History of C2-systems in the SWEDISH AIR FORCE
Select timeframe:

- 47
- 48 - 56
- 57 - 65
- 66 - 71
- 72 - 80
- 81 - 92
- 93 - 00
- 01 -

Select category:

- C2 Systems
- Military Radar
- Hight Finders
- ATS Radar
- FV2000, Tactical loop
- TDL
- 1947

- Human sensors
- Army Air Surveillance Site
- C2 Facilities
- "Stril 40"
- Optical surveillance
- Reports to C2 by telephone
- Army-organisation
Army Air Surveillance Site

- Mainly paperbased C2
- One Air Force Officer with authority to scramble squadron
• SOC, Old type of Sector Operations Cell (Jaktcentral, jc)
• Human sensor using radio (Jakt-ls)
"Stril 40" - 1947
The triggering factor…
- Human sensors
- Radar sensors
- C2 Facilities
- ”Stril 50”

1948 - 1956
June 13 1952
Swedish DC-3 was shot down over the Baltic Sea

Three days later Swedish SAR Catalina also was shot down

The triggering of Swedish Air Force QRA (Quick Readiness Alert)
Human Sensors

- Optical surveillance (Ls) (from 1948 organized by the Air Force)

- SOC, Sector Operations Centre Filtering site (Lgc)
Radar Sensors

- PJ-21 (1948)
- PS-16 (1956)
- PH-13 (1948)
- PS-41 (1948)
- ER IIIb (1956)
C2 Facilities 1948 1956

- AOC, Air Operations Centre (Lfc m/50)
"Stril 50" 1948 1956
1957 - 1965

- Radar sensors
- Hight Finders
- C2 Facilities
- G/A Data Link
- Stril 60
Radar Sensors

1957 - 1965

PJ-21

PS-41

Hight Finders

PS-16

PS-08
Hight Finders

PH-13 1957
PH-12 1965
PH-40
G/A data link introduced in Swedish Air Force early 60’s

C2-cell 08

J 35
1966 - 1971

- Radar sensors
- Hight Finders
- C2 Facilities
- Rb 68, Bloodhound
Radar Sensors

1966 - 1971

Hight Finders

- PS-15
- PS-65
- PS-66
- PS-08
- PS-41

PS-21
Hight Finders 1966-1971

PH-13

PH-39

PH-12

PH-40
1972 - 1980

- Radar sensors
- Hight Finders
- C2 Facilities
- Radar sensors
- Hight Finders
- C2 Facilities
Hight Finders

PS-65

PS-66

PS-670

PS-15

PS-860
PH-39
PH-40
PH-13

Hight Finders
1981 - 1992
C2 Facilities

1981 - 1992

- **AOC (Lfc 1)**
- **SOC (Rrgc/E)**
- **AOC (Lfc 2)**
- **SOC mobile (Rrgc/T)**

Map showing locations: ÖN, NN, M, S.
1993 - 2000

- Radar sensors
- C2 Facilities
- FV2000
- Tactical loop
- LOMOS
Radar Sensors

FSR 890
PS-15
PS-860
PS-870
PS-66
C2 Facilities

- **AOC (Lfc 1)**
- **SOC (Rrgc/F)**
- **AOC (Lfc 2/Lfuc)**
- **AOC (StriC/LE)**
- **SOC mobile (Rrgc/T)**
The Tactical Loop

- Airbase before take-off: PLA
- JAS 39
- TARAS
- STRIC
- Airbase after landing: UTA

1993 - 2000
2001 -

- Radar sensors
- C2 Facilities
- FV2000, new version 2007 –
- International and joint, 2008 –
- Joint Training Facility
Radar Sensors

FSR 890

PS-870

PS-860

PS-861
C2 Facilities

- AOC (StriC/LE)
- SOC mobile (Rrgc/T)
International and joint

- Political decision in 2003
- Participate in international operations together with other nations Army, Navy and Air Force units
- Requires international adapted technical and tactical systems; IFF, HQII, Link-16, ADatP3
Joint Training Facility

- iGC2F (interim Ground Command and Control Facility)
- Joint Training Facility for the Swedish Armed Forces
- 2008- 2015?
- L-16, HQII, IFF
BILDSPEL SLUT
Military Radar

ER IIIb
PJ-21
PS-16
PS-41
PS-08
PS-65
PS-15
PS-66
PS-860
PS-870
FSR 890
PS-861

Tactical Data Links

J 35 Draken G/A-link
- Intercept control using datalink
- One primary target, Discrete Commands Vectoring
Tactical Data Links

JA 37 Viggen G/A-link
- Intercept control using datalink
- One primary target, 4 Secondary targets
  Discrete commands, GBAD-positions,
  Pointer, Vectoring, Silent intercept

JA 37 Viggen F/F-link
- Engaged targets
- Combat status, Jammer strobe, Discrete
  commands
JAS 39 Gripen two way link, FSR 890 two way link

- Total RAP
- Transmit and receive imagery
- Receive sensor-info from JAS 39 to ground (e.g. tracks, jammer strobes)
- Two-way pointer
- Discrete commands, GBAD-positions, ATO
- Vectoring, silent intercept
- Surveillance picture from FSR 890
- Radar remotely controlled from STRIC
SYSTEMBILDER
• Operational 1994 -
• Computer supported compilation of reports
• Oc (Observations centre)
• Obs (Observations site)
Lfc m/50

Operational: 1950~1980
11 units
L M Ericsson/Sweden
Lfc 1

Operational: 1964-2001
2 units
Marconi/UK
Lfc 2/Lfuc

Operational: 1978-1998
4 units
Singer Librascope/USA
Operational: 1967-2001
8 units
Standard Radio/Sweden
Rrgc/T

Operational: 1984-2004
4 units
Marconi/UK
STRIC

Operational: 1998-
3 StriC + 3 LE
Celsius/Sweden
C2STRIC

Operational: 2007-
4 units (planned)
Saab/Sweden
- Operational 2003 – (FKC/S and two airbases)
- Information System Airforce
ER IIIb

Operational: 1944-56
~ 30 units
High level 2D
Range: 70 km
500 MHz
85 kW
AMES/UK

AMES type 6 Mk3
PJ-21

Operational: 1950-86
~ 25 units
High level 2D + Hight Finder
Range: 200 km
3 GHz, S-band
500 kW
Marconi/UK
PS-16

Operational: 1951-65
5 units
High level 2D
Range: 250-300 km
100 MHz
500 kW
Marconi/UK
PS-41

Operational: 1951-75
20 units
High level 2D
Range: 250 km
1.2 GHz, L-band
500 kW
Bendix/USA
PS-08

C2-cell 08 (Standard Radio/Sweden)
Operational: 1957-79
4 units
High level 2D/IFF
Range: 400 km
3 GHz, S-band
2.5 MW
Decca/UK

Harry, Dick, Tom, Fred

Type 80 Mk3
PS-65

Operational: 1965-93
9 units
High level 2D/IFF
Range: 300 km
1.3 GHz, L-band
2.3 MW
CSF/France
Antenna – Selenia/Italy

C2-cell 65
(Standard Radio/Sweden)
**PS-15**

Operational: 1967-99
15 units
Low level 2D (4 heights)/IFF
Range: 200 km
5.5 GHz, C-band
1 MW
Selenia/Italy
**PS-66**

Operational: 1970-2005
5 units
High level 3D/IFF
Range: 400 km
3 GHz, S-band
20 MW
Thomson CSF/France

C2-cell 66
(Standard Radio/Sweden)
PS-860

Operational: 1980-
16 units
High level 3D/IFF

Range: 300 km
3 GHz, S-band
180 kW
Frequency agility radar
ITT Gilfillan/USA

AN/SPS-48 S-3D
Operational: 2008
8 units
High-level 3D
Range: 450 km
3 GHz, S-band
180 kW
Frequency agility radar
ITT Gilfillan/USA
PS-870

Operational: 1988-
28 units
High level 2D/IFF
Range: 100 km
5.5 GHz, C-band
44 kW
ITT Gilfillan/USA
PS-810

Operational: 1972-
6 units
High level 2D
Range: 200 km
1 GHz, L-band
2 MW
Selenia/Italy
ATS radar
PS-825

Operational: 1971-
5 units
High level 2D/SSR
Range: 200 km
1 GHz, L-band
2 MW
Selenia/Italy
Civilian ATS radar
<table>
<thead>
<tr>
<th>Year</th>
<th>MSSR Details</th>
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<tbody>
<tr>
<td>1940</td>
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<td>1950</td>
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<td>1970</td>
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<tr>
<td>1980</td>
<td>Operational: 1989-1990; 16 units; Range: 500 km; Cossor/UK; Civilian ATS radar</td>
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<tr>
<td>1990</td>
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<td>2000</td>
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Operational: 1989-1990
16 units
Range: 500 km
Cossor/UK
Civilian ATS radar
<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>1940</td>
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<td>2000</td>
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</tbody>
</table>

- **AEW**
- Operational 1998 -
- 6 aircrafts, 4 radarsystems
- S 100B "Argus" (SAAB 340 AEW)
- Greece, Brazil, Mexico, Pakistan

- **FSR 890**
- PS-890, "Erieye radar" (Ericsson Microwave)
- 2 GHz – 4 GHz, S-band
- Long-range pulse doppler radar
- Including sea surveillance mode
- Radar remote controlled
- Multifunction workstations
ASC 890

- AEW
- Operational 2008 -
- 2 radarsystems
- S 100D "Argus" (SAAB 340 AEW)
- 3 Operators
- L-16, HQII, IFF
PH-13

Operational: 1950-86
~ 25 units
Hight Finder
3 GHz, S-band
500 kW
Marconi/UK
PH-12

Operational: 1957-79
4 units
Hight Finder
3 GHz, S-band
2.5 MW
Marconi/UK
PH-40

Operational: 1962-93
6 units
High Finder
Range 400 km
3 GHz, S-band
2.2 MW
Plessey/UK
PH-39

Operational: 1965-90
7 units
3D/Hight Finder
3 GHz S-band
2.2 MW
Plessey/UK
Rb 68, Bloodhound

Operational: 1963-78

Controlled from AOC (Lfc 1)
• Operational 1995 -
• Tactical Radio System
• Analog radio
• Digital radio, encrypted
• Secure voice
• Mission order link
• Two way data link
• F/F link
• Relay function
JAS 39 Gripen

- Operational 1997 –
- Multi-role aircraft
- 4:th generation
- South Africa, Hungary, Czech Republic

- Long-range multi-purpose pulse doppler radar, PS-05
- Multi-target track-while-scan
- Multiple priority target tracking
Operational 1992-
ELINT (Electronic Intelligence) missions
Gulfstream IV G
S 102B "Korpen" (the Raven)
ELINT operators under the supervision of the FRA (The National Defence Radio Establishment)

The two aircraft got the individual names “Hugin” and “Munin” after the Scandiavian ancient God Oden’s two ravens, who saw everything that happened in the world.