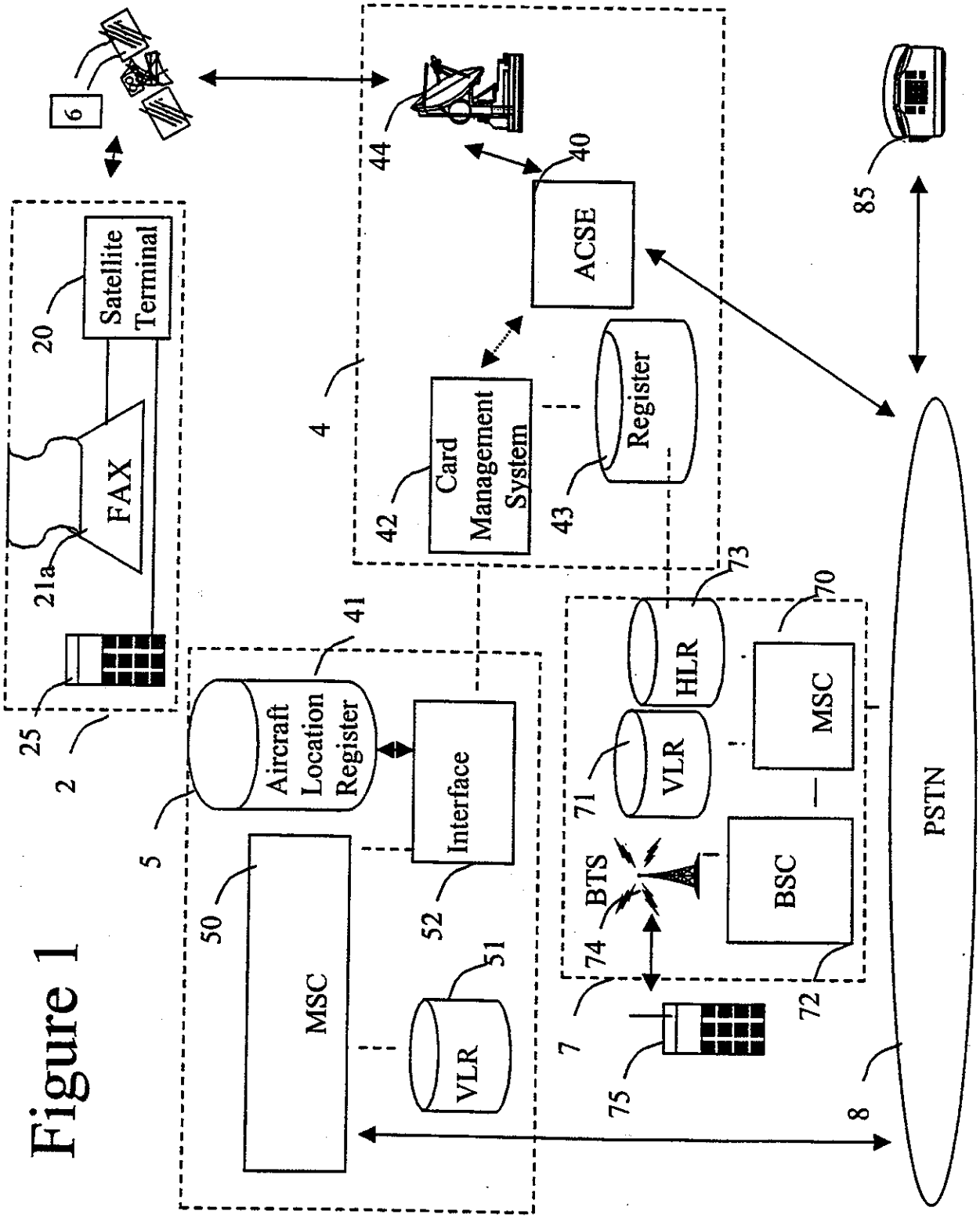

6
44
40
ACSE
85
Satellite Terminal
20
4
Card Management System
42
Register
43
FAX
21a
25
2
41
73
70
Aircraft Location Register
5
Interface
52
HLR
MSC
VLR
71
50
MSC
VLR
51
BTS
74
BSC
72
7
75
8
PSTN

Figure 1

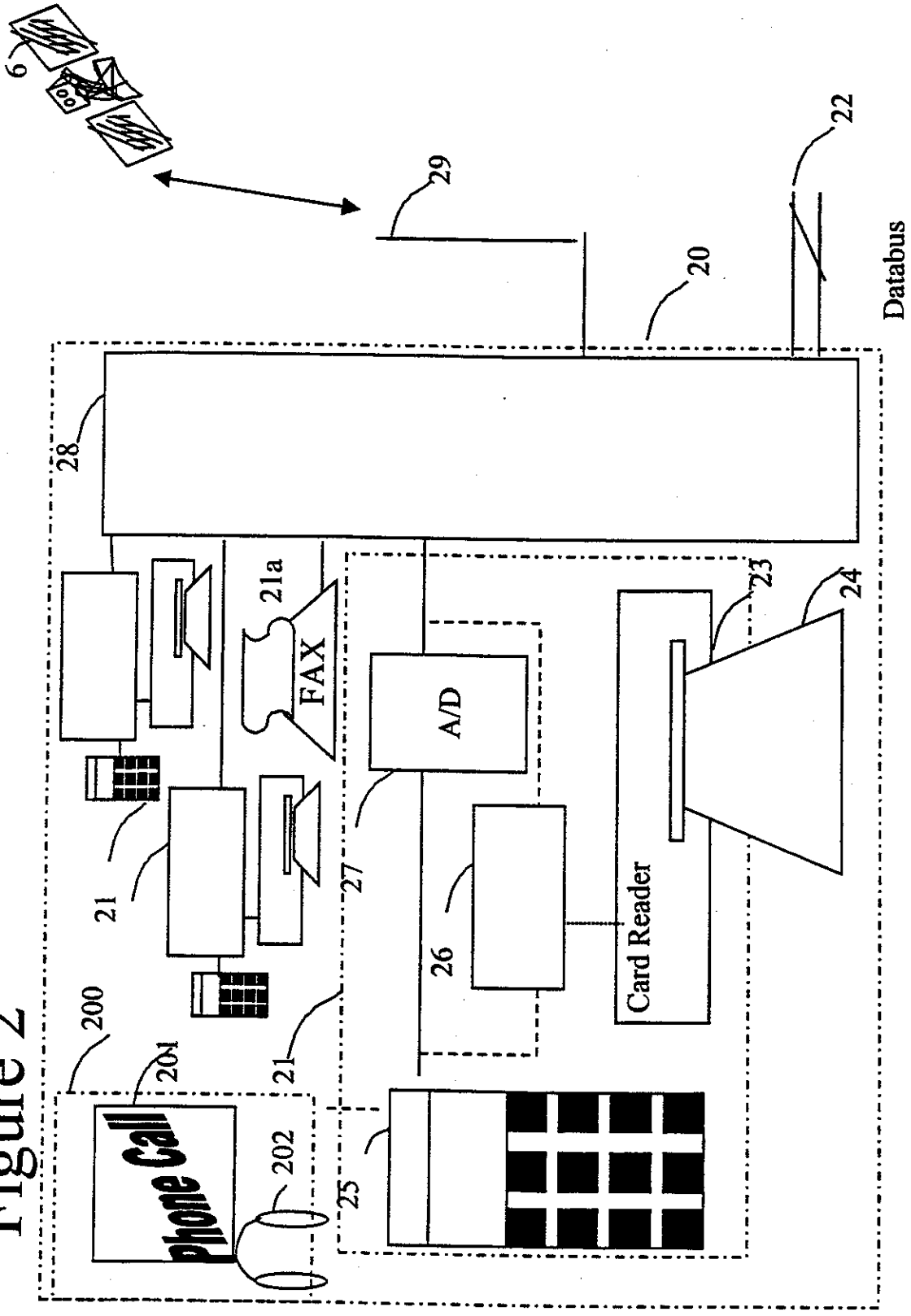
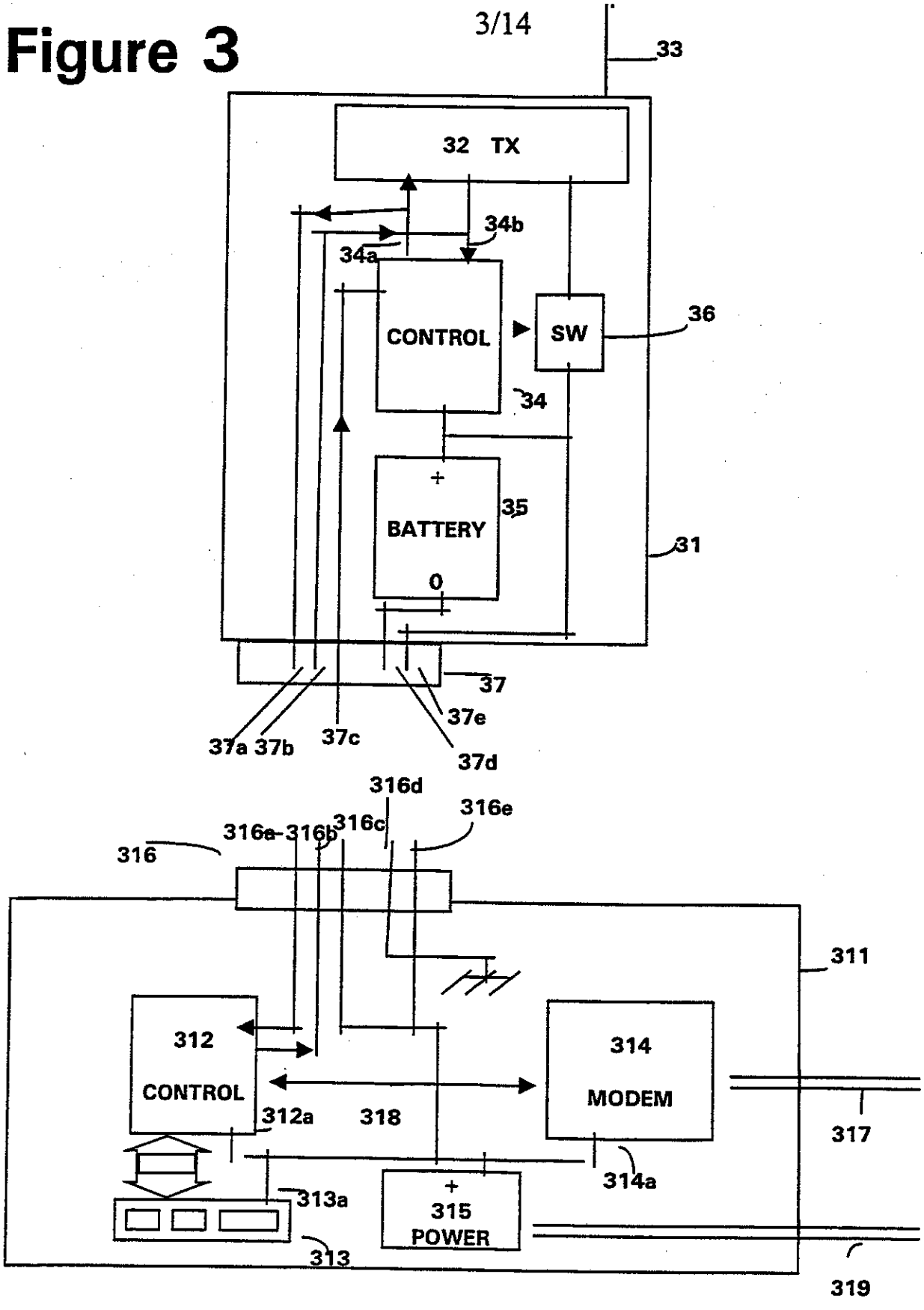

6
29
22
20
Databus
28
21a
FAX
A/D
23
24
21
27
26
Card Reader
200
201
21
Phone Call
202
25

Figure 2

Figure 3


33
32 TX
34b
34a
CONTROL
SW
36
34
+
BATTERY
35
0
31
37
37a
37b
37c
37e
37d
316d
316e
316c
316e-316b
316
311
312
CONTROL
312a
318
314
MODEM
317
314a
313a
+
315
POWER
313
319

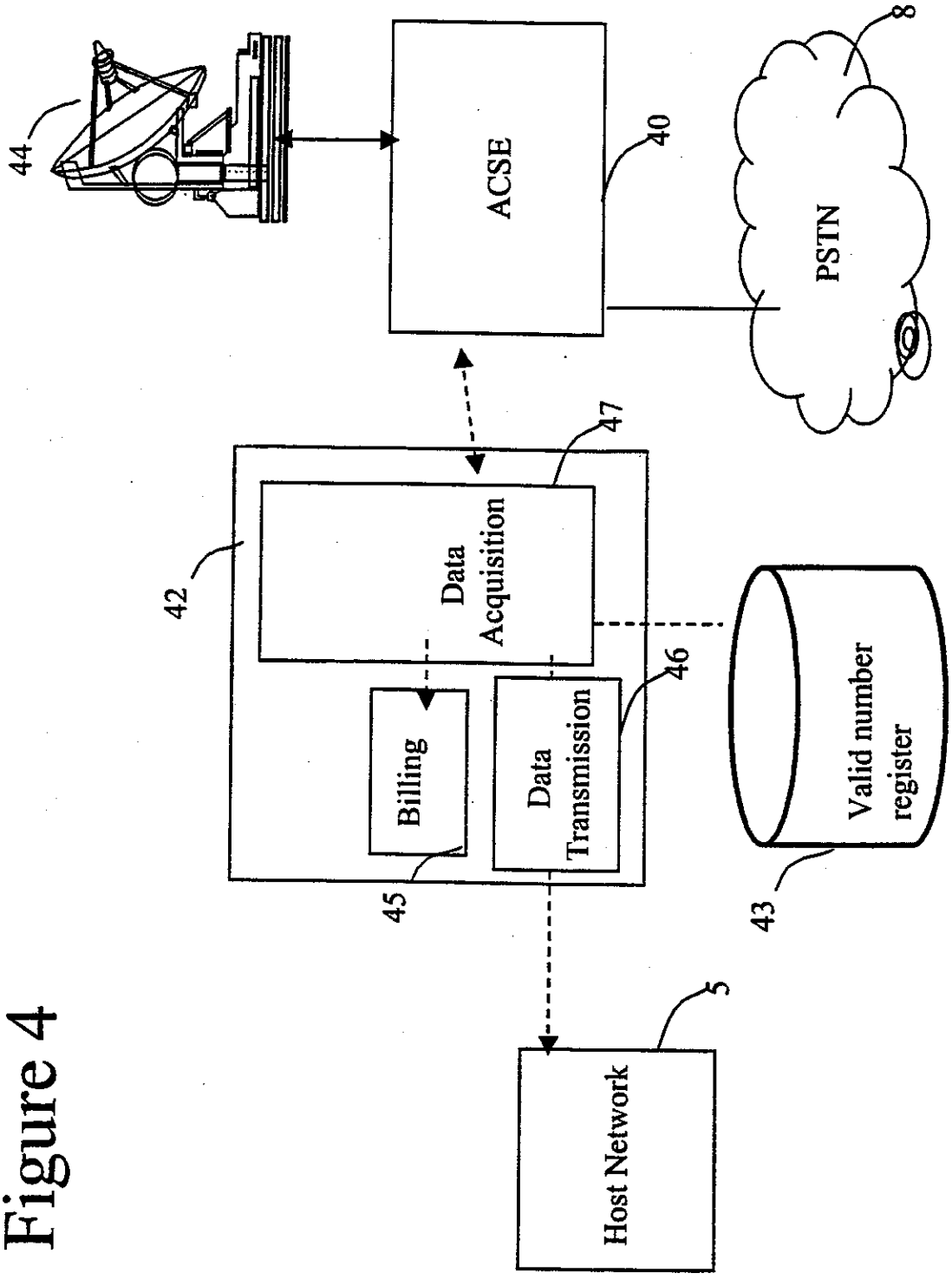

44
ACSE
40
PSTN
8
47
42
Data Acquisition
46
Billing
Data Transmission
45
Valid number register
43
Host Network
5

Figure 4

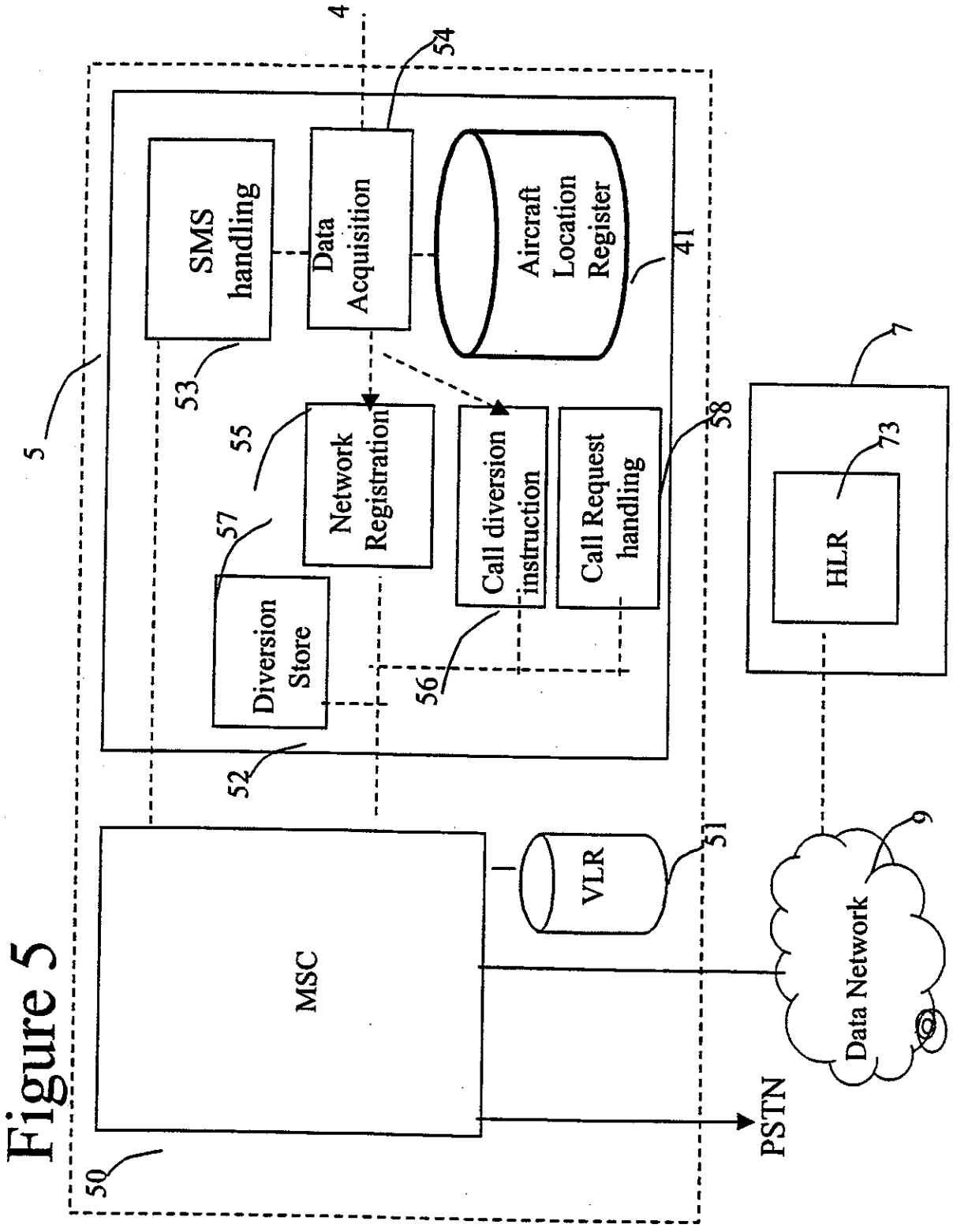

4
54
SMS handling
Data Acquisition
Aircraft Location Register
41
5
53
55
Network Registration
Call diversion instruction
Call Request handling
58
57
Diversion Store
56
52
7
73
HLR
MSC
VLR
51
9
Data Network
PSTN
50

Figure 5

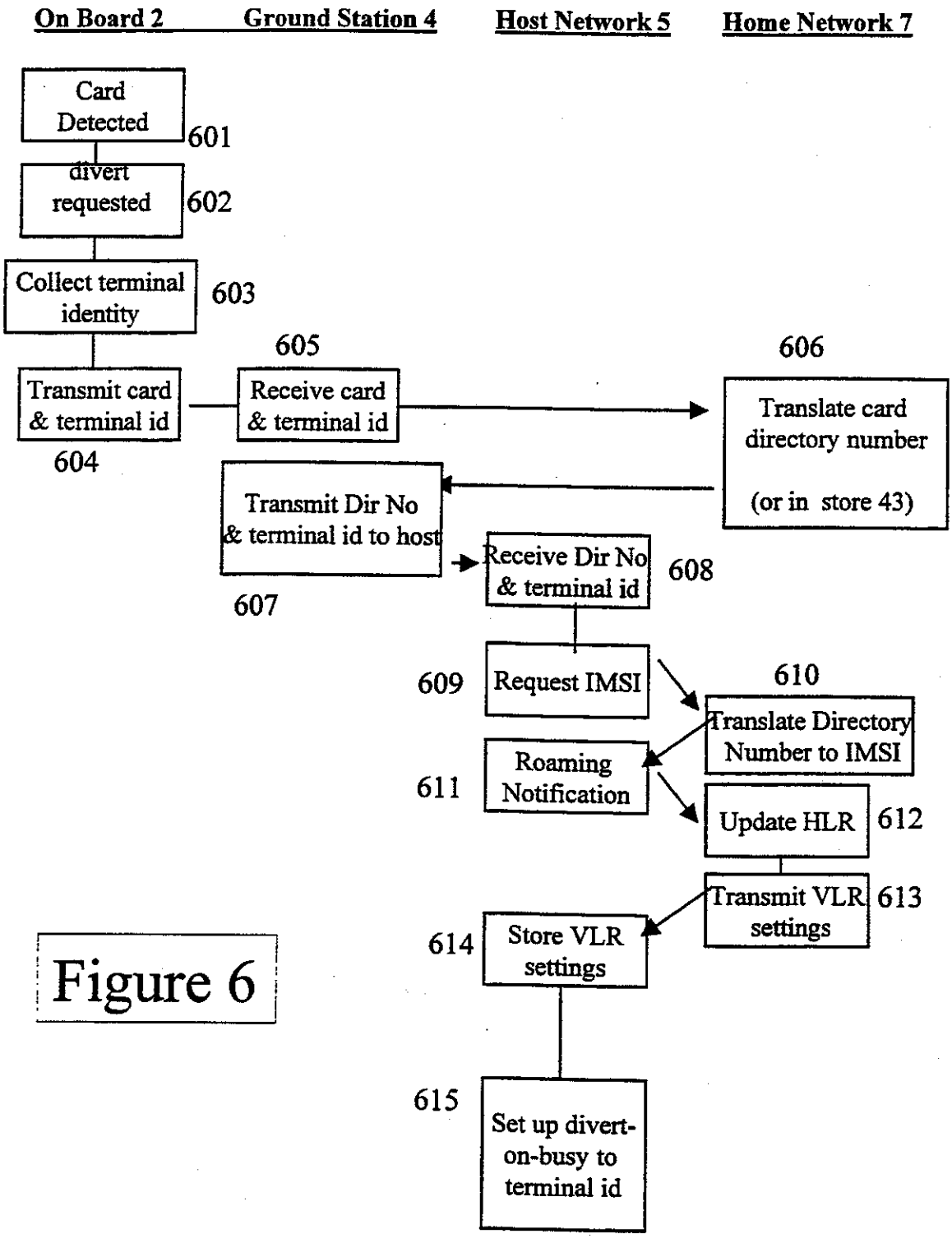

On Board 2
Ground Station 4
Host Network 5
Home Network 7
Card Detected
601
divert requested
602
Collect terminal identity
603
Transmit card & terminal id
604
605
Receive card & terminal id
606
Translate card directory number
(or in store 43)
Transmit Dir No & terminal id to host
607
Receive Dir No & terminal id
608
609
Request IMSI
610
Translate Directory Number to IMSI
611
Roaming Notification
Update HLR
612
Transmit VLR settings
613
614
Store VLR settings
615
Set up divert-on-busy to terminal id

Figure 6

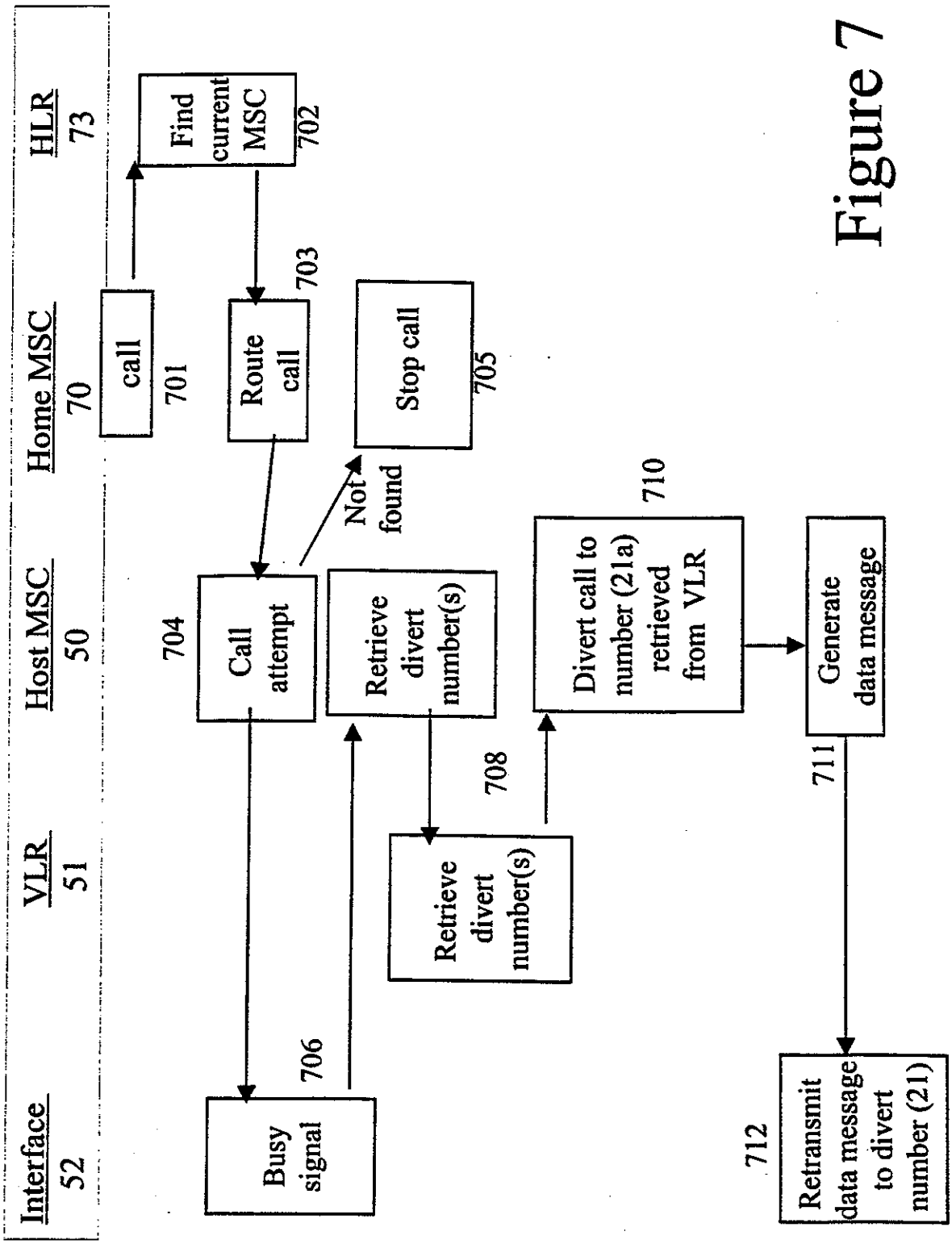

Interface
52
VLR
51
Host MSC
50
Home MSC
70
HLR
73
call
701
Find current MSC
702
Route call
703
Stop call
705
Not found
Call attempt
704
Retrieve divert number(s)
708
Retrieve divert number(s)
Divert call to number (21a) retrieved from VLR
710
Generate data message
711
Busy signal
706
Retransmit data message to divert number (21)
712

Figure 7

Figure 8

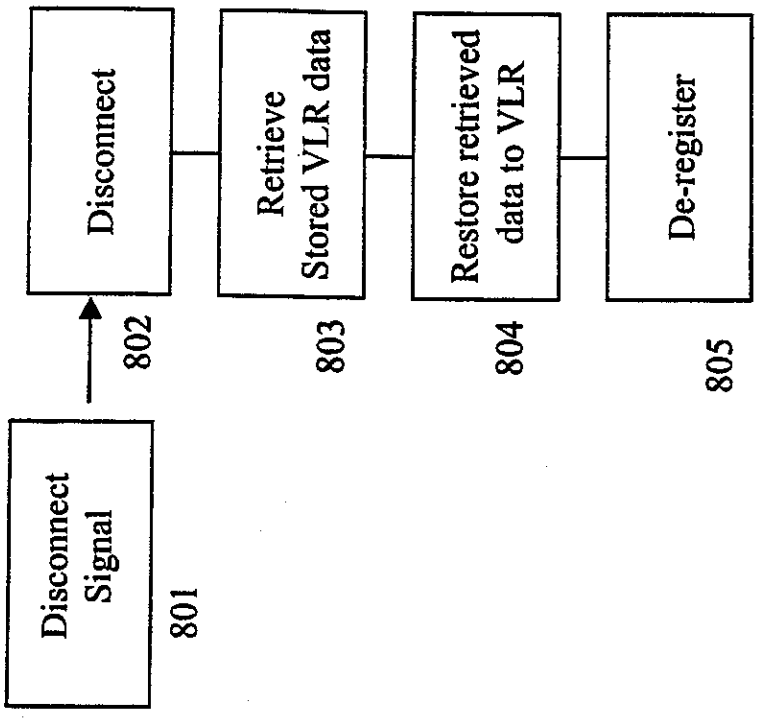


Figure 9

Fig 9a

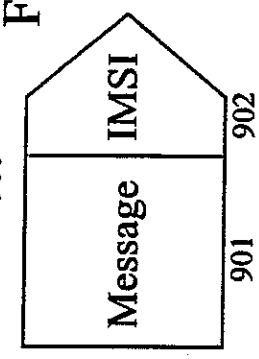


Fig 9b

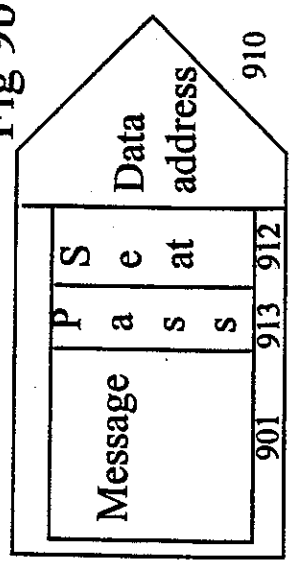
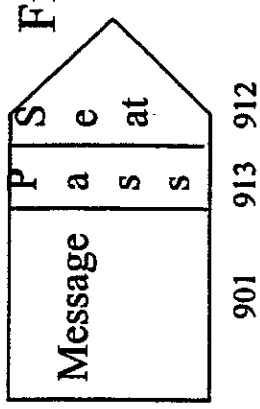


Fig 9c



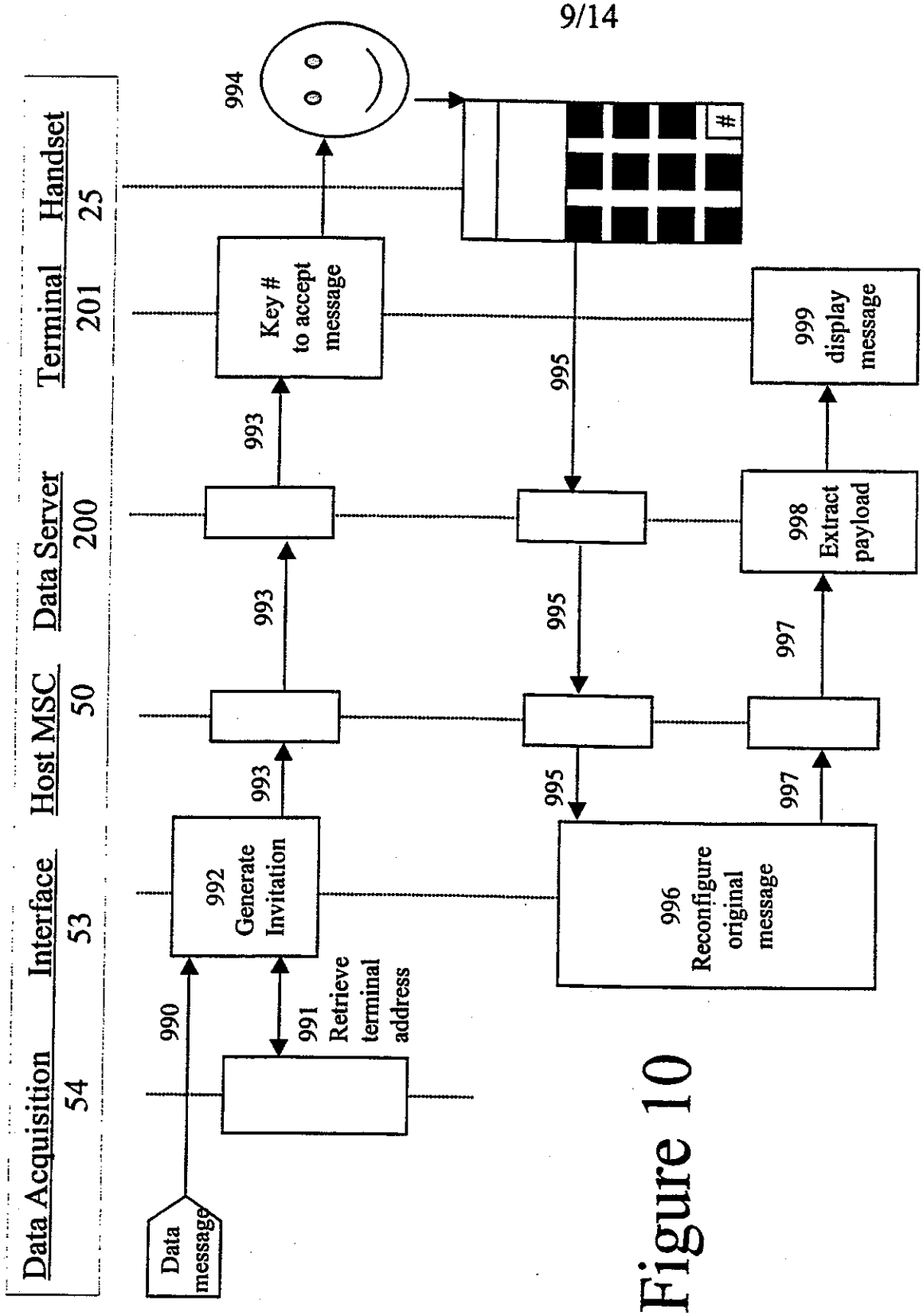

Data Acquisition 54
Interface 53
Host MSC 50
Data Server 200
Terminal Handset 201 25
Data message
990
991 Retrieve terminal address
992 Generate Invitation
993
993
993
994
Key # to accept message
995
995
995
996 Reconfigure original message
997
997
998 Extract payload
999 display message
#

Figure 10

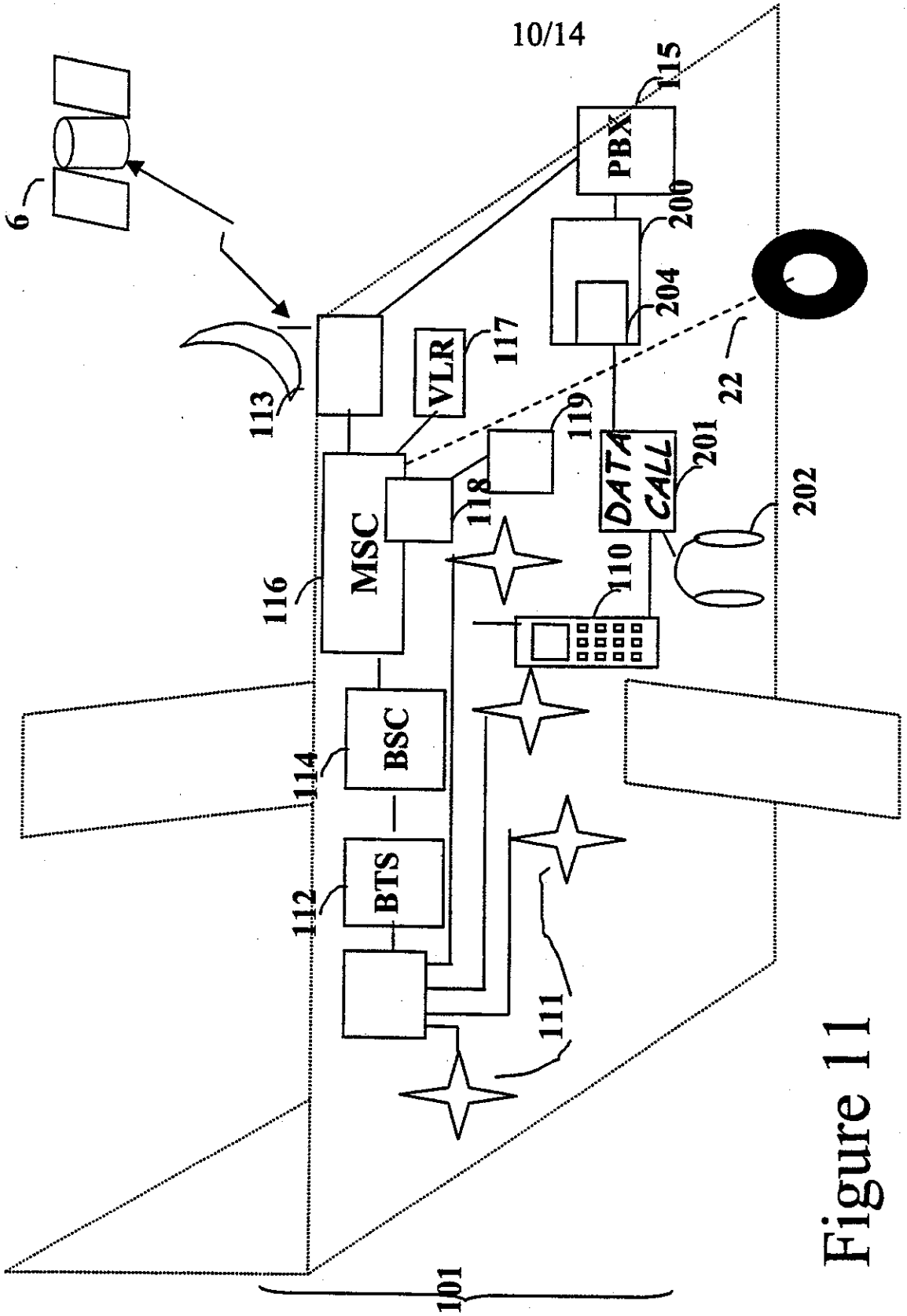

6
113
VLR
117
PBX
115
200
204
22
119
DATA CALL
201
202
118
MSC
116
110
BSC
114
BTS
112
111
101

Figure 11

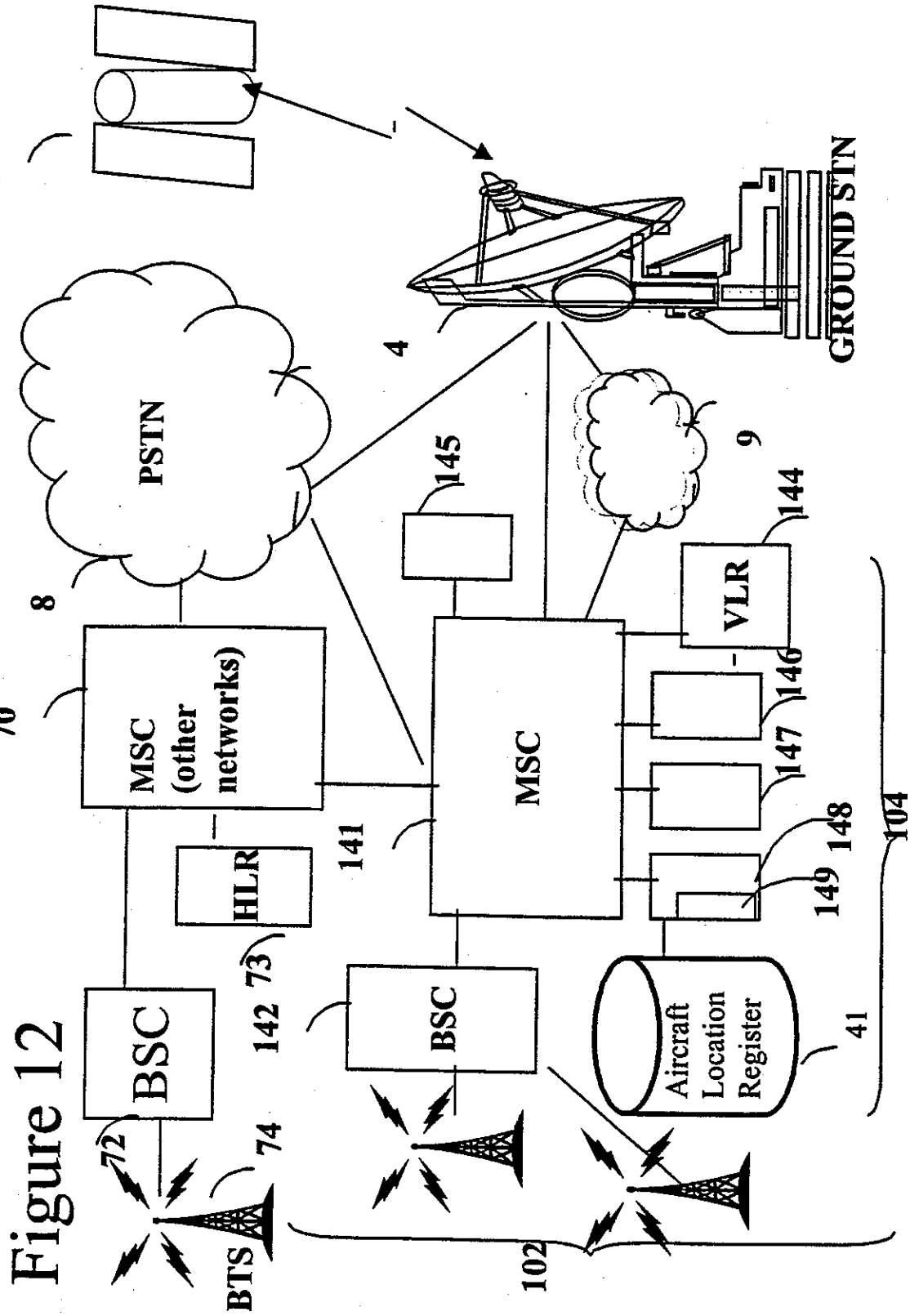

6
4
GROUND STN
PSTN
8
9
145
144
VLR
70
MSC (other networks)
MSC
146
147
148
149
104
141
HLR
73
142
BSC
BSC
Aircraft Location Register
41
72
74
BTS
102

Figure 12

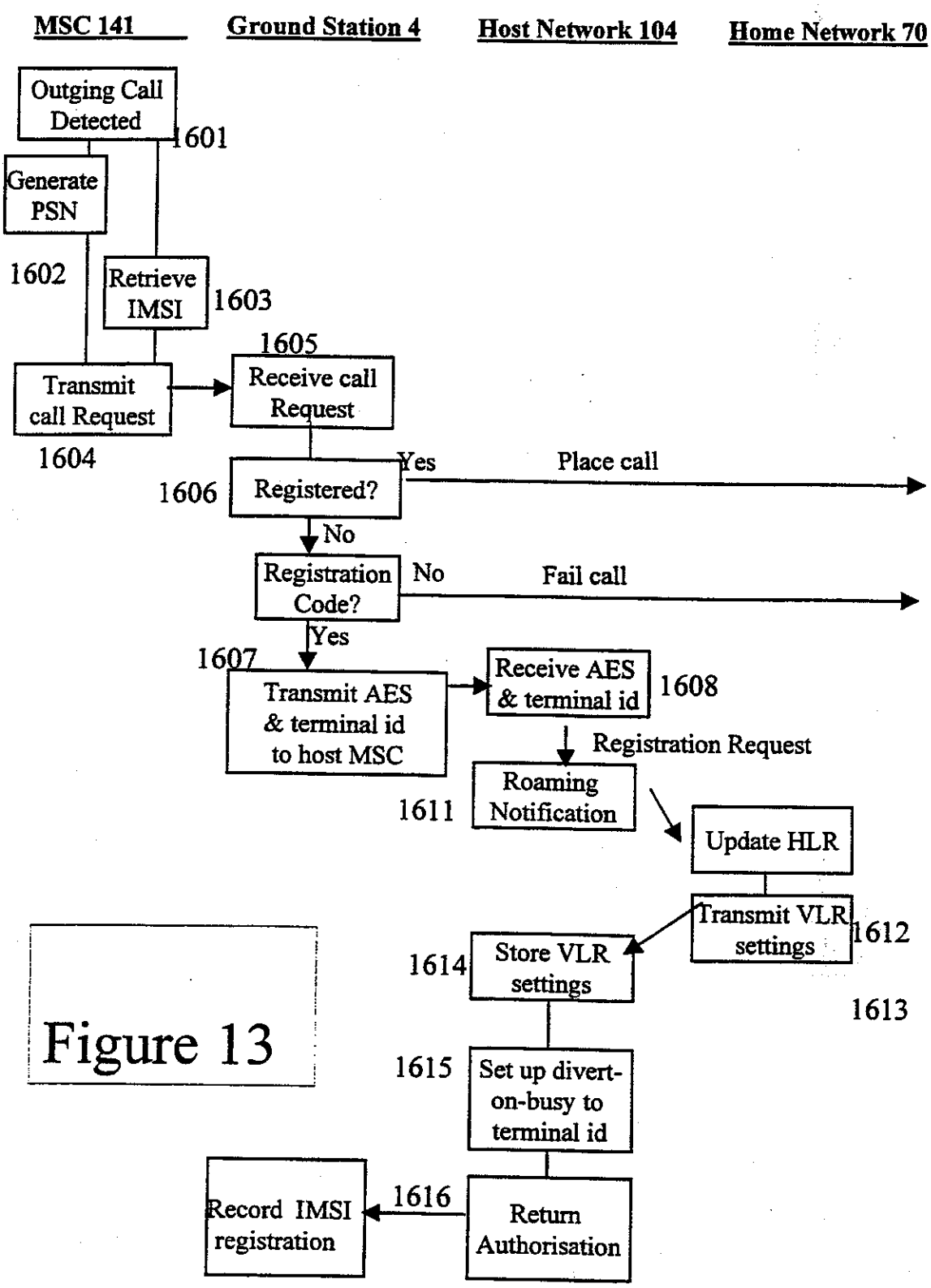

On Board
MSC 141
Ground Station 4
Host Network 104
Home Network 70
Outging Call Detected
1601
Generate PSN
1602
Retrieve IMSI
1603
Transmit call Request
1604
1605
Receive call Request
1606
Registered?
Yes
Place call
No
Registration Code?
No
Fail call
Yes
1607
Transmit AES & terminal id to host MSC
Receive AES & terminal id
1608
Registration Request
Roaming Notification
1611
Update HLR
Transmit VLR settings
1612
1613
1614
Store VLR settings
1615
Set up divert-on-busy to terminal id
1616
Return Authorisation
Record IMSI registration

Figure 13

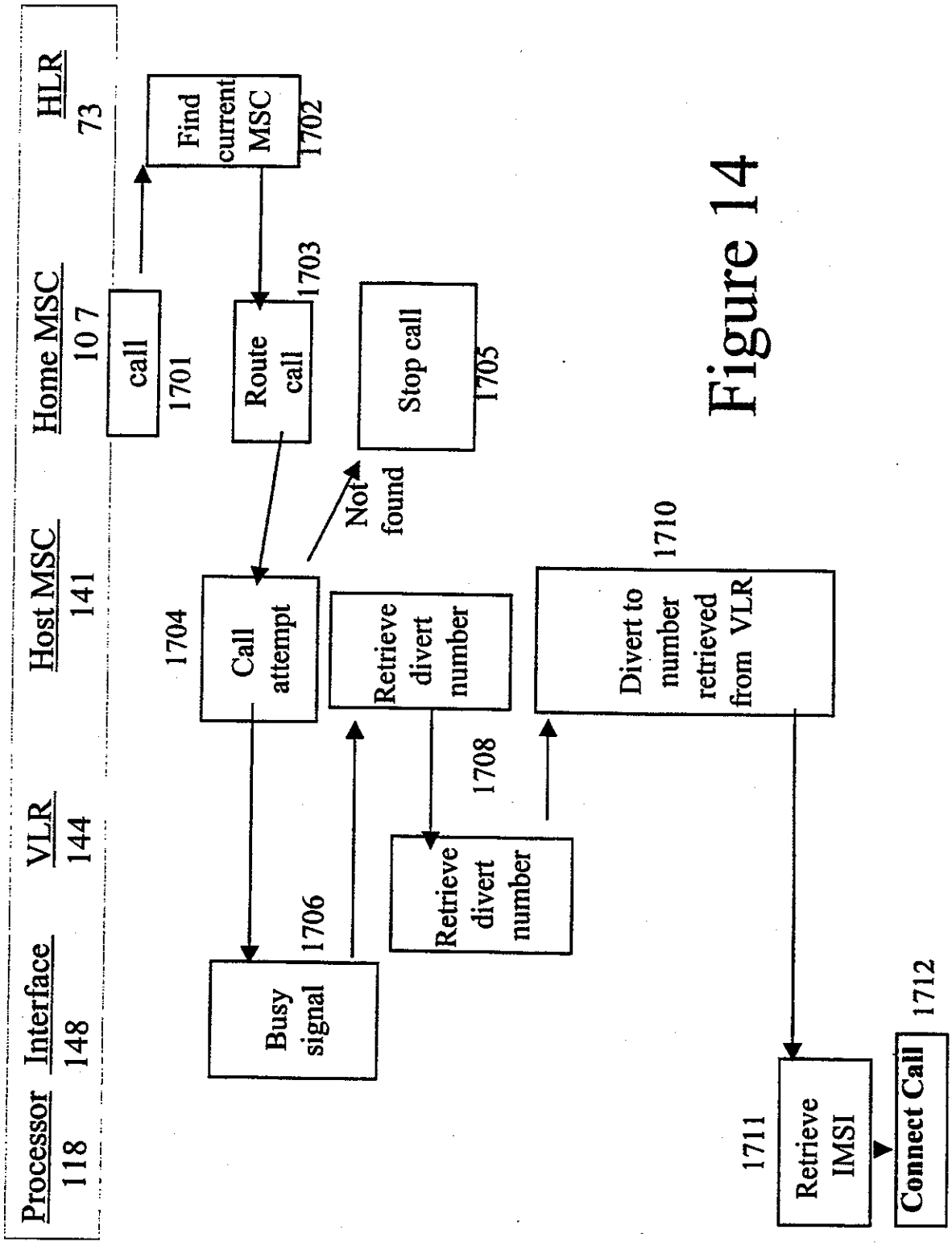
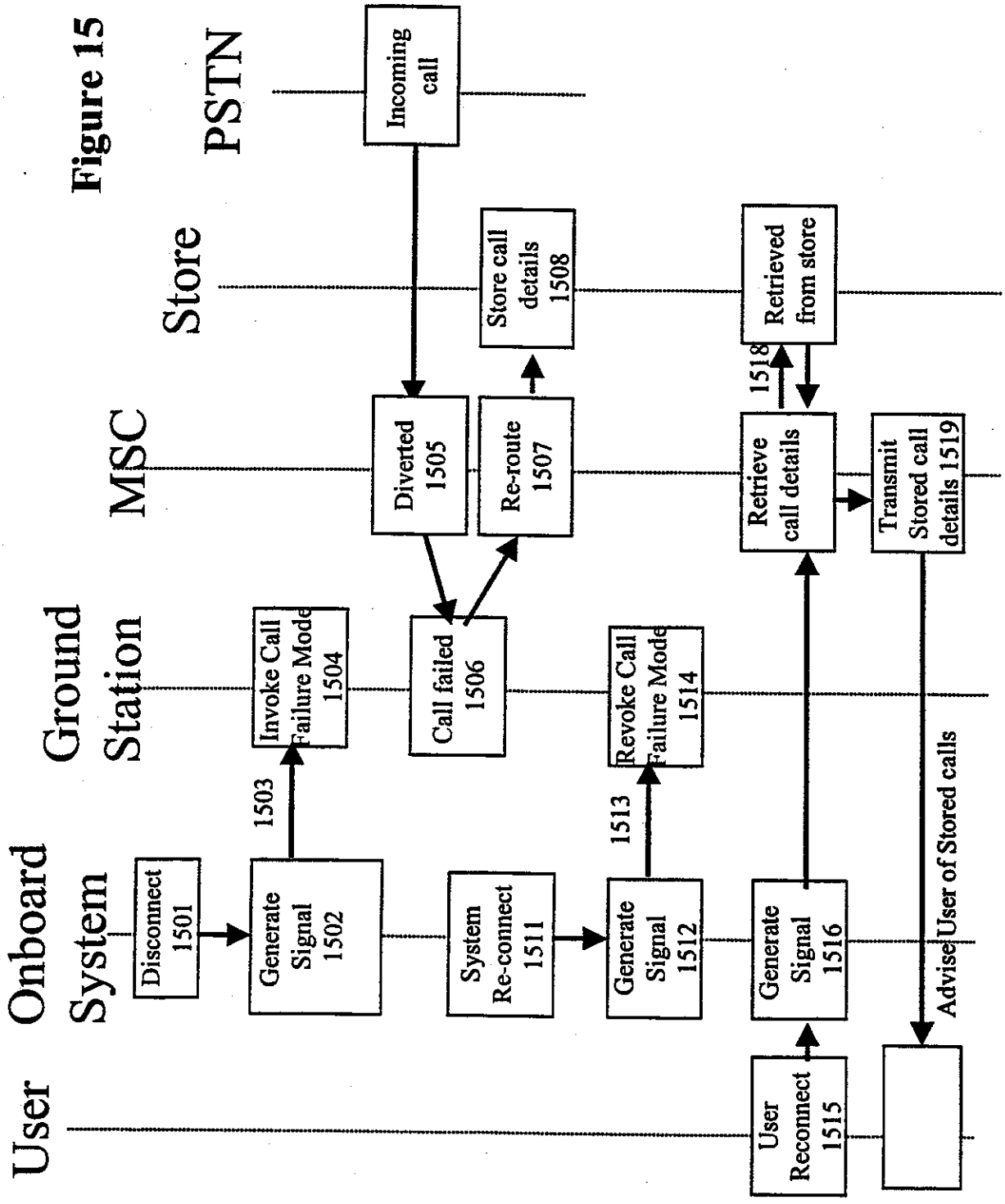

Processor 118
Interface 148
VLR 144
Host MSC 141
Home MSC 107
HLR 73
call 1701
Find current MSC 1702
Route call 1703
Stop call 1705
Not found
1704
Call attempt
Retrieve divert number
1708
Retrieve divert number
Divert to number retrieved from VLR
1710
1706
Busy signal
1711
Retrieve IMSI
Connect Call
1712

Figure 14

Figure 15


User
Onboard System
Ground Station
MSC
Store
PSTN
Disconnect 1501
Generate Signal 1502
1503
Invoke Call Failure Mode 1504
Call failed 1506
Diverted 1505
Re-route 1507
Store call details 1508
Incoming call
System Re-connect 1511
1513
Revoke Call Failure Mode 1514
Generate Signal 1512
User Reconnect 1515
Generate Signal 1516
1518
Retrieve call details
Retrieved from store
Transmit Stored call details 1519
Advise User of Stored calls