Subject matter and scope

Implement A-SMGCS Level I which consists of an airport surface surveillance system that provides ATC with the position and automatic identity of:

- All relevant aircraft on the movement area;
- All relevant vehicles on the manoeuvring area.

A-SMGCS Level 1 surveillance data may be used to replace visual observation as required, in accordance with ICAO EUR Doc 7030, chapter 6.5.6 (approved March 2009), and as the basis of controller decision making. Traffic will be controlled through the use of appropriate procedures allowing the issuance of information and clearances to traffic on the basis of A-SMGCS Level 1 surveillance data.

Apron management units, airlines and other interested parties may also benefit from the provision of A-SMGCS Level 1 surveillance data.

A-SMGCS Level 1 is a prerequisite for A-SMGCS Level 2.

All reference documentation listed in SLoAs is available via the EUROCONTROL website: https://www.eurocontrol.int/articles/advanced-surface-movement-guidance-and-control-systems-smgcs

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each Military Authority to review this ESSIP Objective IN ITS ENTIRETY and address each of the SloAs that the Military Authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SloAs which identify actions EXCLUSIVE to MIL Authorities.

Applicability Area(s) & Timescale(s)

<table>
<thead>
<tr>
<th>Applicability Area</th>
<th>See list of airports in MP Level 3 Implementation Plan - Annexes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timescales:</td>
<td>From: 01/01/2007  By: 31/12/2011  Applicable to: Applicability Area</td>
</tr>
</tbody>
</table>

European ATM Master Plan

References

Applicable legislation

Regulation (EU) No 716/2014 on the establishment of the Pilot Common Project

ICAO GANP ? ASBUs

B0-SURF  Improved Runway Safety (A-SMGCS Level 1-2 and Cockpit Moving Map)

Deployment Programme

2.2.1  A-SMGCS Level 1 and 2
2.5.2  Vehicle and aircraft systems contributing to Airport Safety Nets

European Plan for Aviation Safety
Stakeholder Lines of Action (SLoAs)

<table>
<thead>
<tr>
<th>SloA ref.</th>
<th>Title</th>
<th>From</th>
<th>By</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOP04.1-REG01</td>
<td>Mandate the carriage of required aircraft equipment to enable location and identification of aircraft on the movement area (including military aircraft, as appropriate).</td>
<td>01/01/2007</td>
<td>31/12/2010</td>
</tr>
<tr>
<td>AOP04.1-REG02</td>
<td>Mandate the carriage of required vehicle equipment to enable location and identification of vehicles on the manoeuvring area</td>
<td>01/01/2007</td>
<td>31/12/2010</td>
</tr>
<tr>
<td>AOP04.1-REG03</td>
<td>Publish A-SMGCS Level 1 procedures (including transponder operating procedures) in national aeronautical information publications</td>
<td>01/01/2007</td>
<td>31/12/2010</td>
</tr>
<tr>
<td>AOP04.1-REG04</td>
<td>Approve A-SMGCS Level 1 implementations for operation</td>
<td>DELETED</td>
<td></td>
</tr>
<tr>
<td>AOP04.1-ASP01</td>
<td>Install required surveillance equipment</td>
<td>01/01/2007</td>
<td>31/12/2010</td>
</tr>
<tr>
<td>AOP04.1-ASP02</td>
<td>Train aerodrome control staff in the use of A-SMGCS Level 1 surveillance in the provision of aerodrome control service</td>
<td>01/01/2007</td>
<td>31/12/2010</td>
</tr>
<tr>
<td>AOP04.1-ASP03</td>
<td>Implement approved A-SMGCS operational procedures at airports equipped with A-SMGCS</td>
<td>01/01/2007</td>
<td>31/12/2011</td>
</tr>
<tr>
<td>AOP04.1-APO01</td>
<td>Install required surveillance equipment</td>
<td>01/01/2007</td>
<td>31/12/2010</td>
</tr>
<tr>
<td>AOP04.1-APO02</td>
<td>Equip Ground Vehicles</td>
<td>01/01/2007</td>
<td>31/12/2010</td>
</tr>
<tr>
<td>AOP04.1-APO03</td>
<td>Train Ground Vehicle Drivers</td>
<td>01/01/2007</td>
<td>31/12/2010</td>
</tr>
<tr>
<td>AOP04.1-USE01</td>
<td>Update aircrew training manual to include procedures for use of correct Mode-S transponder setting for enabling cooperative A-SMGCS detection on the movement area</td>
<td>FINALISED</td>
<td></td>
</tr>
<tr>
<td>AOP04.1-INT01</td>
<td>Coordinate amendments to the related ICAO documentation to include A-SMGCS Level 1 procedures</td>
<td>FINALISED</td>
<td></td>
</tr>
<tr>
<td>AOP04.1-AGY01</td>
<td>Production of agreed &amp; validated requirements &amp; guidance material for the implementation of A-SMGCS Level 1</td>
<td>DELETED</td>
<td></td>
</tr>
<tr>
<td>AOP04.1-AGY02</td>
<td>Develop agreed A-SMGCS Level 1 ATC procedures, through established EUROCONTROL Agency processes and mechanisms for proposal to ICAO</td>
<td>DELETED</td>
<td></td>
</tr>
<tr>
<td>AOP04.1-AGY03</td>
<td>Develop and incorporate A-SMGCS licensing requirements into the European Air Traffic Controller Licensing Scheme</td>
<td>DELETED</td>
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</tr>
<tr>
<td>AOP04.1-AGY04</td>
<td>Develop A-SMGCS Level 1 training guidelines</td>
<td>DELETED</td>
<td></td>
</tr>
<tr>
<td>AOP04.1-AGY05</td>
<td>Develop and propose amendments to ICAO documentation, using established processes</td>
<td>DELETED</td>
<td></td>
</tr>
</tbody>
</table>

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety: Through improved situational awareness of the controller, especially during periods of reduced visibility and darkness.
Capacity: Traffic throughput notably increased in low visibility conditions.
Operational Efficiency: More efficient control of surface traffic.
Environment: - Reduction in fuel burn and emissions.
Security: -

Detailed SLoA Descriptions

<table>
<thead>
<tr>
<th>SloA ref.</th>
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<th>By</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOP04.1-REG01</td>
<td>Mandate the carriage of required aircraft equipment to enable location and identification of aircraft on the movement area (including military aircraft, as appropriate).</td>
<td>01/01/2007</td>
<td>31/12/2010</td>
</tr>
</tbody>
</table>
### Description & purpose:

Mandate the equipage of aircraft operating into airports equipped with A-SMGCS Level 1 with the necessary systems to provide their position and identity to the A-SMGCS Level 1 surveillance system.

### Supporting material(s):

- **ETSI - EN 303 213-1** - Advanced Surface Movement Guidance and Control System (A-SMGCS);
  - Part 1: A-SMGCS Level 1 including external interfaces;
  - Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.3.1 / 04/2012
  - [Url](http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp)

- **ETSI - EN 303 213-3** - Advanced Surface Movement Guidance and Control System (A-SMGCS);
  - Part 3: Deployed cooperative sensor including its interfaces;
  - [Url](http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp)

- **ETSI - EN 303 213-4-1** - Advanced Surface Movement Guidance and Control System (A-SMGCS);
  - Part 4: Deployed non-cooperative sensor including its interfaces;
  - Sub-part 1: Generic requirements for non-cooperative sensor;
  - [Url](http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp)

  - [Url](http://www.icao.int/publications/Pages/catalogue.aspx)

  - [Url](https://www.eurocontrol.int/articles/advanced-surface-movement-guidance-and-control-systems-smgcs)

  - [Url](https://www.eurocae.net/eshop/catalog/product_info.php?products_id=245)

  - [Url](http://boutique.eurocae.net/catalog/index.php)

  - [Url](http://boutique.eurocae.net/catalog/index.php)

### Finalisation criteria:

1. Mandate to equip the aircraft operating into the airports equipped with A-SMGCS Level 1 with necessary systems to provide position and identity to A-SMGCS Level 1 surveillance system has been issued by the regulator.
2. Airworthiness certificate has been issued by the regulator for aircraft equipped with A-SMGCS Level 1 capabilities.
3. Transponder operating procedure published in AIP

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### AOP04.1-REG02

Mandate the carriage of required vehicle equipment to enable location and identification of vehicles on the manoeuvring area

<table>
<thead>
<tr>
<th>From:</th>
<th>By:</th>
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</thead>
<tbody>
<tr>
<td>01/01/2007</td>
<td>31/12/2010</td>
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</tbody>
</table>

### Description & purpose:

Mandate the equipage of vehicles operating on the manoeuvring area of airports equipped with A-SMGCS Level 1 with the necessary systems to provide their position and identity to the A-SMGCS Level 1 surveillance system.
Supporting material(s):

- ETSI - EN 303 213-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 1: A-SMGCS Level 1 including external interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.3.1 / 04/2012
  Url: http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp

- ETSI - EN 303 213-3 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 3: Deployed cooperative sensor including its interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010/C 330/02 / 10/2010
  Url: http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp

- ETSI - EN 303 213-4-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Deployed non-cooperative sensor including its interfaces; Sub-part 1: Generic requirements for a non-cooperative sensor; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010/C 330/02 / 10/2010
  Url: http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp

  Url: http://www.icao.int/publications/Pages/catalogue.aspx

  Url: https://www.eurocontrol.int/articles/advanced-surface-movement-guidance-and-control-systems-smgcs

  Url: http://www.icao.int/publications/Pages/catalogue.aspx

  Url: https://www.eurocae.net/eshop/catalog/product_info.php?products_id=245

  Url: http://boutique.eurocae.net/catalog/index.php

  Url: http://boutique.eurocae.net/catalog/index.php

Finalisation criteria:

1 - Mandate to equip the vehicles operating on the manoeuvring area of the airports equipped with A-SMGCS Level 1 with necessary systems to provide position and identity to A-SMGCS Level 1 surveillance system has been issued by the regulator.
2 - Operating certificate has been issued by the regulator for the vehicles equipped with A-SMGCS Level 1 capabilities.

AOP04.1-REG03 Publish A-SMGCS Level 1 procedures (including transponder operating procedures) in national aeronautical information publications

<table>
<thead>
<tr>
<th>From:</th>
<th>By:</th>
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</thead>
<tbody>
<tr>
<td>01/01/2007</td>
<td>31/12/2010</td>
</tr>
</tbody>
</table>

Action by: State Authorities

Description & purpose: Incorporate the agreed and validated A-SMGCS Level 1 operating procedures into national aeronautical information publications.
Supporting material(s):

ETSI - EN 303 213-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 1: A-SMGCS Level 1 including external interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.3.1 / 04/2012

Url: http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp

ETSI - EN 303 213-3 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 3: Deployed cooperative sensor including its interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010/C 330/02 / 10/2010

Url: http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp

ETSI - EN 303 213-4-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Deployed non-cooperative sensor including its interfaces; Sub-part 1: Generic requirements for a non-cooperative sensor; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010/C 330/02 / 10/2010

Url: http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp

ETSI - EN 303 213-4-2 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Deployed non-cooperative sensor including its interfaces; Sub-part 2: Specific requirements for a deployed Surface Movement Radar sensor; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010/C 330/02 / 10/2010

Url: http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp


Url: http://www.icao.int/publications/Pages/catalogue.aspx


Url: https://www.eurocontrol.int/articles/advanced-surface-movement-guidance-and-control-systems-smgcs


Url: http://www.icao.int/publications/Pages/catalogue.aspx


Url: https://www.eurocae.net/eshop/catalog/product_info.php?products_id=245


Url: http://boutique.eurocae.net/catalog/index.php


Url: http://boutique.eurocae.net/catalog/index.php

Finalisation criteria:

1 - Agreed and validated procedures have been incorporated into national aeronautical information publication (AIP)

2 - Transponder operating procedure published in AIP

<table>
<thead>
<tr>
<th>AOP04.1-ASP01</th>
<th>Install required surveillance equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description &amp; purpose:</td>
<td>Install all the surveillance equipment and related systems as specified in the functional specifications for A-SMGCS, in order to enable aerodrome controllers to locate and identify aircraft and vehicles on the manoeuvring area (in cooperation with Airport operators, as appropriate).</td>
</tr>
<tr>
<td>From:</td>
<td>By:</td>
</tr>
<tr>
<td>01/01/2007</td>
<td>31/12/2010</td>
</tr>
</tbody>
</table>

Action by: ANS Providers
Supporting material(s):
ETSI - EN 303 213-3 - Advanced Surface Movement Guidance and Control System (A-SMGCS);
Part 3: Deployed cooperative sensor including its interfaces;
Url : https://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp
ETSI - EN 303 213-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS);
Part 1: A-SMGCS Level 1 including external interfaces;
Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.3.1 / 04/2012
Url : https://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp
ETSI - EN 303 213-4-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS);
Part 4: Deployed non-cooperative sensor including its interfaces;
Sub-part 1: Generic requirements for non-cooperative sensor;
Url : https://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp
ETSI - EN 303 213-4-2 - Advanced Surface Movement Guidance and Control System (A-SMGCS);
Part 4: Deployed non-cooperative sensor including its interfaces;
Sub-part 2: Specific requirements for a deployed Surface Movement Radar sensor;
Url : https://www.icao.int/publications/Pages/catalogue.aspx
Url : https://www.eurocontrol.int/articles/advanced-surface-movement-guidance-and-control-systems-smgcs
Url : https://www.eurocae.net/eshop/catalog/product_info.php?products_id=245
Url : http://boutique.eurocae.net/catalog/index.php
Url : http://boutique.eurocae.net/catalog/index.php
Url : http://boutique.eurocae.net/catalog/index.php

ATM Master Plan relationship:
[AERODROME-ATC-04]-ANSP Civil ATS Aerodrome service providers (incl. Civil AMS Apron Management Service)
[AERODROME-ATC-28]-Surface movement control workstation equipped with initial tools for Aerodrome Control Service
[AERODROME-ATC-36]-Airport surveillance data processing and distribution upgraded to store and forward flight plan data
[CTE-S02b]-Surface Movement Radar
[CTE-S03b]-ADS-B station for RAD and APT surveillance
[CTE-S04b]-Airport Multilateration (MLAT)

Finalisation criteria:
1 - Surveillance equipment that meets required performance specifications have been installed. Such equipment must include both non-cooperative sensors (e.g. SMR) and co-operative sensors (e.g. Mode S Multilateration).

AOP04.1-ASP02
Train aerodrome control staff in the use of A-SMGCS Level 1 surveillance in the provision of aerodrome control service
From: 01/01/2007
By: 31/12/2010
Action by: ANS Providers
Description & purpose: Train aerodrome controllers in the use of A-SMGCS Level 1 tools and procedures (including phraseology) in accordance with agreed training requirements.
Supporting material(s):
Url : https://trainingzone.eurocontrol.int
Url : https://www.eurocontrol.int/articles/advanced-surface-movement-guidance-and-control-systems-smgcs
Url : https://www.eurocontrol.int/articles/advanced-surface-movement-guidance-and-control-systems-smgcs

Finalisation criteria:
1 - Controllers training has been completed in accordance with agreed training requirements and programme.
AOP04.1-ASP03

Implement approved A-SMGCS operational procedures at airports equipped with A-SMGCS

From: 01/01/2007
By: 31/12/2011

Action by: ANS Providers

Description & purpose: Develop and apply agreed and validated A-SMGCS Level 1 procedures as an integral part of the aerodrome control service.

Url: https://www.eurocontrol.int/articles/advanced-surface-movement-guidance-and-control-systems-smgcs

ATM Master Plan relationship: [PRO-201a]. Procedures linked to Improvement of Surveillance on the Manoeuvring Area on and around the Runway

Finalisation criteria:
1. Implementation of the procedures at airports equipped with A-SMGCS Level 1 has been completed.
2. Harmonized application of transponder operating procedures consistent with the equipment in use.

AOP04.1-APO01

Install required surveillance equipment

From: 01/01/2007
By: 31/12/2010

Action by: Airport Operators

Description & purpose: Install all the surveillance equipment and related systems as specified in the functional specifications for A-SMGCS, in order to enable aerodrome controllers to locate and identify aircraft and vehicles on the manoeuvring area (in cooperation with ANS provider, as appropriate).

Supporting material(s): ETSI - EN 303 213-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 1: A-SMGCS Level 1 including external interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.3.1 / 04/2012
Url: http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp

ETSI - EN 303 213-3 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 3: Deployed cooperative sensor including its interfaces; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010/C 330/02 / 10/2010
Url: http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp

ETSI - EN 303 213-4-1 - Advanced Surface Movement Guidance and Control System (A-SMGCS); Sub-part 1: Generic requirements for non-cooperative sensor; Community Specification for application under the Single European Sky Interoperability Regulation EC 552/2004 - Ver. 1.1.1 - OJ 2010/C 330/02 / 10/2010
Url: http://webapp.etsi.org/workprogram/SimpleSearch/QueryForm.asp

Url: https://www.eurocontrol.int/articles/advanced-surface-movement-guidance-and-control-systems-smgcs

Url: https://www.eurocae.net/eshop/catalog/product_info.php?products_id=245

Url: http://boutique.eurocae.net/catalog/index.php

Url: http://boutique.eurocae.net/catalog/index.php

ATM Master Plan relationship: [AERODROME-ATC-04]: ANSP Civil ATS Aerodrome service providers (incl. Civil AMS Apron Management Service)
[AERODROME-ATC-28]: Surface movement control workstation equipped with initial tools for Aerodrome Control Service
[AERODROME-ATC-36]: Airport surveillance data processing and distribution upgraded to store and forward flight plan data
### Finalisation criteria:

1. Surveillance equipment that meets agreed performance specifications has been installed. Such equipment must include both non-cooperative sensors (e.g. SMR) and co-operative sensors (e.g. Mode S Multilateration).

### AOP04.1-APO02 Equip Ground Vehicles

**From:** 01/01/2007  
**By:** 31/12/2010

**Action by:** Airport Operators

**Description & purpose:** Ensure vehicles operating on the manoeuvring area of airports equipped with A-SMGCS Level 1 are equipped with the necessary systems as specified in the functional specifications for A-SMGCS, to provide their position and identity to the A-SMGCS Level 1 surveillance system.

**Supporting material(s):**
- EUROCONTROL - Operational Concept and Requirements for A-SMGCS Implementation Level 1 - Edition 2.1 / 06/2010  
  [Url](https://www.eurocontrol.int/articles/advanced-surface-movement-guidance-and-control-systems-smgcs)

**Finalisation criteria:** 1. Vehicle equipment that meets required performance specifications has been installed.

### AOP04.1-APO03 Train Ground Vehicle Drivers

**From:** 01/01/2007  
**By:** 31/12/2010

**Action by:** Airport Operators

**Description & purpose:** Ensure drivers of vehicles operating on the manoeuvring area of airports equipped with A-SMGCS Level 1 are trained in the operation of equipment associated with A-SMGCS Level 1.

**Supporting material(s):**
  [Url](https://www.eurocontrol.int/articles/advanced-surface-movement-guidance-and-control-systems-smgcs)
- EUROCONTROL - Mode S Transponder in an Airport/A-SMGCS Environment - Edition 1.1 / 05/2005  
  [Url](https://www.eurocontrol.int/articles/advanced-surface-movement-guidance-and-control-systems-smgcs)

**Finalisation criteria:** 1. Vehicle drivers have been trained and authorized.

### AOP04.1-USE01 Update aircrew training manual to include procedures for use of correct Mode-S transponder setting for enabling cooperative A-SMGCS detection on the movement area

**From:** 01/01/2004  
**By:** 31/12/2010

**Action by:** Airspace Users

**Description & purpose:** Perform the training of aircrew in the use of aircraft equipment and procedures in accordance with A-SMGCS Level 1.

**Supporting material(s):**
  [Url](https://www.eurocontrol.int/articles/advanced-surface-movement-guidance-and-control-systems-smgcs)

**Finalisation criteria:** 1. Procedures for use of correct Mode-S transponder setting for enabling co-operative A-SMGCS detection on the movement area have been incorporated in the pilot ab-initio and recurrent training programmes.

### AOP04.1-INT01 Coordinate amendments to the related ICAO documentation to include A-SMGCS Level 1 procedures

**From:** 01/11/2004  
**By:** 31/12/2011

**Action by:** EUROCONTROL Agency

**Description & purpose:** Obtain the incorporation of A-SMGCS Level 1 related procedures (including phraseology) into ICAO documentation.

**Supporting material(s):**
  [Url](https://www.eurocontrol.int/articles/advanced-surface-movement-guidance-and-control-systems-smgcs)

**Finalisation criteria:** 1. Proposed A-SMGCS Level 1 procedures have been adopted by ICAO and published in ICAO documents (i.e. Doc. 4444, and/or Doc. 7030).