



# GSE & TOOL USE AND MAINTENANCE MANUAL

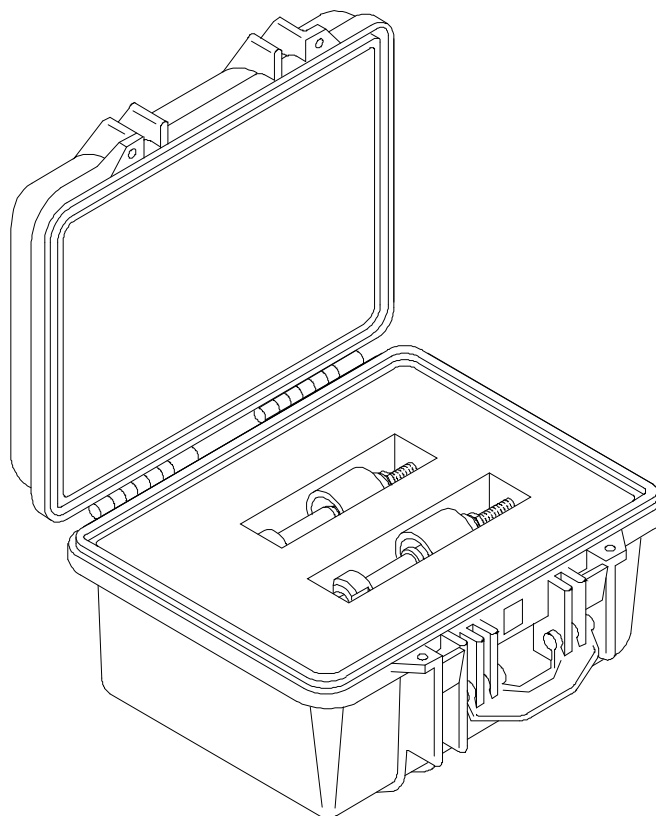
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## GSE & TOOL MANUAL

**TITLE**

**TOOL KIT, T/R BUSHINGS REPLACEMENT  
P/N 3G6405G08632**



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## REVISION HISTORY

REV	CHANGE DESCRIPTION	DATE
A	First issue	14/10/2021

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## 1. SCOPE

### 1.1. APPLICABILITY




The contents of this document are meant to provide information on the P/N 3G6405G08632 TOOL KIT, T/R BUSHINGS REPLACEMENT.

### 1.2. OBJECT

The object of this document is to describe the AGE and its components, its main features and it will also provide all needed maintenance requirements to keep in service the P/N 3G6405G08632 TOOL KIT, T/R BUSHINGS REPLACEMENT.

### 1.3. WARNING AND SAFETY INSTRUCTIONS

A number of symbols are used throughout this document to indicate information to which the user should pay attention to. These are indicated below along with the specific meaning.

 <b>Warning</b>	...Indicates a danger that might arise from a product and might result in severe injuries or even death, if no precautions are taken.
 <b>Caution</b>	... Indicates a potentially dangerous situation, which might result injury or damage to the equipment.
 <b>Notice</b>	...Indicates a note providing information to help the reader during the procedure.

*Table 1 – Warning Instruction*

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## 2. DOCUMENTS

### 2.1. APPLICABLE DOCUMENTS

The following table lists the applicable documents

REF	REFERENCE OF DOCUMENT	TITLE
N.A.	N.A.	N.A.

*Table 2 – Applicable Documents*

### 2.2. ACRONYMS USED

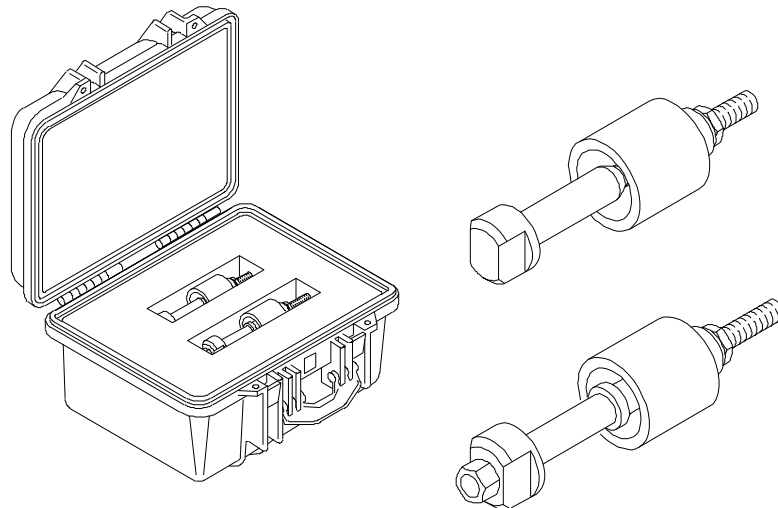
The main acronyms used in this document are listed below:

LHD	Leonardo Helicopter Division
HC	Helicopter
P/N	Part Number
S/N	Serial Number
N.A.	Not Applicable
T/R	Tail Rotor

### 3. DESCRIPTION

This tool is used to repair the half scissor assy, the tail rotor hub assy and the slider. This tool is able to remove/install the bushings from different position on the following components:

- Tail rotor half scissor
- Tail rotor hub assy
- Tail rotor slider.



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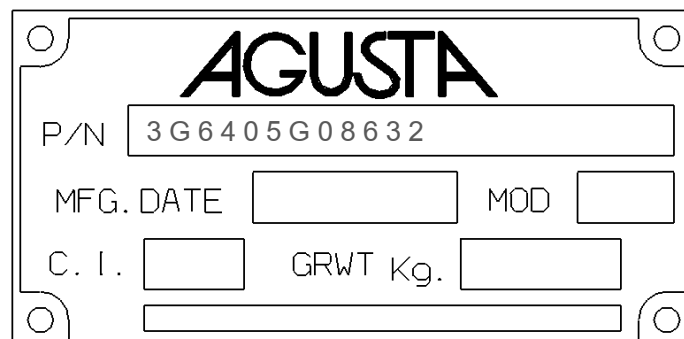
*Figure 1 – Tool kit, T/R bushings replacement.*

### 4. TOP ASSEMBLY DRAWINGS

Refer to P/N 3G6405G08632 TOOL KIT, T/R BUSHINGS REPLACEMENT.

### 5. IDENTIFICATION

The tool identification P/N is marked on the LHD identification tag.



*Figure 2 – LHD Identification tag with P/N*



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### 6. OVERALL DIMENSIONS

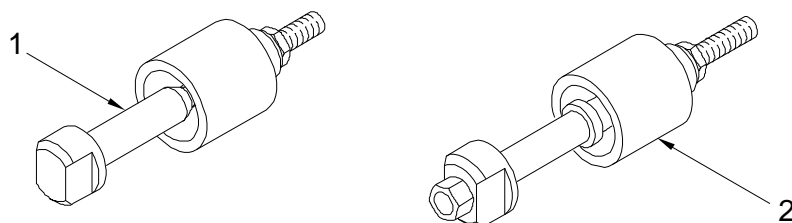
- Length: 270 mm
- Width: 246 mm
- Height: 124 mm

### 7. WEIGHT

- Total Weight: Not Available.



## 8. MAIN PARTS



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*Figure 3 – Main Parts*

The main parts of the TOOL KIT, T/R BUSHINGS REPLACEMENT are:







1. T/R bushings instl tool
2. T/R bushings removal tool

## 9. MAIN FEATURES DESCRIPTION

This tool is composed of a T/R bushings instl tool and a T/R bushings removal tool.

## 10. WARNING AND SAFETY NOTES

### 10.1. WARNING NOTE

 <b>Warning</b>	<p>Use this equipment only for the purpose that it is designed for. Any other use can result in injury or serious material damage to the components.</p>
 <b>Caution</b>	
 <b>Notice</b>	<p>The Manual can never integrally replace the adequate competence of the user.</p>
 <b>Warning</b>	<p>Before and after each use of the equipment is necessary to perform the checks required. Do not operate with a tool damaged or partially completed, or partially assembled.</p>
 <b>Caution</b>	
 <b>Notice</b>	<p>This Manual provides guidelines and instructions of the equipment that are in addition to - but are not intended to replace or modify but only to integrate - any general or specific rule, regulation, decree or law that is in force in the place where the equipment is in use.</p>

*Table 3 – Warning Note*

## 10.2. SAFETY NOTES

Remember to wear protective overalls, safety shoes, protective gloves and glasses during all operational and maintenance phases.



*Figure 4 – Safety Notes*

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## 11. STORAGE

The Tool shall be properly stored to provide protection from external weather conditions, damage and dirty particles.

The Kit shall be stored in the dedicated transportation box (part of the Kit).

Ensure that the tool parts are clean before storage.

### 11.1. LUBRICATION BEFORE STORAGE

N.A.

### 11.2. STORAGE CONFIGURATION

The tool has no particular storage configuration.

## 12. MAINTENANCE

NOTE: Correct regular maintenance allows preventing most faults and safeguards of tool performance in time, thereby making it last longer.

Every year carry out regular maintenance on a regular basis as detailed in this manual.

NOTE: Inspection intervals for tool parts placed inside in ready storage is 12 months.

### 12.1. CLEANING

Before inspection and after each use, carry out the cleaning of the tool components.

#### 12.1.1. SPECIAL TOOLS, FIXTURE AND EQUIPMENT

No special tools, fixture and equipment are required for cleaning.

#### 12.1.2. PART REQUIREMENTS

The parts to clean should be free from the moisture, emulsified water, soaps and metal shavings that can develop of corrosive acids.

They must also be free from wide grease and / or slosh deposits.

#### 12.1.3. MANUAL CLEANING

- A. Clean thoroughly all metal surfaces with a clean lint-free cloth (Local supply) moistened with Cleaning Solvent (MIL-PRF-680C, Type II) to do general spot cleaning of large groups areas. For nylon or Teflon surfaces, the use of a biodegradable, water dilutable cleaning compound (MIL-PRF-87937 D, Type II) is required.
- B. Repeat the cleaning process again by means another clean lint-free cloth (Local supply).
- C. Drying.
  - Verify that the solvent should not be trapped in the cavity. Normally, the solvent evaporates at room temperature in a satisfactory manner.

## 12.2. CHECKS

Before and after each use or at least every year, carry out the check of kit component.

Before each use ensure that the manual is available to the operator, in the event of loss, request a copy to Leonardo Helicopters Division.

The Tool kit shall be submitted to following checks to guarantee the functionality.

All required checks shall be registered on CHECK RECORDS Table. Ref. *TLC\_Table 1*

After each use of tool ensure to have registered the number of uses on HISTORICAL USES RECORD Table. Ref. *TLC\_Table 2*

The Tool Log Card template contained in the Annex A of this manual can be replaced with any other log card template in use in the plant where the equipment is in use.

### 12.2.1. SPECIAL TOOLS, FIXTURE AND EQUIPMENT

No special tools, fixture and equipment are required for the checks.

### 12.2.2. VISUAL EXAMINATION

NOTE: Replace the parts that do not obey the inspection requirements.

Restore the marking of the parts that results damaged or not readable.

All required visual checks are listed on Table 4

PERIODICITY	CHECK TYPE	COMPONENTS	
BEFORE AND AFTER EVERY USE	VISUAL EXAMINATION	Evidence of impact;	All
	Crushing or stripping	All	
	Cracks	All	
	Dents	All	
	Wear	All	
	Distortions	All	
	Corrosion	All	
	Loose or defective attaching parts (warning flag)	All	
	Unsticking of parts	Item 4, Plate, <a href="#">Figure 5</a> , page 15 Item 2, Nameplate, <a href="#">Figure 5</a> , page 15	
	Damage to the threads	All threaded STD parts.	
	Marking	All	

Table 4 – Visual Check



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### **12.2.3. PERIODICAL CHECKS**

Not Applicable.

### **12.2.4. DIMENSIONAL CHECKS**

Not Applicable.

### **12.2.5. SPECIAL CHECKS SUMMARY**

Not Applicable.

## **12.3. REPLACEMENT**

All the parts for which it is allowed the components replacement are listed in Paragraph 15.

### **12.3.1. REPLACEMENT PROCEDURES**

The replacement of parts of the kit does not require specific procedures.

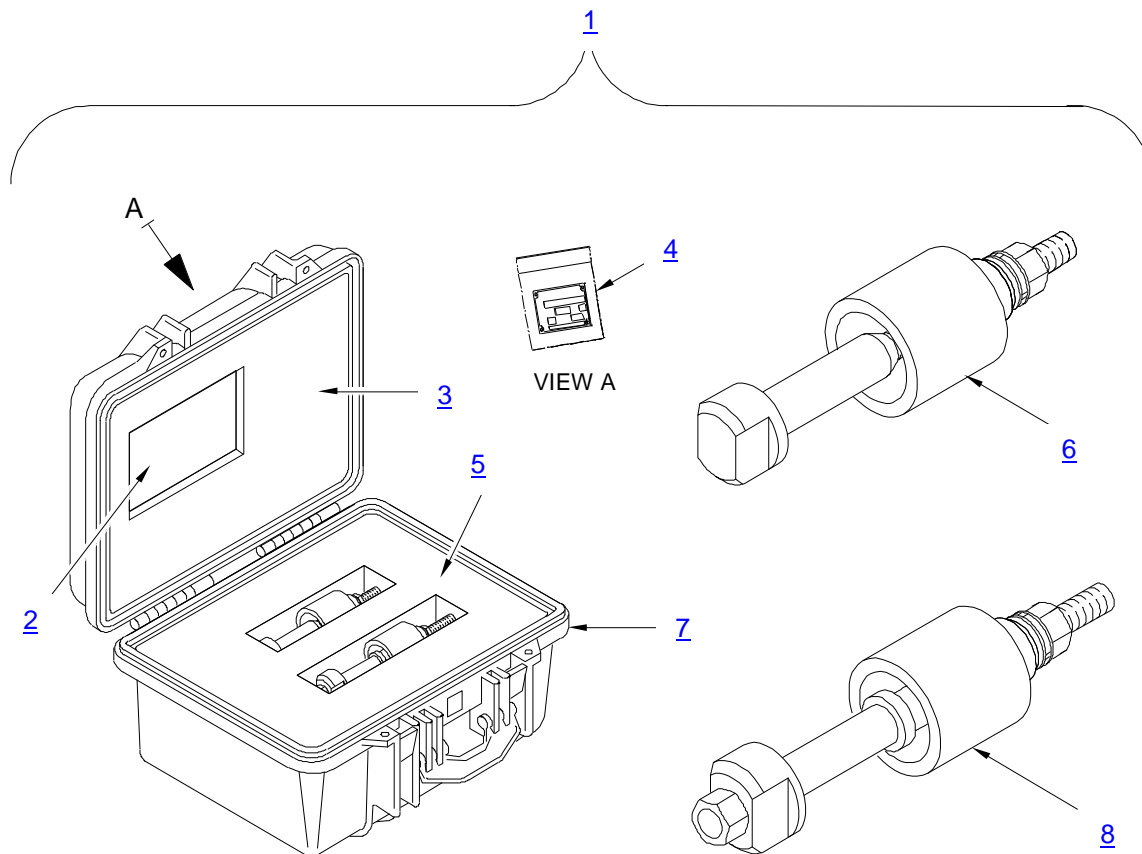
## **13. CALIBRATION**

No Calibration is required.

## **14. SHELF LIFE**

Not Applicable.

## 15. SPARE PARTS

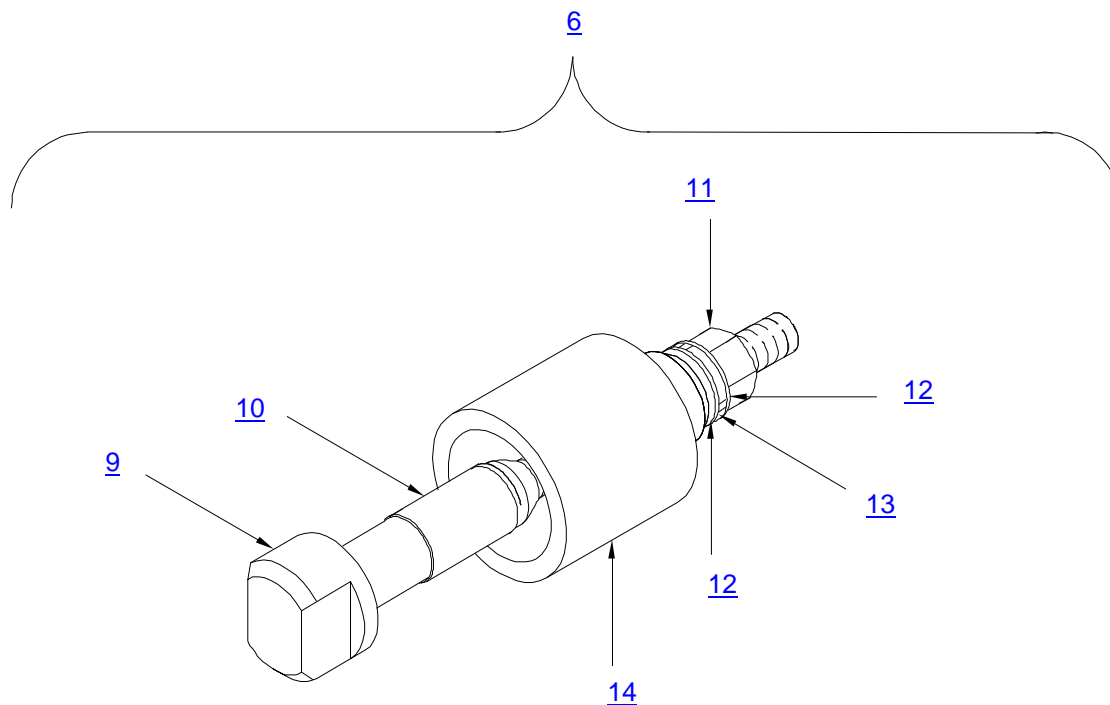


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*Figure 5 – Spare Parts*

ITEM	P/N	DESCRIPTION	Q.TY
1	3G6405G08632	TOOL KIT, T/R BUSHINGS REPLACEMENT	REF.
2	3G0205G00462	NAMEPLATE	1
3	3G6405G09551	FOAM	1
4	A304A001A1	PLATE, IDENTIFICATION	1
5	3G6405G09452	FOAM	1
6	3G6405G08832	TOOL, T/R BUSHINGS INSTALLATION (For Breakdown ref. to <a href="#">Fig. 6</a> and <a href="#">Table 6</a> )	1
7	1200	BOX, SMALL PARTS	1
8	3G6405G08732	TOOL, T/R BUSHINGS REMOVAL (For Breakdown ref. to <a href="#">Fig 7</a> and <a href="#">Table 7</a> )	1

*Table 5 – Spare Parts*



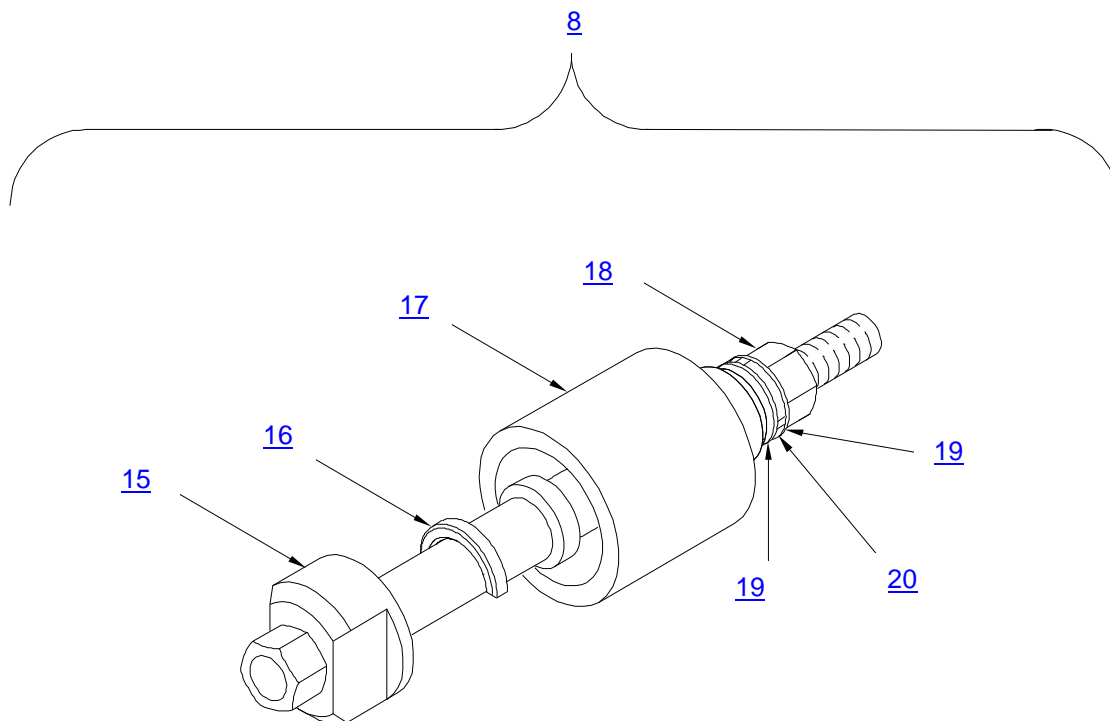
3G6405G08632\_4

*Figure 6 – Spare Parts*

<b>ITEM</b>	<b>P/N</b>	<b>DESCRIPTION</b>	<b>Q.TY</b>
6	3G6405G08832	TOOL, T/R BUSHINGS INSTL	REF.
9	3G6405G08952	GUIDE	1
10	3G6405G09151	BUSHING	1
11	3G6405G09651	SPECIAL NUT	1
12	TRA-411	WASHER, THRUST	2
13	NTA-411	BEARING, ROLLER	1
14	3G6405G09052	REACTION	1

*Table 6 – Spare Parts*





3G6405G08632\_5

*Figure 7 – Spare Parts*

ITEM	P/N	DESCRIPTION	Q.TY
8	3G6405G08732	TOOL, T/R BUSHINGS REMOVAL	REF.
15	3G6405G09252	GUIDE	1
16	3G6405G09351	PULLER	2
17	3G6405G09052	REACTION	1
18	3G6405G09651	SPECIAL NUT	1
19	TRA-411	WASHER, THRUST	2
20	NTA-411	BEARING, ROLLER	1

*Table 7 – Spare Parts*

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## 16. CE MARKING

No CE marking is required for the P/N 3G6405G08632 TOOL KIT, T/R BUSHINGS REPLACEMENT



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# ANNEX A

## TOOL LOG CARD



# TOOL LOG CARD

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<b>TOOL KIT P/N:</b> [1]	<b>TOOL KIT DESCRIPTION:</b> [2]	<b>TOOL KIT S/N:</b> [3]
<b>TOOL P/N:</b> [4]	<b>TOOL S/N:</b> [5]	<b>REMARKS:</b> [6]

## Section 1: CHECKS RECORD

[7] N° check	[8] DATE	[9] P/N TO CHECK	[10] CHECK	[11] FREQUENCY	[12] RESULT	[13] NOTE	CERTIFICATION [14]
							STAMP & SIGNATURE [15]
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
<b>FINAL ACCEPTANCE [16]</b>							
<b>STAMP &amp; SIGNATURE [17]</b>						<b>DATE [18]</b>	

TLC\_Table 1



# TOOL LOG CARD

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<b>TOOL KIT P/N:</b> [1]	<b>TOOL KIT DESCRIPTION:</b> [2]	<b>TOOL KIT S/N:</b> [3]
<b>TOOL P/N:</b> [4]	<b>TOOL S/N:</b> [5]	<b>REMARKS:</b> [6]

## Section 2: HISTORICAL USES RECORD

[19] N°USE	[8] DATE	[6] NOTE	[13] CERTIFICATION	[19] N°USE	[8] DATE	[6] NOTE	[13] CERTIFICATION
			[14] STAMP & SIGNATURE				[14] STAMP & SIGNATURE
1				11			
2				12			
3				13			
4				14			
5				15			
6				16			
7				17			
8				18			
9				19			
10				20			

TLC\_Table 2

## LOG CARD FILLING INSTRUCTIONS

<b>FIELD #</b>	<b>HEADER</b>	<b>NOTE</b>
<b>1</b>	Part number of the tool Kit	
<b>2</b>	Tool Kit denomination	
<b>3</b>	Serial Number of the tool Kit	
<b>4</b>	Part Number of the tool (part of kit)	
<b>5</b>	Serial Number of the tool (if applicable)	
<b>6</b>	Indicate any details of the use	
<b>7</b>	Sequential number of check performed	
<b>8</b>	Date of the activity	
<b>9</b>	PN of tool or component (part of tool) checked/affected by issue	
<b>10</b>	Typology or description of checks /issue	
<b>11</b>	Check frequency	
<b>12</b>	Check result	
<b>13</b>	Check remarks	
<b>14</b>	Performance certification	
<b>15</b>	Stamp and signature of the personnel which performs the check	
<b>16</b>	Section related to the final approval	
<b>17</b>	Stamp and signature of the personnel which performs the final approval	
<b>18</b>	Date on which the final check was made	
<b>19</b>	Sequential number of performed used of the tool	