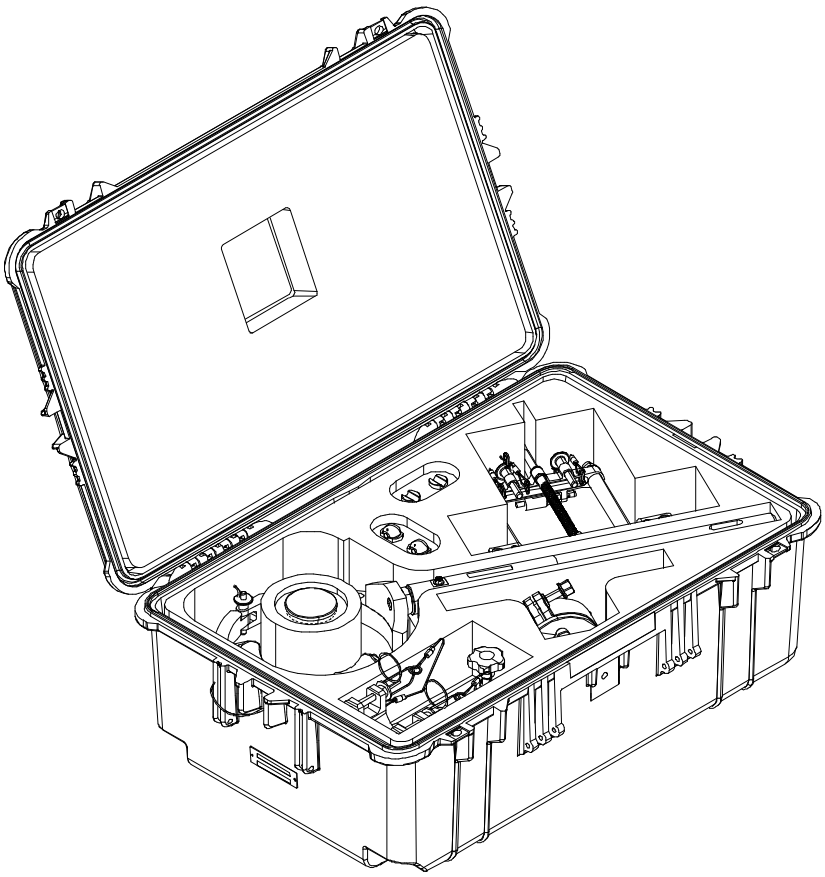
# GSE & TOOL MANUAL

| TITLE | ENGINE SLIDING FIXTURE<br>P/N 8G7100G00332 |
|---|---|



## REVISION HISTORY

| REV | CHANGE DESCRIPTION | DATE |
|---|---|---|
| A | First issue | 04/10/2021 |
| | | |

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# 1. SCOPE

## 1.1. APPLICABILITY

The contents of this document are meant to provide information on the P/N 8G7100G00332 ENGINE SLIDING FIXTURE.

## 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 8G7100G00332 ENGINE SLIDING FIXTURE.

## 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.

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

*Table 1 – Warning Instruction*

# 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*

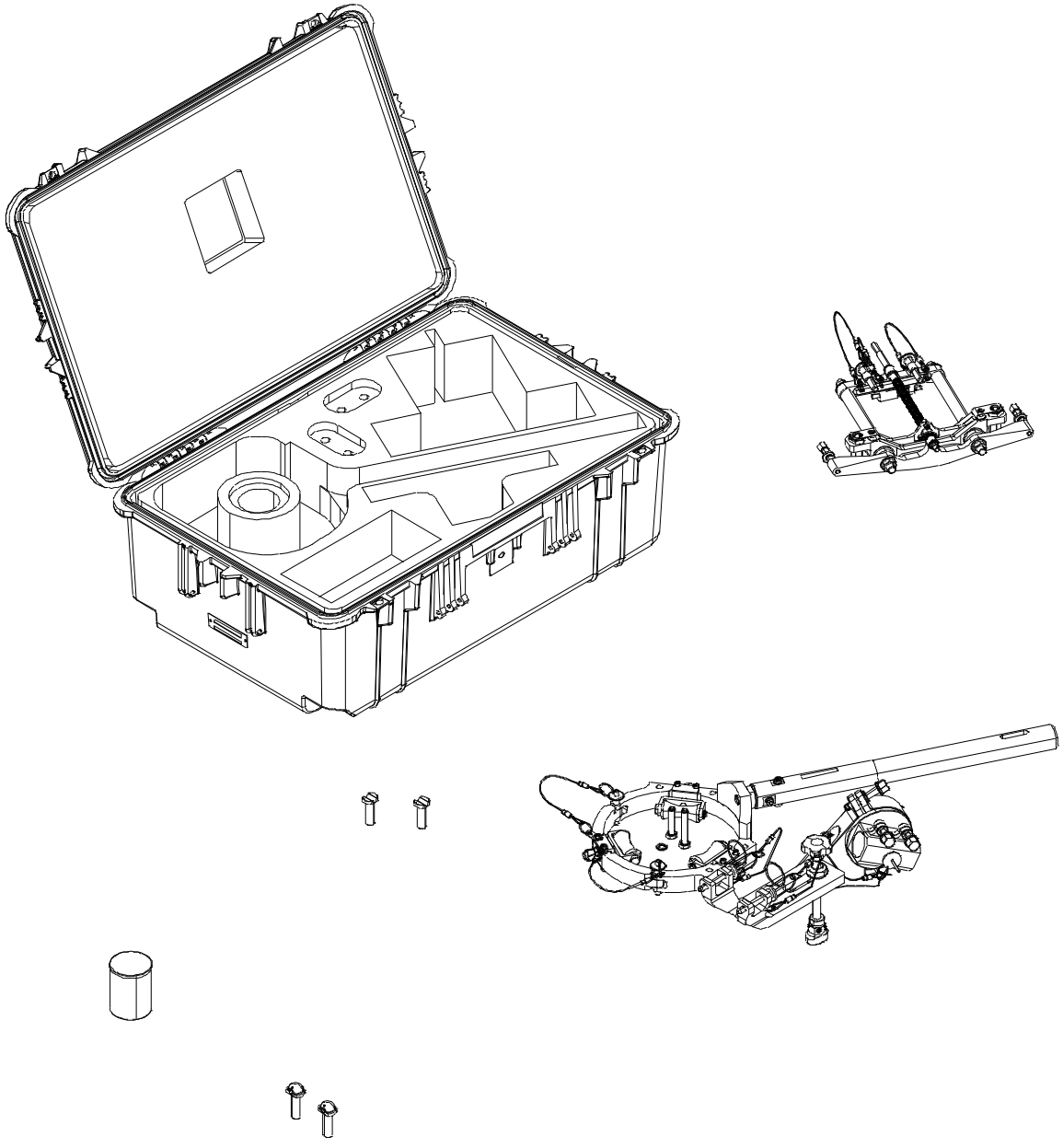
## 2.2. ACRONYMS USED

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 |
| FWD | Forward |
| H/C | Helicopter |
| MGB | Main Gearbox |

## 3. DESCRIPTION

The tool is used to let the engine slide inside the engine bay in order to disengage engine gimbal from the MGB gimbal. The tool has to support the engine with gimbal disconnected.



8G7100G00332_1

*Figure 1* – Engine sliding fixture

## 4. TOP ASSEMBLY DRAWINGS

Refer to P/N 8G7100G00332 ENGINE SLIDING FIXTURE.

## 5. IDENTIFICATION

The tool identification P/N 8G7100G00332 is marked on the LHD identification tag.

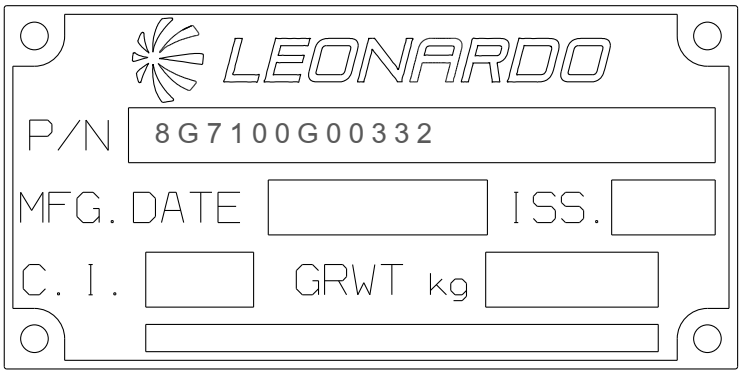



*Figure 2 – LHD Identification tag with P/N*

## 6. OVERALL DIMENSIONS

- Length: 802 mm
- Width: 520 mm
- Height: 320 mm

## 7. WEIGHT

- Total Weight: 26,5 kg

## 8. MAIN PARTS

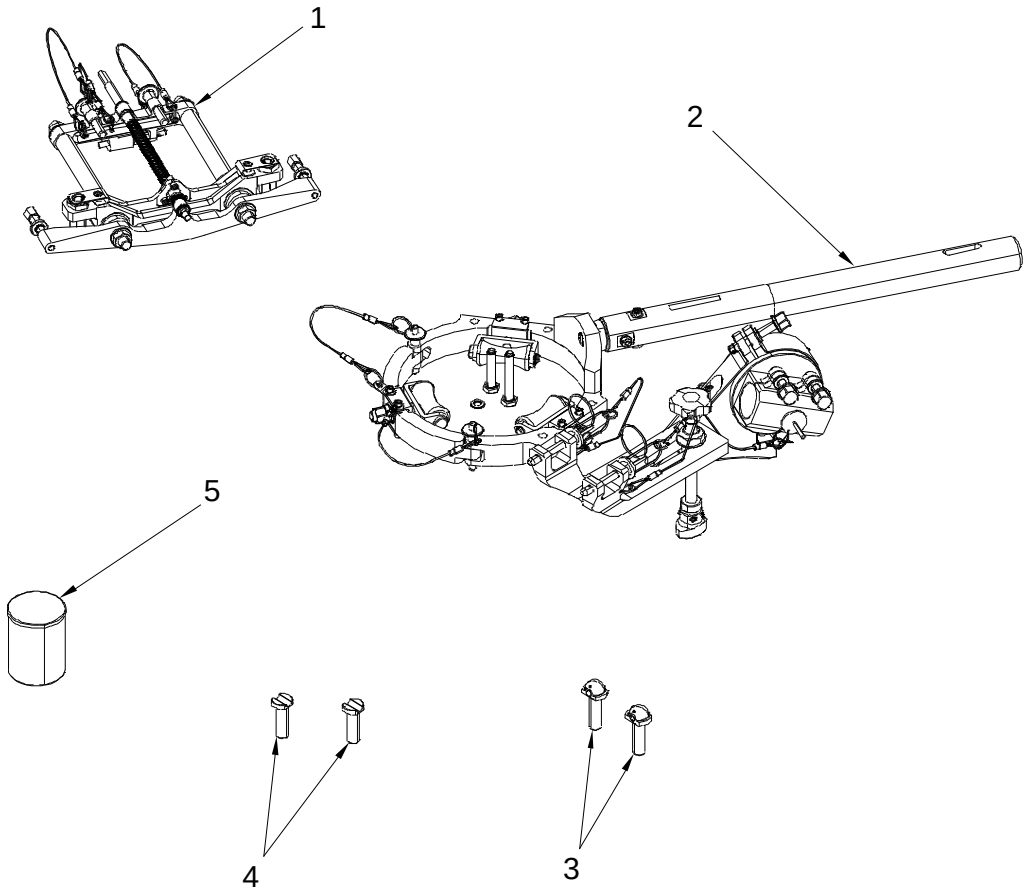



*Figure 3 – Main Parts*

The main parts of the Engine sliding fixture are:

1. AFT removal tool
2. FWD removal tool
3. Pivots
4. Threaded pivots
5. Clear pot

# 9. MAIN FEATURES DESCRIPTION

The kit is supplied in a suitable transportation box.

The Aft removal tool (1, Fig. 3) is used together with pivots (3) or threaded pivots (4) (depending on the H/C model) to hold the engine in position during the removal of the fixing bolts.

The FWD removal tool is composed by:

- The clamp assembly, to be installed on the engine gimbal
- The bracket assembly. to fix the tool on the H/C structure
- The support assembly, to adjust the tool position with respect to the H/C structure

and it is used to let the engine slide inside the engine bay in order to disengage engine gimbal from the MGB gimbal.

# 10. WARNING AND SAFETY NOTES

## 10.1. WARNING NOTE

| | |
|---|---|
|  <br>Warning<br>  <br>Caution | 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. |
|  <br>Notice | The Manual can never integrally replace the adequate competence of the user. |
|  <br>Warning<br>  <br>Caution | 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. |
|  <br>Notice | 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. |

*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*

# 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

Apply the Grease (MIL-PRF-23827) on all threaded parts before tool storage.

## 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

| PERIODICY | 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 2, Plate, Figure 5, page 16<br>Item 3, Nameplate, Figure 5, page 16<br>Item 12, Plate, Figure 5, page 16 |
| | | Damage to the threads | Item 10, Threaded Pivot, Figure 5, page 16<br>All threaded STD parts. |
| | | Marking | All |

*Table 4 – Visual Check*

#### 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

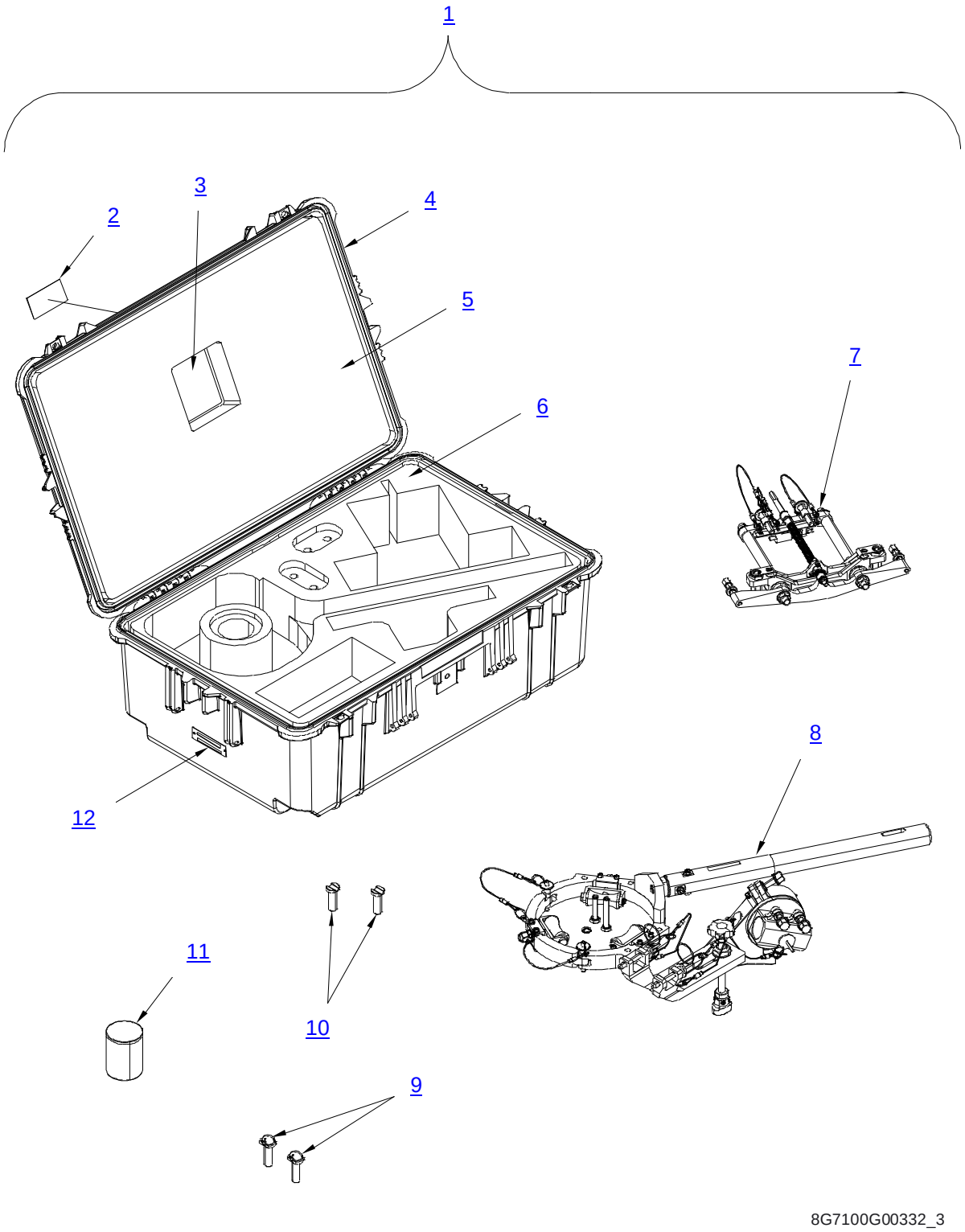



*Figure 5 – Spare Parts*

| ITEM | P/N | DESCRIPTION | Q.TY |
|---|---|---|---|
| 1 | 8G7100G00332 | ENGINE SLIDING FIXTURE | REF. |
| 2 | A304A004A1 | PLATE IDENTIFICATION | 1 |
| 3 | 8G7100G10551 | NAMEPLATE | 1 |
| 4 | 1650 | CASE | 1 |
| 5 | 8G7100G10751 | UPPER FOAM | 1 |
| 6 | 8G7100G06051 | LOWER FOAM | 1 |
| 7 | 8G7100G00432 | AFT REMOVAL TOOL (For Breakdown ref. to Fig. 6 and Table 6) | 1 |
| 8 | 8G7100G00531 | FWD REMOVAL TOOL (For Breakdown ref. to Fig. 8 and Table 8) | 1 |
| 9 | 8G7100G01131 | PIVOT ASSEMBLY | 2 |
| 10 | 8G7100G10851 | THREADED PIVOT | 2 |
| 11 | PL2182 | CLEAR POT | 1 |
| 12 | A304A005A1 | PLATE IDENTIFICATION | 1 |

*Table 5 – Spare Parts*

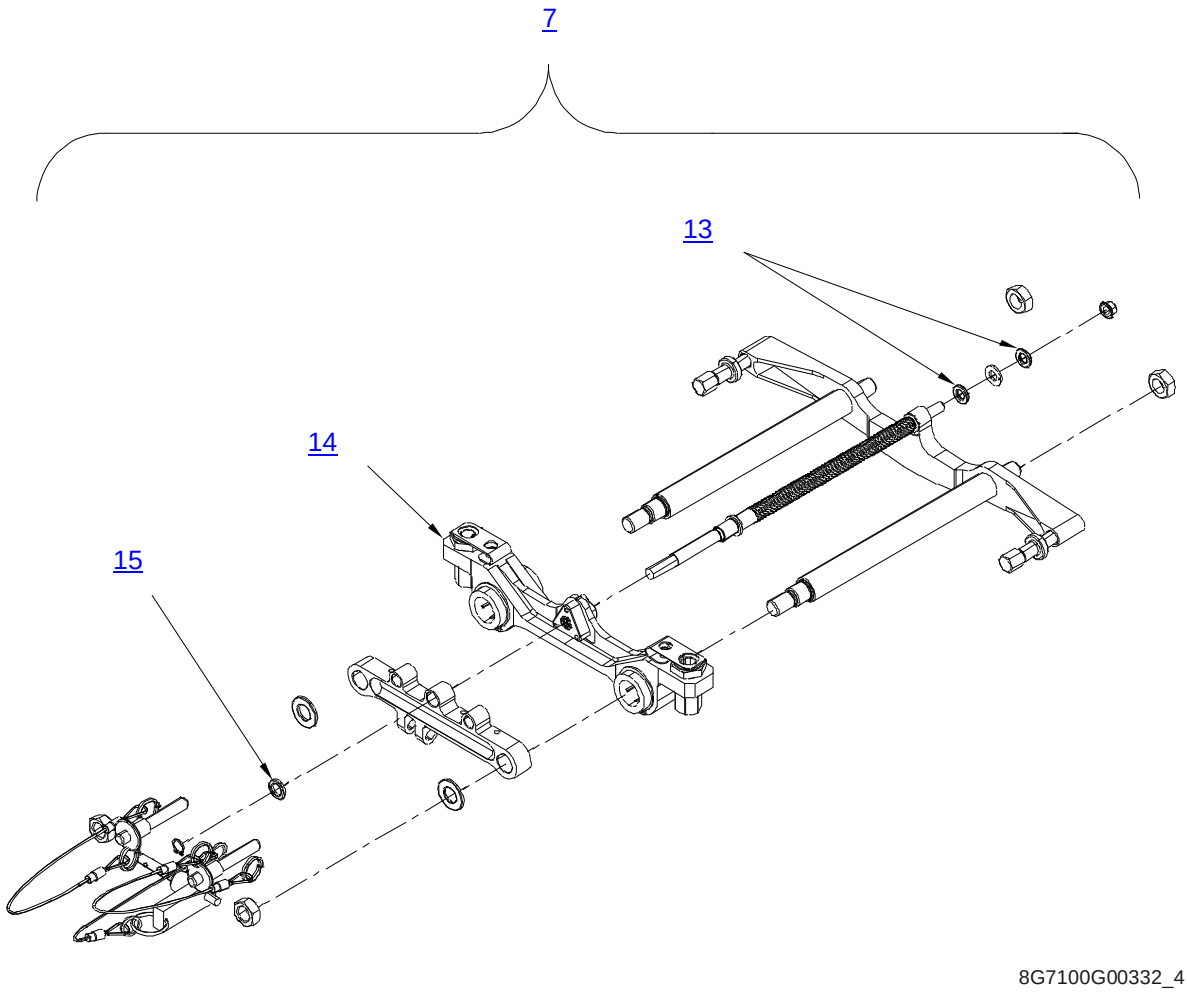



*Figure 6 – Spare Parts*

| ITEM | P/N | DESCRIPTION | Q.TY |
|---|---|---|---|
| 7 | 8G7100G00432 | AFT REMOVAL TOOL | REF. |
| 13 | 8G7100G01251 | SPECIAL WASHER | 2 |
| 14 | 8G7100G00832 | SLIDER ASSEMBLY (For Breakdown ref. to Fig. 7 and Table 7) | 1 |
| 15 | 8G7100G01351 | SPECIAL WASHER | 1 |

*Table 6 – Spare Parts*

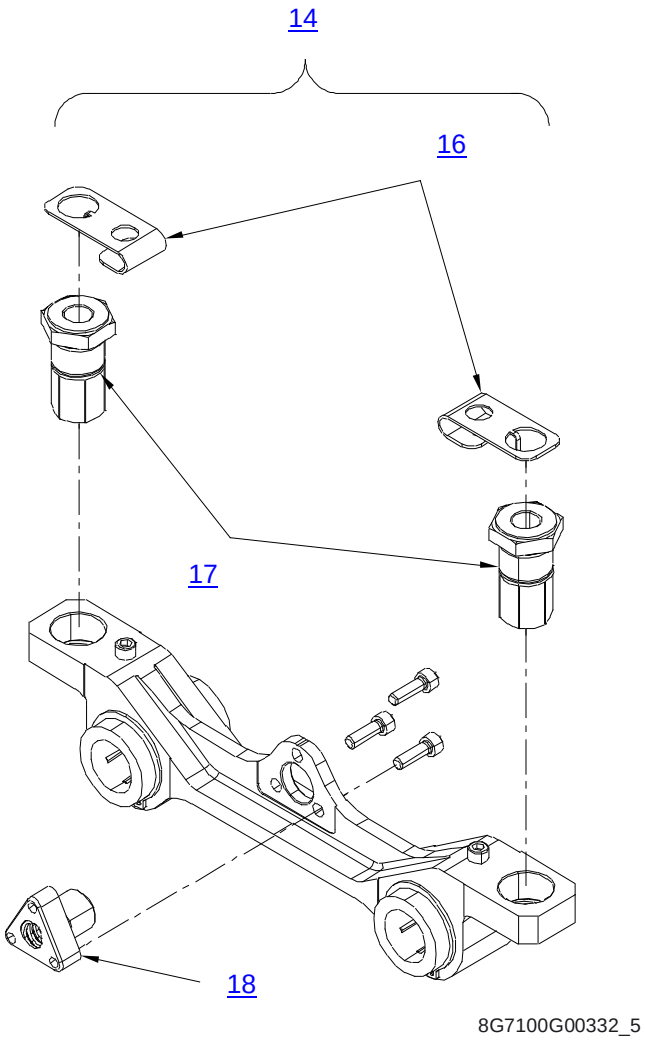



*Figure 7 – Spare Parts*

| ITEM | P/N | DESCRIPTION | Q.TY |
|---|---|---|---|
| 14 | 8G7100G00832 | SLIDER ASSEMBLY | REF. |
| 16 | 8G7100G01951 | ANTIROTATION PLATE | 2 |
| 17 | 8G7100G01851 | REGISTER NUT | 2 |
| 18 | 8G7100G03451 | NUT SCREW | 1 |

*Table 7 – Spare Parts*

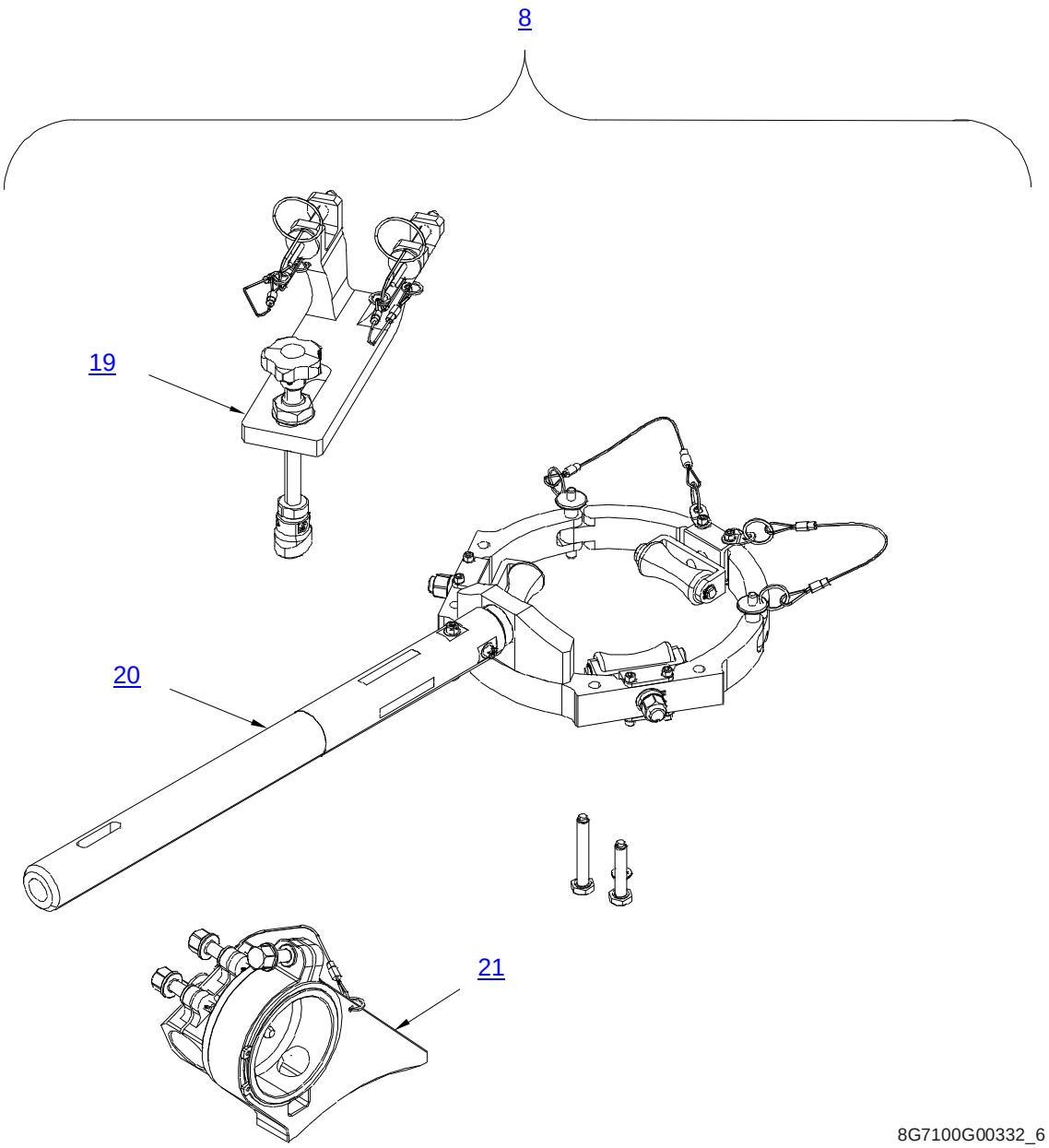



*Figure 8 – Spare Parts*

| ITEM | P/N | DESCRIPTION | Q.TY |
|---|---|---|---|
| 8 | 8G7100G00531 | FWD REMOVAL TOOL | REF. |
| 19 | 8G7100G03331 | SUPPORT ASSEMBLY (For Breakdown ref. to Fig. 9 and Table 9) | 1 |
| 20 | 8G7100G02131 | CLAMP ASSEMBLY (For Breakdown ref. to Fig. 11 and Table 11) | 1 |
| 21 | 8G7100G01431 | BRACKET ASSY | 1 |

*Table 8 – Spare Parts*

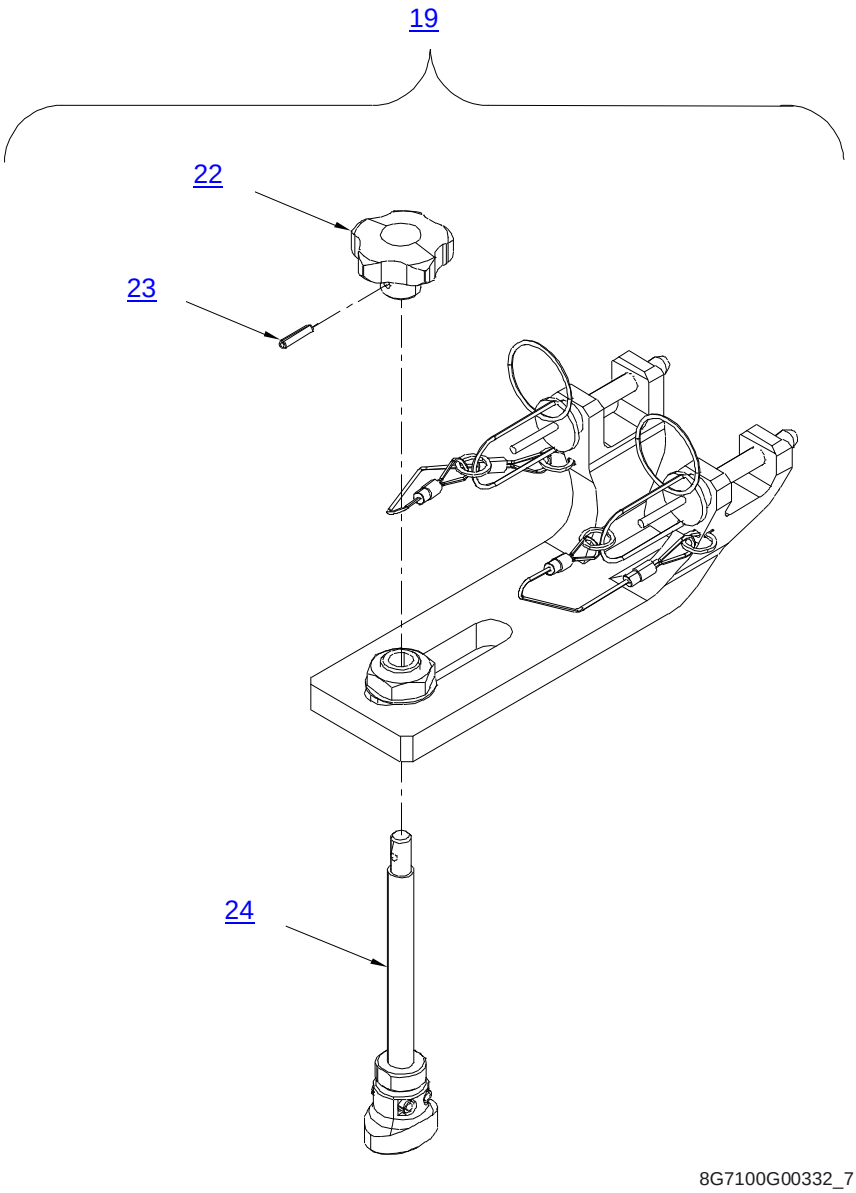



*Figure 9 – Spare Parts*

| ITEM | P/N | DESCRIPTION | Q.TY |
|---|---|---|---|
| 19 | 8G7100G03331 | SUPPORT ASSEMBLY | REF. |
| 22 | 8G7100G05951 | KNOB | 1 |
| 23 | NAS561C5-12 | PIN, SPRING | 1 |
| 24 | 8G7100G04831 | THRUST PAD ASSY (For Breakdown ref. to Fig. 10 and Table 10) | 1 |

*Table 9 – Spare Parts*

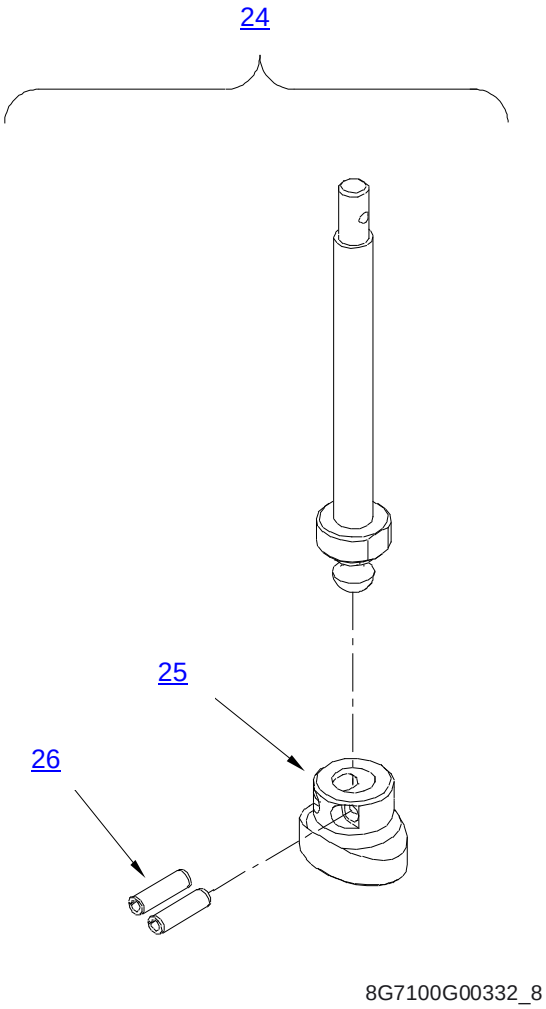



*Figure 10 – Spare Parts*

| ITEM | P/N | DESCRIPTION | Q.TY |
|---|---|---|---|
| 24 | 8G7100G04831 | THRUST PAD ASSY | REF. |
| 25 | 8G7100G05751 | THRUST PAD | 1 |
| 26 | MS171652 | PIN, SPRING | 2 |

*Table 10 – Spare Parts*

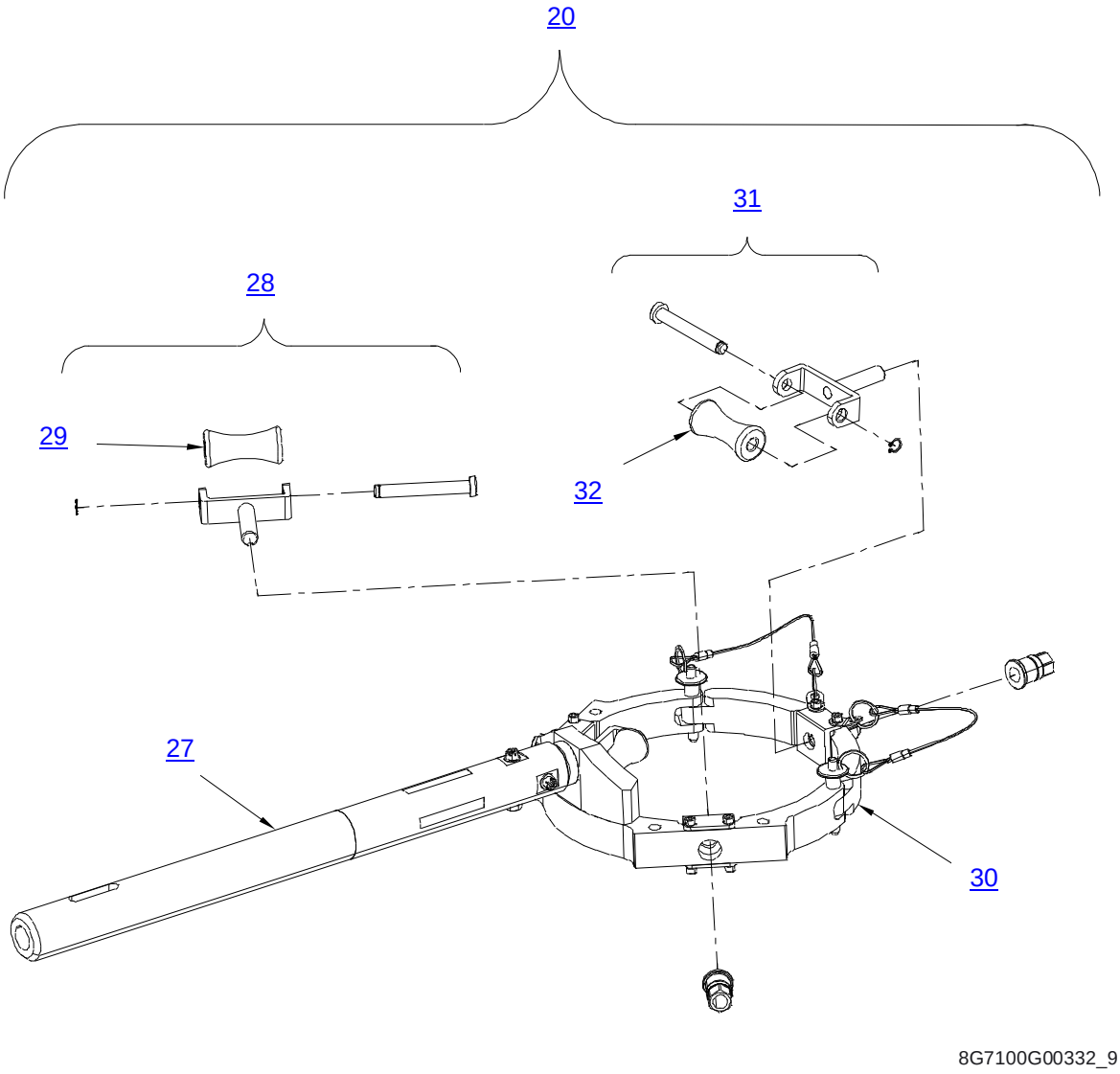



*Figure 11 – Spare Parts*

| ITEM | P/N | DESCRIPTION | Q.TY |
|---|---|---|---|
| 20 | 8G7100G02131 | CLAMP ASSEMBLY | REF. |
| 27 | 8G7100G02431 | ARM ASSEMBLY | 1 |
| 28 | 8G7100G03031 | WHEEL ASSEMBLY | 2 |
| 29 | 8G7100G03851 | WHEEL | 1 |
| 30 | 8G7100G02831 | HALF RING ASSEMBLY | 1 |
| 31 | 8G7100G03031 | WHEEL ASSEMBLY | 1 |
| 32 | 8G7100G03851 | WHEEL | 1 |

*Table 11 – Spare Parts*

## 16. CE MARKING

No CE marking is required for the P/N 8G7100G00332 ENGINE SLIDING FIXTURE.

# ANNEX A

# TOOL LOG CARD

| TOOL KIT P/N:<br>[1] | TOOL KIT DESCRIPTION:<br>[2] | TOOL KIT S/N:<br>[3] |
|---|---|---|
| TOOL P/N:<br>[4] | TOOL S/N:<br>[5] | REMARKS:<br>[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]<br>STAMP & SIGNATURE [15] |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |
| 7 | | | | | | | |
| 8 | | | | | | | |
| 9 | | | | | | | |
| 10 | | | | | | | |

| FINAL ACCEPTANCE [16] | |
|---|---|
| STAMP & SIGNATURE [17] | DATE [18] |
| | |

TLC_Table 1

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

## Section 2: HISTORICAL USES RECORD

| [19] N°USE | [8] DATE | [6] NOTE | CERTIFICATION [13]<br>STAMP & SIGNATURE [14] | [19] N°USE | [8] DATE | [6] NOTE | CERTIFICATION [13]<br>STAMP & SIGNATURE [14] |
|---|---|---|---|---|---|---|---|
| 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*

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