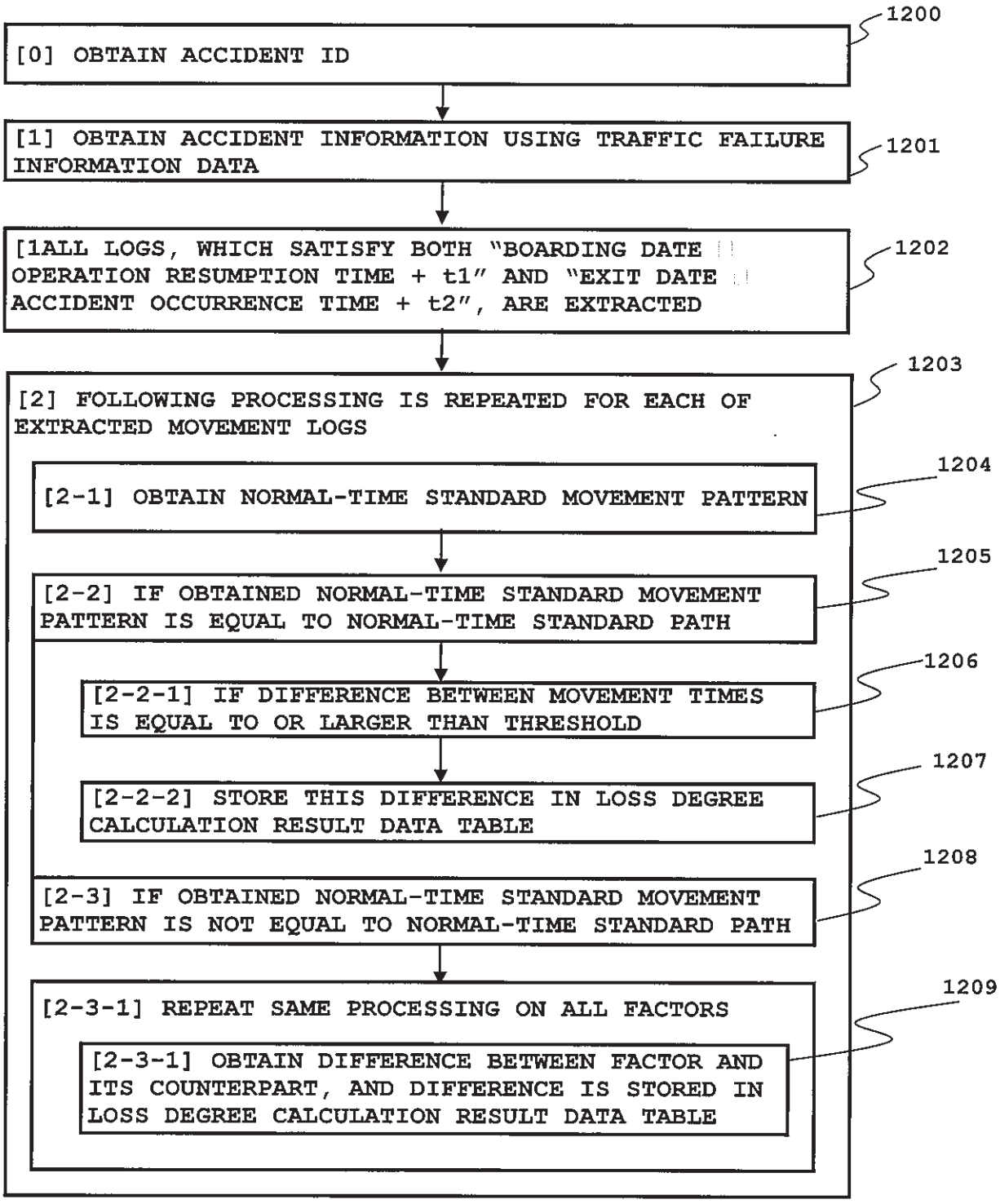

[0] OBTAIN ACCIDENT ID
1200
[1] OBTAIN ACCIDENT INFORMATION USING TRAFFIC FAILURE INFORMATION DATA
1201
[1ALL LOGS, WHICH SATISFY BOTH "BOARDING DATE OPERATION RESUMPTION TIME + t1" AND "EXIT DATE ACCIDENT OCCURRENCE TIME + t2", ARE EXTRACTED
1202
[2] FOLLOWING PROCESSING IS REPEATED FOR EACH OF EXTRACTED MOVEMENT LOGS
1203
[2-1] OBTAIN NORMAL-TIME STANDARD MOVEMENT PATTERN
1204
[2-2] IF OBTAINED NORMAL-TIME STANDARD MOVEMENT PATTERN IS EQUAL TO NORMAL-TIME STANDARD PATH
1205
[2-2-1] IF DIFFERENCE BETWEEN MOVEMENT TIMES IS EQUAL TO OR LARGER THAN THRESHOLD
1206
[2-2-2] STORE THIS DIFFERENCE IN LOSS DEGREE CALCULATION RESULT DATA TABLE
1207
[2-3] IF OBTAINED NORMAL-TIME STANDARD MOVEMENT PATTERN IS NOT EQUAL TO NORMAL-TIME STANDARD PATH
1208
[2-3-1] REPEAT SAME PROCESSING ON ALL FACTORS
[2-3-1] OBTAIN DIFFERENCE BETWEEN FACTOR AND ITS COUNTERPART, AND DIFFERENCE IS STORED IN LOSS DEGREE CALCULATION RESULT DATA TABLE
1209

FIG. 17

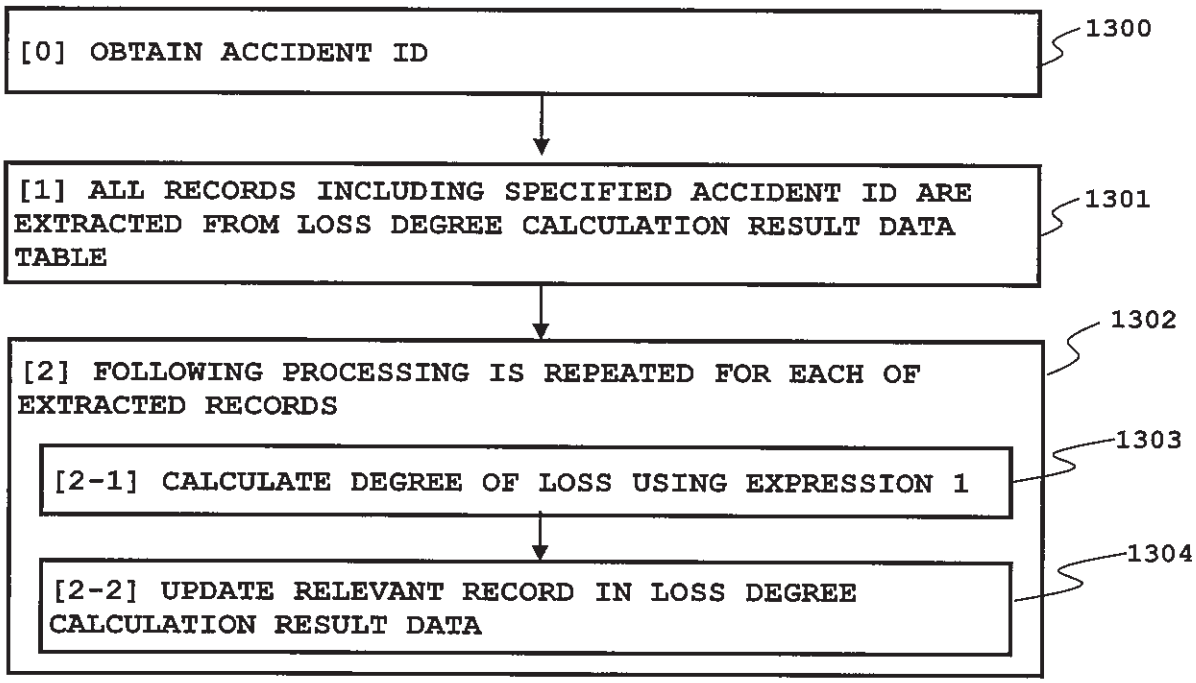

[0] OBTAIN ACCIDENT ID
1300
[1] ALL RECORDS INCLUDING SPECIFIED ACCIDENT ID ARE EXTRACTED FROM LOSS DEGREE CALCULATION RESULT DATA TABLE
1301
[2] FOLLOWING PROCESSING IS REPEATED FOR EACH OF EXTRACTED RECORDS
1302
[2-1] CALCULATE DEGREE OF LOSS USING EXPRESSION 1
1303
[2-2] UPDATE RELEVANT RECORD IN LOSS DEGREE CALCULATION RESULT DATA
1304

FIG. 18

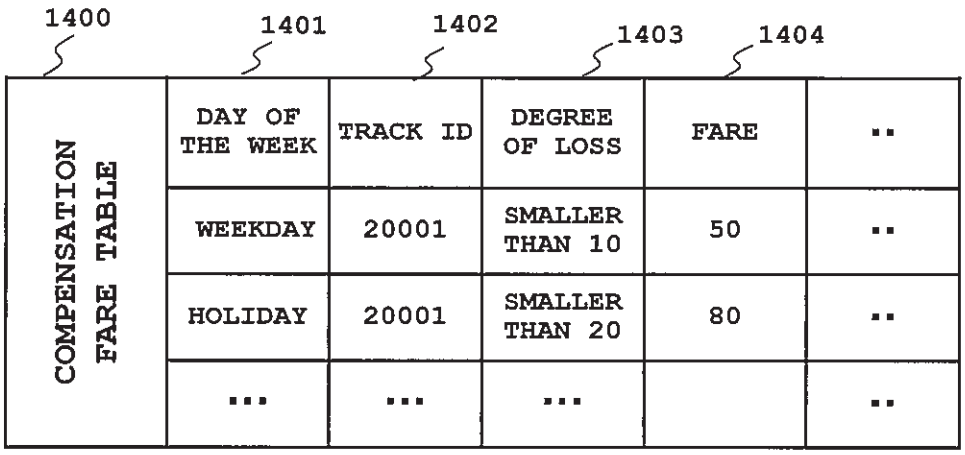

1400
1401
1402
1403
1404
COMPENSATION FARE TABLE
DAY OF THE WEEK
TRACK ID
DEGREE OF LOSS
FARE
..
WEEKDAY
20001
SMALLER THAN 10
50
..
HOLIDAY
20001
SMALLER THAN 20
80
..
...
...
...
..

FIG. 19

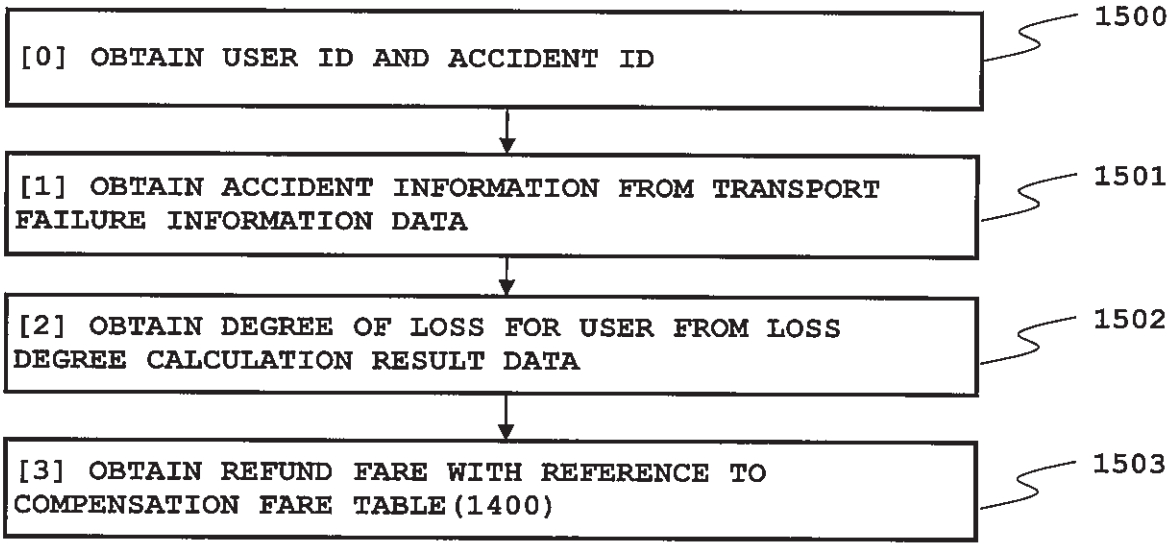

[0] OBTAIN USER ID AND ACCIDENT ID
1500
[1] OBTAIN ACCIDENT INFORMATION FROM TRANSPORT FAILURE INFORMATION DATA
1501
[2] OBTAIN DEGREE OF LOSS FOR USER FROM LOSS DEGREE CALCULATION RESULT DATA
1502
[3] OBTAIN REFUND FARE WITH REFERENCE TO COMPENSATION FARE TABLE(1400)
1503

FIG. 20

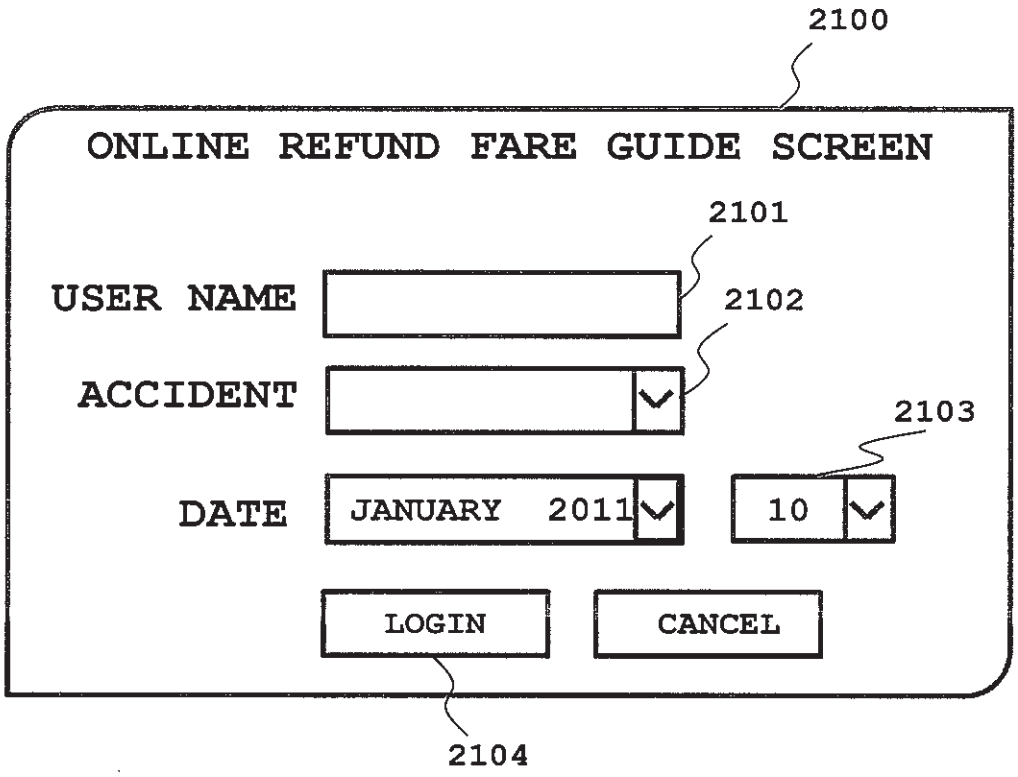

2100
ONLINE REFUND FARE GUIDE SCREEN
2101
USER NAME
2102
ACCIDENT
2103
DATE
JANUARY 2011
10
LOGIN
CANCEL
2104

FIG. 21

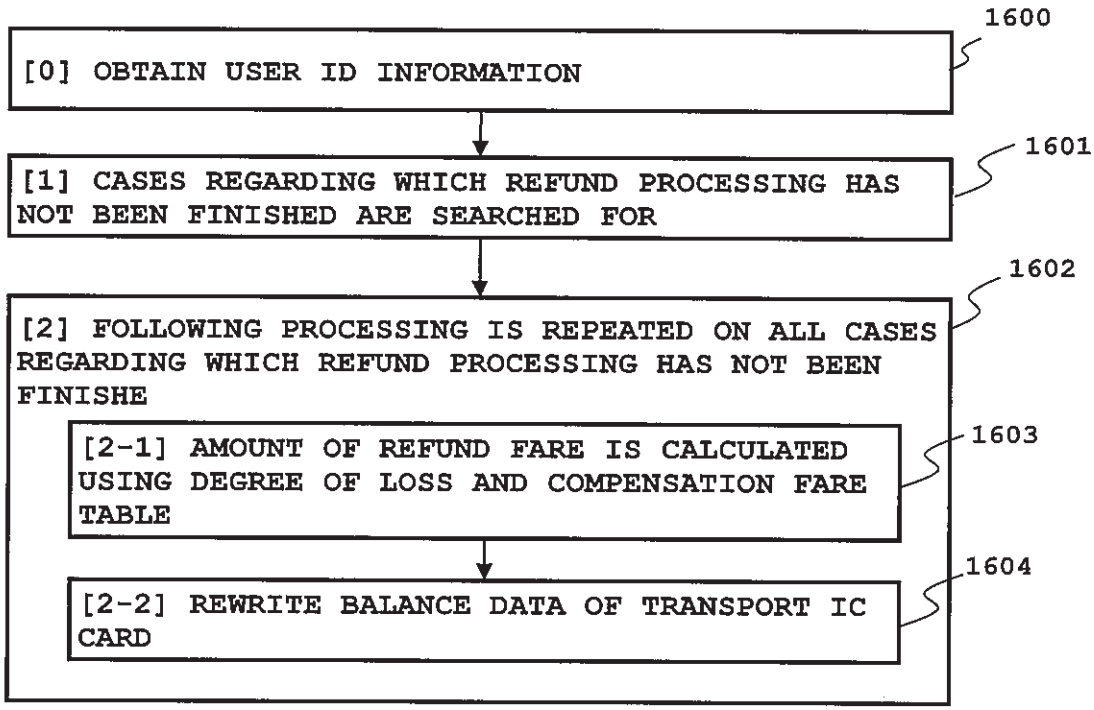

1600
[0] OBTAIN USER ID INFORMATION
1601
[1] CASES REGARDING WHICH REFUND PROCESSING HAS NOT BEEN FINISHED ARE SEARCHED FOR
1602
[2] FOLLOWING PROCESSING IS REPEATED ON ALL CASES REGARDING WHICH REFUND PROCESSING HAS NOT BEEN FINISHE
1603
[2-1] AMOUNT OF REFUND FARE IS CALCULATED USING DEGREE OF LOSS AND COMPENSATION FARE TABLE
1604
[2-2] REWRITE BALANCE DATA OF TRANSPORT IC CARD

FIG. 22

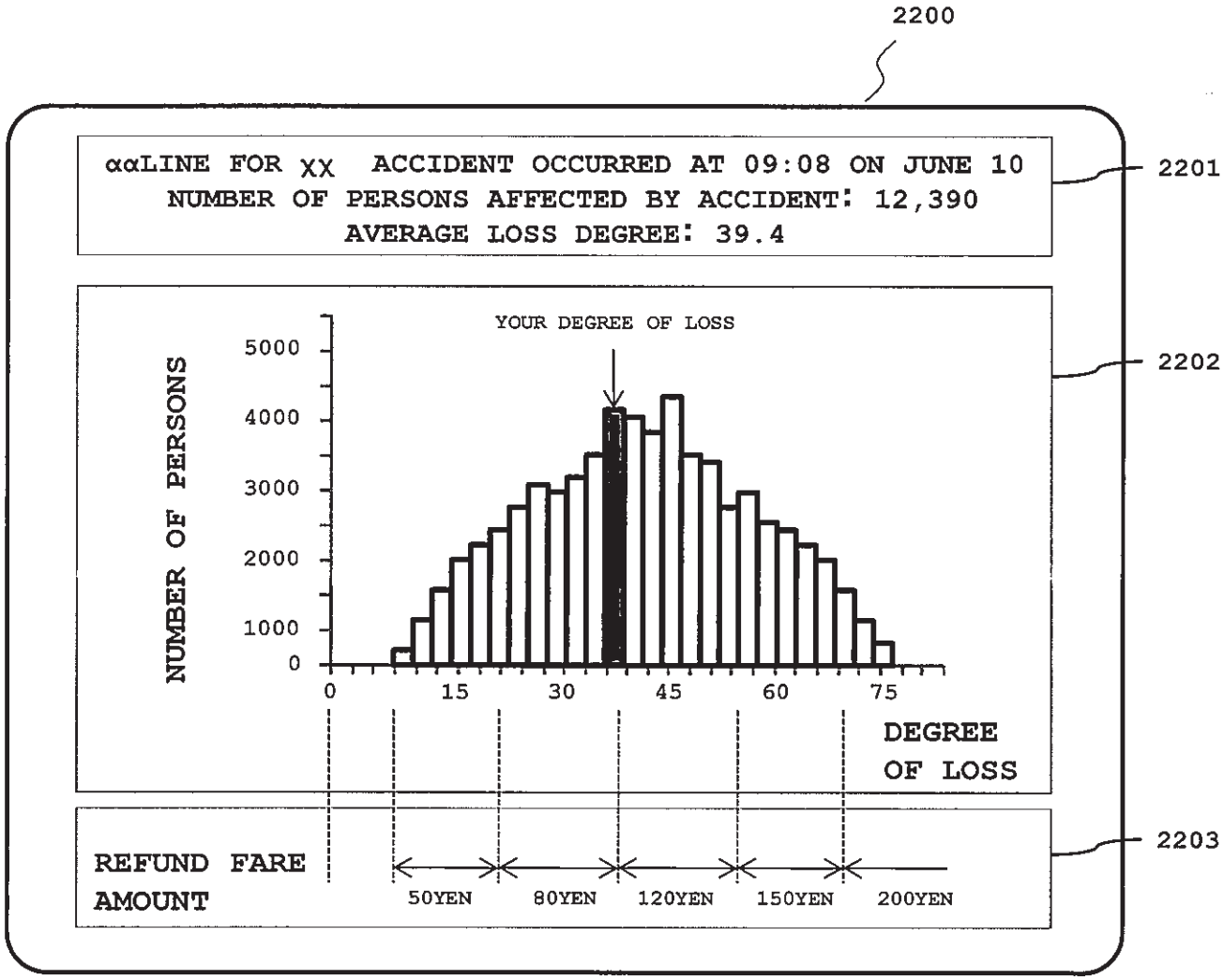

2200
αα LINE FOR XX ACCIDENT OCCURRED AT 09:08 ON JUNE 10
NUMBER OF PERSONS AFFECTED BY ACCIDENT: 12,390
AVERAGE LOSS DEGREE: 39.4
2201
YOUR DEGREE OF LOSS
NUMBER OF PERSONS
5000
4000
3000
2000
1000
0
0
15
30
45
60
75
DEGREE OF LOSS
2202
REFUND FARE AMOUNT
50YEN
80YEN
120YEN
150YEN
200YEN
2203

FIG. 23

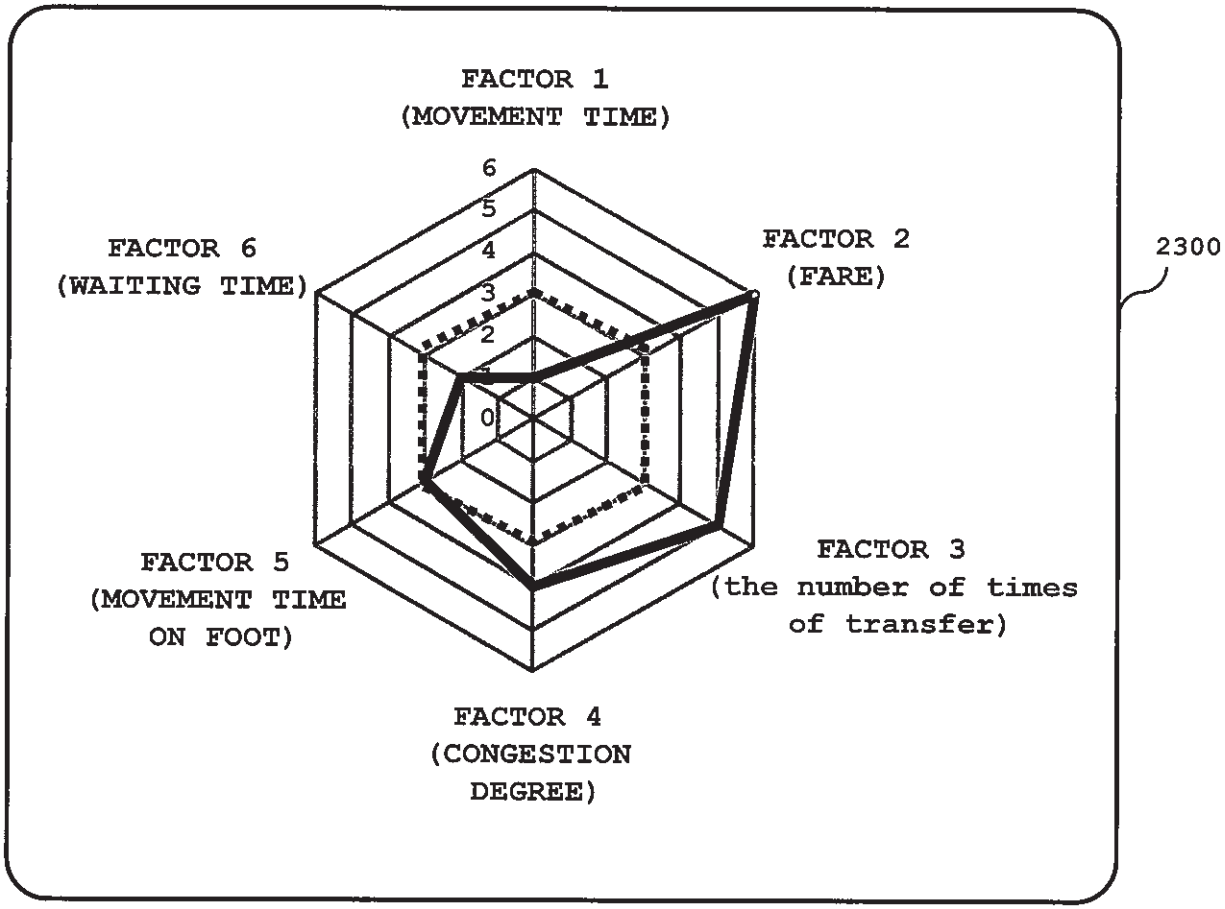

FACTOR 1
(MOVEMENT TIME)
6
5
4
3
2
1
0
FACTOR 2
(FARE)
FACTOR 3
(the number of times
of transfer)
FACTOR 4
(CONGESTION
DEGREE)
FACTOR 5
(MOVEMENT TIME
ON FOOT)
FACTOR 6
(WAITING TIME)
2300

FIG. 24

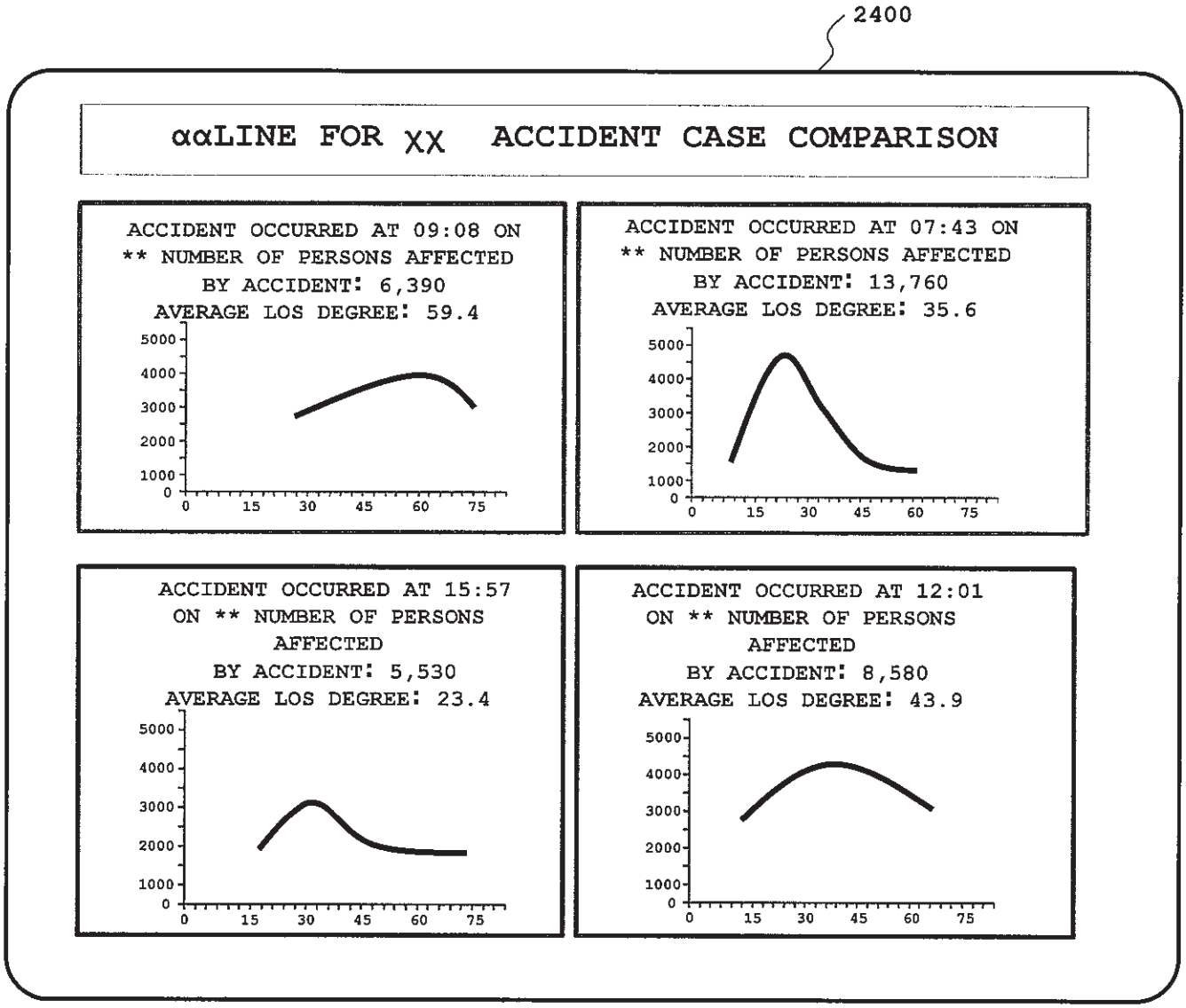
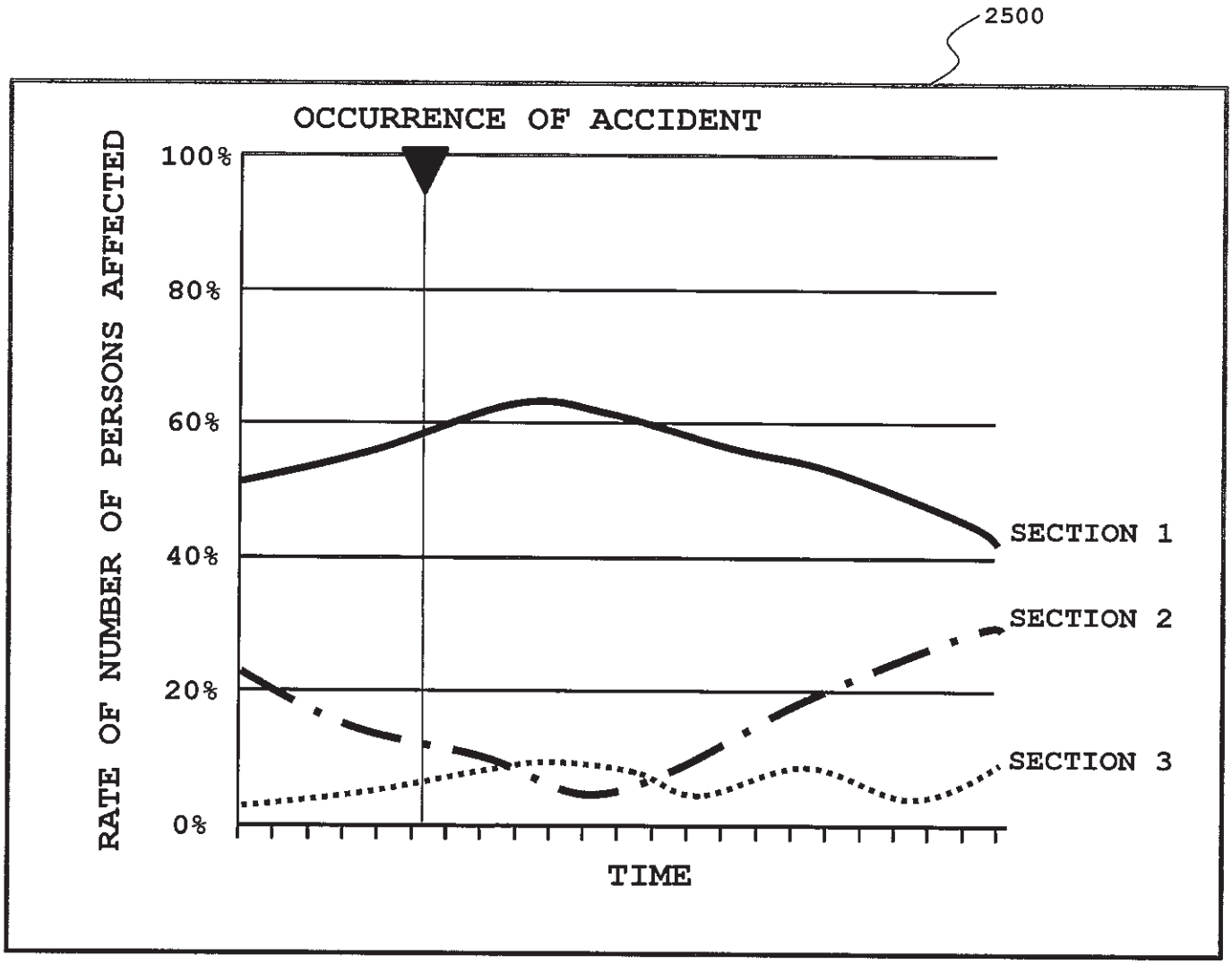

2400
ααLINE FOR χχ ACCIDENT CASE COMPARISON
ACCIDENT OCCURRED AT 09:08 ON
** NUMBER OF PERSONS AFFECTED
BY ACCIDENT: 6,390
AVERAGE LOS DEGREE: 59.4
ACCIDENT OCCURRED AT 07:43 ON
** NUMBER OF PERSONS AFFECTED
BY ACCIDENT: 13,760
AVERAGE LOS DEGREE: 35.6
ACCIDENT OCCURRED AT 15:57
ON ** NUMBER OF PERSONS
AFFECTED
BY ACCIDENT: 5,530
AVERAGE LOS DEGREE: 23.4
ACCIDENT OCCURRED AT 12:01
ON ** NUMBER OF PERSONS
AFFECTED
BY ACCIDENT: 8,580
AVERAGE LOS DEGREE: 43.9
5000
4000
3000
2000
1000
0
0
15
30
45
60
75

FIG. 25


2500
OCCURRENCE OF ACCIDENT
RATE OF NUMBER OF PERSONS AFFECTED
100%
80%
60%
40%
20%
0%
SECTION 1
SECTION 2
SECTION 3
TIME