



All Correspondence should be addressed to
Regional Director (Aircraft) and not to any officer by name

GOVERNMENT OF INDIA
MINISTRY OF DEFENCE
RESEARCH & DEVELOPMENT
ORGANISATION
**REGIONAL CENTRE FOR MILITARY
AIRWORTHINESS (AIRCRAFT), CEMILAC
VIMANAPURA POST
BANGALORE - 560017**

Grams : AIRWORTHY

Phone : 080-25226375

Fax : 080-25226928

No. RCMA (AC)/HAL (BC)/330

Date: 26 Mar 2013

To

M/s Integral Systems & Components Pvt. Ltd.
No. D-388/1, 1st cross, 1st Stage
Peenya Industrial Estate
Bangalore-560058

**SUB: PROVISIONAL CLEARANCE FOR TOGGLE SWITCH PART NO.
INT-6421A-038K FOR USE ON JAGUAR AIRCRAFT**

1. INTRODUCTION

The Toggle Switch Part No. INT-6421A-038K in lieu of imported Pt.No. 6421A-038K used in Jaguar Aircraft is indigenized by M/s Integral Systems and components Pvt Ltd, Bangalore. This switch is used in cockpit as ON/OFF switch for Laser, Battery crash switch (10P), ALT1, ALT2 and continuous positions switch on starting control panel.

2. PROVISIONAL CLEARANCE

The Toggle Switch Part No. INT-6421A-038K designed and developed by M/s Integral Systems and components Pvt Ltd, Bangalore, as per specifications and drawings listed in this document has successfully under gone full Qualification Test (QT) and is here by provisionally cleared for a period of **One Year** from the date of issue for use on Jaguar aircraft subjected to terms and conditions listed in this document.

3. BASIS FOR CLEARANCE

- 3.1 "Request for clearance" from DLE, Aircraft Division, HAL Bangalore letter No. A/CM (DL)/IDE/126/13 Dtd.20.03.2013
- 3.2 Technical specification document No.ISC/TS 069000/TS/2012 Issue Nil Dtd.08-06-2012.
- 3.3 Qualification test schedule document No.ISC/TS 069000/QTS/2012 Issue Nil Dtd. 08-06-2012.
- 3.4 Bill of materials document No.ISC/TS INT-6421A-038K/BOM/2012 Issue 01 Dtd.28-01-2013.

- 3.5 Manufacturing document No.ISC/TS INT-6421A-038K/MD/2012 Issue 01 Dtd.28-01-2013.
- 3.6 Qualification test report submitted Vide letter No. A/CM (DL)/IDE/126/13 Dtd. 20.03.2013.
- 3.7 Fitment and Functional test report on aircraft No. A/CM(DL)/IDE/122A dated 16/03/2013.

4. **LIMITATIONS**

NIL

5. **CONDITIONS OF CLEARANCE**

- 5.1 This clearance is invalid if any design/drawing changes are made in the build standard without the concurrence of RCMA (A/C).
- 5.2 Clearance is contingent upon the quality control aspects of bulk production being cleared by DGAQA, Ministry of Defence.
- 5.3 Feedback on the performance of the unit shall be forwarded to RCMA (Aircraft) and shall be taken up for the type approval subject to satisfactory field evaluation.

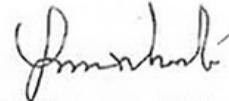
6. **TECHNICAL PERTICULARS**

1. **ELECTRICAL PERTICULARS**

Nominal operating Voltage	:	28V DC
Insulation Resistance @ 500V DC	:	$\geq 1000M\Omega$
Endurance (ON/OFF Cycles)	:	20000
Contact Resistance	:	$\leq 10m\Omega$
Current Rating	:	7A

2. **MECHANICAL PERTICULARS**

Weight	:	25 ± 6 gms
Operating Force	:	225-1400gms



(PRADEEP MAHULI)
Regional Director (Aircraft)

Copy to:

- 1) ORDAQA (AC&OH) Bangalore-17
- 2) GM, Aircraft Division, HAL Bangalore-17
- 3) CE (A), CEMILAC, Bangalore-37



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BANGALORE - 560017

Grams : AIRWORTHY

Phone : 080-25226375

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No. RCMA (AC)/HAL (BC)/330

Date: 4 Apr 2013

To

M/s Integral Systems & Components Pvt. Ltd.
No. D-388/1, 1st cross, 1st Stage
Peenya Industrial Estate
Bangalore-560058

**SUB: PROVISIONAL CLEARANCE FOR TOGGLE SWITCH PART NO.
INT-6421A-038K1V FOR USE ON JAGUAR AIRCRAFT**

1. INTRODUCTION

The Toggle Switch Part No. INT-6421A-038K1V in lieu of imported Pt.No. 6421A-038K1V used in Jaguar Aircraft is indigenized by M/s Integral Systems and components Pvt Ltd, Bangalore. This switch is used in cockpit as ON/OFF switch for TGT amplifier 1 & 2 on starting control panel.

2. PROVISIONAL CLEARANCE

The Toggle Switch Part No. INT-6421A-038K1V designed and developed by M/s Integral Systems and components Pvt Ltd, Bangalore, as per specifications and drawings listed in this document has successfully under gone full Qualification Test (QT) and is here by provisionally cleared for a period of **One Year** from the date of issue for use on Jaguar aircraft subject to terms and conditions listed in this document.

3. BASIS FOR CLEARANCE

- 3.1 "Request for clearance" from DLE, Aircraft Division, HAL Bangalore letter No. A/CM (DL)/IDE/126/13 Dtd.20.03.2013
- 3.2 Technical specification document No.ISC/TS 069000/TS/2012 Issue Nil Dtd.08-06-2012.
- 3.3 Qualification test schedule document No.ISC/TS 069000/QTS/2012 Issue Nil Dtd. 08-06-2012.
- 3.4 Bill of materials document No.ISC/TS INT-6421A-038K1V/BOM/2012 Issue 01 Dtd.28-01-2013.
- 3.5 Manufacturing document No.ISC/TS INT-6421A-038K1V/MD/2012 Issue 01 Dtd.28-01-2013.

- 3.6 Qualification test report submitted .Vide letter No. A/CM (DL)/IDE/126/13 Dtd. 20.03.2013.
- 3.7 Fitment and Functional test report on aircraft No. A/CM(DL)/IDE/122A dated 16/03/2013.
- 3.8 Pilot assessment test report on Aircraft vide A/CM(DL)/ID/ 149 / 13 dated 01/04/2013.

4. **LIMITATIONS**

NIL

5. **CONDITIONS OF CLEARANCE**

- 5.1 This clearance is invalid if any design/drawing changes are made in the build standard without the concurrence of RCMA (A/C).
- 5.2 Clearance is contingent upon the quality control aspects of bulk production being cleared by DGAQA, Ministry of Defence.
- 5.3 Feedback on the performance of the unit shall be forwarded to RCMA (Aircraft) and shall be taken up for the type approval subject to satisfactory field evaluation.

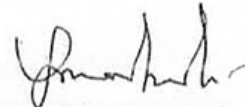
6. **TECHNICAL PERTICULARS**

1. **ELECTRICAL PERTICULARS**

Nominal operating Voltage	:	28V DC
Insulation Resistance @ 500V DC	:	$\geq 1000M\Omega$
Endurance (ON/OFF Cycles)	:	20000
Contact Resistance	:	$\leq 10m\Omega$
Current Rating	:	7A

2. **MECHANICAL PERTICULARS**

Weight	:	25 ± 6 gms
Operating Force	:	225-1400gms
Pulling Force	:	1400-2290gms



(PRADEEP MAHULI)
Regional Director (Aircraft)

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No. RCMA (AC)/HAL (BC)/330

Date: 26 Mar 2013

To

M/s Integral Systems & Components Pvt. Ltd.
No. D-388/1, 1st cross, 1st Stage
Peenya Industrial Estate
Bangalore-560058

**SUB: PROVISIONAL CLEARANCE FOR TOGGLE SWITCH PART NO.
INT-6645-038K FOR USE ON JAGUAR AIRCRAFT**

1. **INTRODUCTION**

The Toggle Switch Part No. INT-6645-038K in lieu of imported Pt.No. 6645-038K used in Jaguar Aircraft is indigenized by M/s Integral Systems and components Pvt Ltd, Bangalore. This switch is used in cockpit as a Laser & 'weight on' override switch.

2. **PROVISIONAL CLEARANCE**

The Toggle Switch Part No. INT-6645-038K designed and developed by M/s Integral Systems and components Pvt Ltd, Bangalore, as per specifications and drawings listed in this document has successfully under gone full Qualification Test (QT) and is here by provisionally cleared for a period of **One Year** from the date of issue for use on Jaguar aircraft subject to terms and conditions listed in this document.

3. **BASIS FOR CLEARANCE**

- 3.1 "Request for clearance" from DLE, Aircraft Division, HAL Bangalore letter No. A/CM (DL)/IDE/126/13 Dtd.20.03.2013
- 3.2 Technical specification document No.ISC/TS 069000/TS/2012 Issue Nil Dtd.08-06-2012.
- 3.3 Qualification test schedule document No.ISC/TS 069000/QTS/2012 Issue Nil Dtd. 08-06-2012.
- 3.4 Bill of materials document No.ISC/TS INT-6645-038K/BOM/2012 Issue 01 Dtd.28-01-2013.
- 3.5 Manufacturing document No.ISC/TS INT-6645-038K/MD/2012 Issue 01 Dtd.28-01-2013.

3.6 Qualification test report submitted Vide letter No. A/CM (DL)/IDE/126/13 Dtd. 20.03.2013.

3.7 Fitment and Functional test report on aircraft No. A/CM(DL)/IDE/122A dated 16/03/2013.

4. **LIMITATIONS**

NIL

5. **CONDITIONS OF CLEARANCE**

5.1 This clearance is invalid if any design/drawing changes are made in the build standard without the concurrence of RCMA (A/C).

5.2 Clearance is contingent upon the quality control aspects of bulk production being cleared by DGAQA, Ministry of Defence.

5.3 Feedback on the performance of the unit shall be forwarded to RCMA (Aircraft) and shall be taken up for the type approval subject to satisfactory field evaluation.

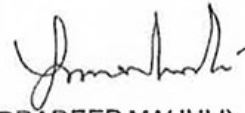
6. **TECHNICAL PERTICULARS**

1. **ELECTRICAL PERTICULARS**

Nominal operating Voltage	:	28V DC
Insulation Resistance @ 500V DC	:	$\geq 1000M\Omega$
Endurance (ON/OFF Cycles)	:	20000
Contact Resistance	:	$\leq 10m\Omega$
Current Rating	:	7A

2. **MECHANICAL PERTICULARS**

Weight	:	30-60 gms
Operating Force	:	225-1400gms



(PRADEEP MAHULI)
Regional Director (Aircraft)

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No. D-388/1, 1st cross, 1st Stage
Peenya Industrial Estate
Bangalore-560058

**SUB: PROVISIONAL CLEARANCE FOR TOGGLE SWITCH PART NO.
INT-6646-038K FOR USE ON JAGUAR AIRCRAFT**

1. INTRODUCTION

The Toggle Switch Part No. INT-6646-038K in lieu of imported Pt.No. 6646-038K used in Jaguar Aircraft is indigenized by M/s Integral Systems and components Pvt Ltd, Bangalore. This switch is used in cockpit as air generator control switch, crash switch for fire bottles, override switch for flap selector unit, control services change over switch for hydraulic pressure gauge and cross feed switch.

2. PROVISIONAL CLEARANCE

The Toggle Switch Part No. INT-6646-038K designed and developed by M/s Integral Systems and components Pvt Ltd, Bangalore, as per specifications and drawings listed in this document has successfully under gone full Qualification Test (QT) and is here by provisionally cleared for a period of **One Year** from the date of issue for use on Jaguar aircraft subject to terms and conditions listed in this document.

3. BASIS FOR CLEARANCE

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- 3.5 Manufacturing document No.ISC/TS INT-6646-038K/MD/2012 Issue 01 Dtd.28-01-2013.

3.6 Qualification test report submitted Vide letter No. A/CM (DL)/IDE/126/13 Dtd. 20.03.2013.

3.7 Fitment and Functional test report on aircraft No. A/CM(DL)/IDE/122A dated 16/03/2013.

4. **LIMITATIONS**

NIL

5. **CONDITIONS OF CLEARANCE**

5.1 This clearance is invalid if any design/drawing changes are made in the build standard without the concurrence of RCMA (A/C).

5.2 Clearance is contingent upon the quality control aspects of bulk production being cleared by DGAQA, Ministry of Defence.

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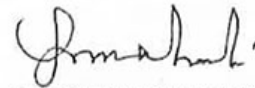
6. **TECHNICAL PERTICULARS**

1. **ELECTRICAL PERTICULARS**

Nominal operating Voltage	:	28V DC
Insulation Resistance @ 500V DC	:	$\geq 1000M\Omega$
Endurance (ON/OFF Cycles)	:	20000
Contact Resistance	:	$\leq 10m\Omega$
Current Rating	:	7A

2. **MECHANICAL PERTICULARS**

Weight	:	30-60 gms
Operating Force	:	225-1400gms



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No. RCMA (AC)/HAL (BC)/330

Date: 26 Mar 2013

To
M/s Integral Systems & Components Pvt. Ltd.
No. D-388/1, 1st cross, 1st Stage
Peenya Industrial Estate
Bangalore-560058

**SUB: PROVISIONAL CLEARANCE FOR TOGGLE SWITCH PART NO.
INT-6646-038K1V FOR USE ON JAGUAR AIRCRAFT**

1. INTRODUCTION

The Toggle Switch Part No. INT-6646-038K1V in lieu of imported Pt.No. 6646-038K1V used in Jaguar Aircraft is indigenized by M/s Integral Systems and components Pvt Ltd, Bangalore. This switch is used in cockpit as fuel jettison switch for fuel jettison valve, late arming switch for WCS and Engine ignition switch on starting control panel.

2. PROVISIONAL CLEARANCE

The Toggle Switch Part No. INT-6646-038K1V designed and developed by M/s Integral Systems and components Pvt Ltd, Bangalore, as per specifications and drawings listed in this document has successfully under gone full Qualification Test (QT) and is here by provisionally cleared for a period of **One Year** from the date of issue for use on Jaguar aircraft subject to terms and conditions listed in this document.

3. BASIS FOR CLEARANCE

- 3.1 "Request for clearance" from DLE, Aircraft Division, HAL Bangalore letter No. A/CM (DL)/IDE/126/13 Dtd.20.03.2013
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- 3.3 Qualification test schedule document No.ISC/TS 069000/QTS/2012 Issue Nil Dtd. 08-06-2012.
- 3.4 Bill of materials document No.ISC/TS INT-6646-038K1V/BOM/2012 Issue 01 Dtd.28-01-2013.

- 3.5 Manufacturing document No.ISC/TS INT-6646-038K1V/MD/2012 Issue 01 Dtd.28-01-2013.
- 3.6 Qualification test report submitted Vide letter No. A/CM (DL)/IDE/126/13 Dtd. 20.03.2013.
- 3.7 Fitment and Functional test report on aircraft No. A/CM(DL)/IDE/122A dated 16/03/2013.

4. **LIMITATIONS**

NIL

5. **CONDITIONS OF CLEARANCE**

- 5.1 This clearance is invalid if any design/drawing changes are made in the build standard without the concurrence of RCMA (A/C).
- 5.2 Clearance is contingent upon the quality control aspects of bulk production being cleared by DGAQA, Ministry of Defence.
- 5.3 Feedback on the performance of the unit shall be forwarded to RCMA (Aircraft) and shall be taken up for the type approval subject to satisfactory field evaluation.

6. **TECHNICAL PERTICULARS**

1. **ELECTRICAL PERTICULARS**

Nominal operating Voltage	:	28V DC
Insulation Resistance @ 500V DC	:	$\geq 1000M\Omega$
Endurance (ON/OFF Cycles)	:	20000
Contact Resistance	:	$\leq 10m\Omega$
Current Rating	:	7A

2. **MECHANICAL PERTICULARS**

Weight	:	30-60 gms
Operating Force	:	225-1400 gms
Pulling force	:	1400-2290 gms



(PRADEEP MAHULI)
Regional Director (Aircraft)

Copy to:

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- 2) GM, Aircraft Division, HAL Bangalore-17
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No. RCMA (AC)/HAL (BC)/330

Date: 26 Mar 2013

To

M/s Integral Systems & Components Pvt. Ltd.
No. D-388/1, 1st cross, 1st Stage
Peenya Industrial Estate
Bangalore-560058

**SUB: PROVISIONAL CLEARANCE FOR TOGGLE SWITCH PART NO.
INT-6647-038K FOR USE ON JAGUAR AIRCRAFT**

1. INTRODUCTION

The Toggle Switch Part No. INT-6647-038K in lieu of imported Pt.No. 6647-038K used in Jaguar Aircraft is indigenized by M/s Integral Systems and components Pvt Ltd, Bangalore. This switch is used in cockpit as engine start selector switch on starting control panel.

2. PROVISIONAL CLEARANCE

The Toggle Switch Part No. INT-6647-038K designed and developed by M/s Integral Systems and components Pvt Ltd, Bangalore, as per specifications and drawings listed in this document has successfully under gone full Qualification Test (QT) and is here by provisionally cleared for a period of **One Year** from the date of issue for use on Jaguar aircraft subject to terms and conditions listed in this document.

3. BASIS FOR CLEARANCE

- 3.1 'Request for clearance' from DLE, Aircraft Division, HAL Bangalore letter No. A/CM (DL)/IDE/126/13 Dtd.20.03.2013
- 3.2 Technical specification document No.ISC/TS 069000/TS/2012 Issue Nil Dtd.08-06-2012.
- 3.3 Qualification test schedule document No.ISC/TS 069000/QTS/2012 Issue Nil Dtd. 08-06-2012.
- 3.4 Bill of materials document No.ISC/TS INT-6647-038K/BOM/2012 Issue 01 Dtd.28-01-2013.
- 3.5 Manufacturing document No.ISC/TS INT-6647-038K/MD/2012 Issue 01 Dtd.28-01-2013.

3.6 Qualification test report submitted Vide letter No. A/CM (DL)/IDE/126/13 Dtd. 20.03.2013.

3.7 Fitment and Functional test report on aircraft No. A/CM(DL)/IDE/122A dated 16/03/2013.

4. **LIMITATIONS**

NIL

5. **CONDITIONS OF CLEARANCE**

5.1 This clearance is invalid if any design/drawing changes are made in the build standard without the concurrence of RCMA (A/C).

5.2 Clearance is contingent upon the quality control aspects of bulk production being cleared by DGAQA, Ministry of Defence.

5.3 Feedback on the performance of the unit shall be forwarded to RCMA (Aircraft) and shall be taken up for the type approval subject to satisfactory field evaluation.

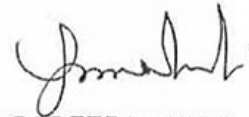
6. **TECHNICAL PERTICULARS**

1. **ELECTRICAL PERTICULARS**

Nominal operating Voltage	:	28V DC
Insulation Resistance @ 500V DC	:	$\geq 1000M\Omega$
Endurance (ON/OFF Cycles)	:	20000
Contact Resistance	:	$\leq 10m\Omega$
Current Rating	:	7A

2. **MECHANICAL PERTICULARS**

Weight	:	30-60 gms
Operating Force	:	225-1400gms



(PRADEEP MAHULI)
Regional Director (Aircraft)

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Date: 26 Mar 2013

To

M/s Integral Systems & Components Pvt. Ltd.
No. D-388/1, 1st cross, 1st Stage
Peenya Industrial Estate
Bangalore-560058

**SUB: PROVISIONAL CLEARANCE FOR TOGGLE SWITCH PART NO.
INT-6649-038K FOR USE ON JAGUAR AIRCRAFT**

1. INTRODUCTION

The Toggle Switch Part No. INT-6649-038K in lieu of imported Pt.No. 6649-038K used in Jaguar Aircraft is indigenized by M/s Integral Systems and components Pvt Ltd, Bangalore. This switch is used in cockpit as change over switch for landing and taxing light.

2. PROVISIONAL CLEARANCE

The Toggle Switch Part No. INT-6649-038K designed and developed by M/s Integral Systems and components Pvt Ltd, Bangalore, as per specifications and drawings listed in this document has successfully under gone full Qualification Test (QT) and is here by provisionally cleared for a period of **One Year** from the date of issue for use on Jaguar aircraft subject to terms and conditions listed in this document:

3. BASIS FOR CLEARANCE

- 3.1 "Request for clearance" from DLE, Aircraft Division, HAL Bangalore letter No. A/CM (DL)/IDE/126/13 Dtd.20.03.2013
- 3.2 Technical specification document No.ISC/TS 069000/TS/2012 Issue Nil Dtd.08-06-2012.
- 3.3 Qualification test schedule document No.ISC/TS 069000/QTS/2012 Issue Nil Dtd. 08-06-2012.
- 3.4 Bill of materials document No.ISC/TS INT-6649-038K/BOM/2012 Issue 01 Dtd.28-01-2013.
- 3.5 Manufacturing document No.ISC/TS INT-6649-038K/MD/2012 Issue 01 Dtd.28-01-2013.

3.6 Qualification test report submitted Vide letter No. A/CM (DL)/IDE/126/13 Dtd. 20.03.2013.

3.7 Fitment and Functional test report on aircraft No. A/CM(DL)/IDE/122A dated 16/03/2013.

4. **LIMITATIONS**

NIL

5. **CONDITIONS OF CLEARANCE**

5.1 This clearance is invalid if any design/drawing changes are made in the build standard without the concurrence of RCMA (A/C).

5.2 Clearance is contingent upon the quality control aspects of bulk production being cleared by DGAQA, Ministry of Defence.

5.3 Feedback on the performance of the unit shall be forwarded to RCMA (Aircraft) and shall be taken up for the type approval subject to satisfactory field evaluation.

6. **TECHNICAL PARTICULARS**

1. **ELECTRICAL PARTICULARS**

Nominal operating Voltage : 28V DC

Insulation Resistance @ 500V DC : $\geq 1000M\Omega$

Endurance (ON/OFF Cycles) : 20000

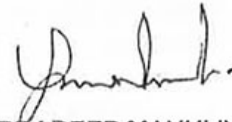
Contact Resistance : $\leq 10m\Omega$

Current Rating : 7A

2. **MECHANICAL PARTICULARS**

Weight : 30-60 gms

Operating Force : 225-1400gms



(PRADEEP MAHULI)
Regional Director (Aircraft)

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Date: 26 Mar 2013

To

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No. D-388/1, 1st cross, 1st Stage
Peenya Industrial Estate
Bangalore-560058

**SUB: PROVISIONAL CLEARANCE FOR TOGGLE SWITCH PART NO.
INT-6649-03KX208 FOR USE ON JAGUAR AIRCRAFT**

1. INTRODUCTION

The Toggle Switch Part No. INT-6649-03KX208 in lieu of imported Pt.No. 6649-03KX208 used in Jaguar Aircraft is indigenized by M/s Integral Systems and components Pvt Ltd, Bangalore. This switch is used in cockpit as anti-flash light switch.

2. PROVISIONAL CLEARANCE

The Toggle Switch Part No. INT-6649-03KX208 designed and developed by M/s Integral Systems and components Pvt Ltd, Bangalore, as per specifications and drawings listed in this document has successfully under gone full Qualification Test (QT) and is here by provisionally cleared for a period of **One Year** from the date of issue for use on Jaguar aircraft subject to terms and conditions listed in this document.

3. BASIS FOR CLEARANCE

- 3.1 "Request for clearance" from DLE, Aircraft Division, HAL Bangalore letter No. A/CM (DL)/IDE/126/13 Dtd.20.03.2013
- 3.2 Technical specification document No.ISC/TS 069000/TS/2012 Issue Nil Dtd.08-06-2012.
- 3.3 Qualification test schedule document No.ISC/TS 069000/QTS/2012 Issue Nil Dtd. 08-06-2012.
- 3.4 Bill of materials document No.ISC/TS INT-6649-03KX208/BOM/2012 Issue 01 Dtd.28-01-2013.
- 3.5 Manufacturing document No.ISC/TS INT-6649-03KX208/MD/2012 Issue 01 Dtd.28-01-2013.

3.6 Qualification test report submitted Vide letter No. A/CM (DL)/IDE/126/13 Dtd. 20.03.2013.

3.7 Fitment and Functional test report on aircraft No. A/CM(DL)/IDE/122A dated 16/03/2013.

4. **LIMITATIONS**

NIL

5. **CONDITIONS OF CLEARANCE**

5.1 This clearance is invalid if any design/drawing changes are made in the build standard without the concurrence of RCMA (A/C).

5.2 Clearance is contingent upon the quality control aspects of bulk production being cleared by DGAQA, Ministry of Defence.

5.3 Feedback on the performance of the unit shall be forwarded to RCMA (Aircraft) and shall be taken up for the type approval subject to satisfactory field evaluation.

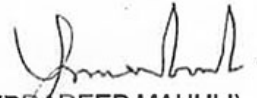
6. **TECHNICAL PERTICULARS**

1. **ELECTRICAL PERTICULARS**

Nominal operating Voltage	:	28V DC
Insulation Resistance @ 500V DC	:	$\geq 1000M\Omega$
Endurance (ON/OFF Cycles)	:	20000
Contact Resistance	:	$\leq 10m\Omega$
Current Rating	:	7A

2. **MECHANICAL PERTICULARS**

Weight	:	30-60 gms
Operating Force	:	225-1400gms



(PRADEEP MAHULI)
Regional Director (Aircraft)

Copy to:

- 1) ORDAQA (AC&OH) Bangalore-17
- 2) GM, Aircraft Division, HAL Bangalore-17
- 3) CE (A), CEMILAC, Bangalore-37



All Correspondence should be addressed to
Regional Director (Aircraft) and not to any other office or name

GOVERNMENT OF INDIA
MINISTRY OF DEFENCE
RESEARCH & DEVELOPMENT
ORGANISATION
REGIONAL CENTRE FOR MILITARY
AIRWORTHINESS (AIRCRAFT), CEMILAC
VIMANAPURA POST
BANGALORE - 560017

Grams : AIRWORTHY

Phone : 080-25226375

Fax : 080-25226928

No. RCMA (AC)/HAL (BC)/330

Date: 17 Apr 2012

To

M/s Integral Systems & Components Pvt. Ltd.
No. D-388/1, 1st cross, 1st Stage
Peenya Industrial Estate
Bangalore-560058

**SUB: PROVISIONAL CLEARANCE FOR TOGGLE SWITCH PART
NO.JT53900000 FOR USE ON JAGUAR AIRCRAFT**

1. INTRODUCTION

The Toggle Switch Part No. JT 53900000 in lieu of imported Pt.No. D34289G2-1 used in Jaguar Aircraft was indigenized by M/s Integral Systems and components Pvt Ltd, Bangalore. This switch is used in rate auto stabilizer system. The operation of the spine deflection compensation circuits can be tested by means of the RUDDER TEST SWITCH on ground. Setting the switch to Left or Right applies a false deflection signal to the rudder coupling unit which causes the rudder to compensate by moving a small amount in the appropriate direction.

2. PROVISIONAL CLEARANCE

The Toggle Switch Part No. JT 53900000 designed and developed by M/s Integral Systems and components Pvt Ltd, Bangalore, as per specifications and drawings listed in this document has successfully undergone full Qualification Test (QT) and is hereby provisionally cleared for a period of **One Year** from the date of issue for use on Jaguar aircraft subjected to terms and conditions listed in this document.

3. BASIS FOR CLEARANCE

- 3.1 "Request for clearance" from DLE, Aircraft Division, HAL, Bangalore letter No. A/CM (DL)/IDO/191/12 Dtd.30.03.2012
- 3.2 Technical specification document No.ISC/TS 53900000/TS/2010 Issue Nil Dtd.10-10-2010.
- 3.3 Qualification test schedule document No.ISC/TS 53900000/TTS/2010 Issue Nil Dtd.10-10-2010.
- 3.4 Bill of materials document No.ISC/TS 53900000/BOM/2010 Issue Nil Dtd.28-06-2011

- 3.5 Manufacturing document No.ISC/TS 53900000/MD/2010 Issue Nil Dtd 28-06-2011.
- 3.6 Qualification test report submitted Vide letter No A/CM (DL)/IDO/191/12 Dtd. 30.03.2012
- 3.7 Fitment and Functional test report on aircraft dated 11th Apr 2012.

4. **LIMITATIONS**

NIL

5. **CONDITIONS OF CLEARANCE**

- 5.1 This clearance is invalid if any design/drawing changes are made in the build standard without the concurrence of RCMA (A/C).
- 5.2 Clearance is contingent upon the quality control aspects of bulk production being cleared by DGAQA, Ministry of Defence.
- 5.3 Feedback on the performance of the unit shall be forwarded to RCMA (Aircraft) and shall be taken up for the type approval subject to satisfactory field evaluation.

6 **TECHNICAL PERTICULARS**

- | | |
|---------------------------------|----------------------|
| 1. ELECTRICAL PERTICULARS | |
| Nominal operating Voltage | : 28V DC |
| Insulation Resistance @ 500V DC | : $\geq 1000M\Omega$ |
| Endurance (ON/OFF Cycles) | : 20000 |
| Contact Resistance | : $\leq 12m\Omega$ |
| Current Rating | : 7.5A |
| 2. MECHANICAL PERTICULARS | |
| Weight | : 70(± 7)gms |
| Pulling Force | : 5.88-11.76N |


(PRADEEP MAHULI)
Regional Director (Aircraft)

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