

# Technical Manual

INCLUDING:

**Safety Manual**  
**Operation Manual**  
**Maintenance Manual**  
**Storage Instructions**

FOR:

Assembly Number	Description
11223600-0001	3.600" Roller Bogie Cutter

## Important Notes

All of the equipment referred to in this technical manual is designed and manufactured by Wireline Engineering Ltd in Scotland, UK. Wireline International LLC is a wholly owned subsidiary of Wireline Engineering Ltd

The ROLLER BOGIE™ tool designs are protected by international Patents.

The ROLLER BOGIE™ trademark is an internationally registered trademark.

The WELLBOSS™ trademark is an internationally registered trademark

This document is the property of Wireline Engineering Ltd and must not be used, reproduced or disclosed to any third party without prior written approval from Wireline Engineering Ltd

Wireline Engineering Ltd  
 Technology House  
 Blackburn Business Park  
 Blackburn  
 Aberdeen  
 Scotland · UK  
 AB21 0PS  
 Telephone: 01224 798000  
 Facsimile: 01224 791410  
[www.wireline-engineering.com](http://www.wireline-engineering.com)

Wireline Engineering LLC  
 1406 West Pinhook Road  
 Lafayette  
 Louisiana 70503  
 USA  
 Telephone: (337) 267 7888  
 Facsimile: (337) 267 7476

[www.wireline-international.com](http://www.wireline-international.com)

Document Number:	TM11223600-0001	Revision:	H	ECN 1180	Date:	17-Feb-11
Created by:	B. Taylor	Checked by:	R Greenfield	Approved by:	M Innes	

# Table of Contents

<b>1 General Information.....</b>	<b>5</b>
1.1 Introduction.....	5
1.2 ROLLER BOGIE™ Cutter .....	5
<b>2 Safety Manual.....</b>	<b>6</b>
2.1 General Safety.....	6
2.2 Residual Hazards – transportation and storage.....	7
2.2.1 Residual Hazard – Heavy equipment .....	7
2.2.2 Residual Hazard – Inadequate restraint during storage .....	7
2.2.3 Residual Hazard – Inadequate preparation for storage.....	7
2.2.4 Residual Hazard – Inappropriate storage conditions.....	7
2.2.5 Residual Hazard – Inadequate preparation for transportation.....	7
2.2.6 Residual Hazard – potentially hazardous substances .....	7
2.2.7 Residual Hazard – Inadequate Personal Protective Equipment (PPE).....	7
2.2.8 Residual Hazard – Sharp Edges and Pinch Points .....	7
2.3 Residual Hazards – Field Use.....	8
2.3.1 Residual Hazard – Heavy equipment .....	8
2.3.2 Residual Hazard – Inadequate restraint during field use.....	8
2.3.3 Residual Hazard – Inadequate preparation for use.....	8
2.3.4 Residual Hazard – Incorrect tool selection or placement .....	8
2.3.5 Residual Hazard – potentially hazardous substances .....	8
2.3.6 Residual Hazard – Inadequate Personal Protective Equipment (PPE).....	8
2.3.7 Residual Hazard – Sharp Edges and Pinch Points .....	8
2.3.8 Residual Hazard – Use of damaged ROLLER BOGIE™ tool.....	8
2.3.9 Residual Hazard – Inadequate toolstring make-up.....	9
2.4 Residual Hazards – Maintenance.....	10
2.4.1 Residual Hazard – Heavy equipment .....	10
2.4.2 Residual Hazard – Inadequate restraint during maintenance.....	10
2.4.3 Residual Hazard – Use of non-genuine spares / consumables.....	10
2.4.4 Residual Hazard – Incorrect disassembly / reassembly .....	10
2.4.5 Residual Hazard – Potentially hazardous substances.....	10
2.4.6 Residual Hazard – Inadequate Personal Protective Equipment (PPE).....	10
2.4.7 Residual Hazard – Sharp Edges and Pinch Points .....	10
2.4.8 Residual Hazard – Unauthorised Modification of the ROLLER BOGIE™ tool .....	10
<b>3 Operation Manual.....</b>	<b>11</b>
3.1 Operation of ROLLER BOGIE™ Cutter .....	11
3.1.1 Operating Procedure for ROLLER BOGIE™ Cutter.....	11
3.1.2 Operation, Assembly onto wire .....	12
<b>4 Maintenance Manual.....</b>	<b>13</b>
4.1 General Maintenance Guidelines .....	13
4.2 Routine Maintenance Service.....	14
4.2.1 Routine Maintenance Service Frequency.....	14
4.2.2 Routine Maintenance Service Procedure (for all ROLLER BOGIE™ Tool Types).....	14

Document Number:	TM11223600-0001	Revision:	H	ECR 1180	Date:	17-Feb-11
Created by:	B. Taylor	Checked by:	R Greenfield	Approved by:	M Innes	

4.2.3 Validation Following a Routine Maintenance Service .....	14
4.3 Major Maintenance Service .....	15
4.3.1 Major Maintenance Service Frequency .....	15
4.3.2 Major Maintenance Service Procedure .....	15
4.3.3 Validation Following a Major Maintenance Service .....	16
4.4 Approved Grease Types.....	16
4.4.1 Recommended grease for grease nipples & grease points.....	16
4.4.2 Recommended grease for other areas of lubrication during assembly .....	16
<b>5 Disassembly &amp; Assembly Instructions.....</b>	<b>17</b>
5.1 Disassembly & Reassembly of a ROLLER BOGIE™ Cutter .....	17
5.1.1 Tools Required.....	17
5.1.2 Disassembly of a ROLLER BOGIE™ Cutter .....	17
5.1.3 Reassembly of a ROLLER BOGIE™ Cutter .....	20
<b>6 Storage &amp; Transportation.....</b>	<b>22</b>
The following section of the manual describes the storage and transportation instructions for all ROLLER BOGIE™ tools.....	22
6.1 Storage of ROLLER BOGIE™ tools.....	22
6.1.1 Prior to placing a ROLLER BOGIE™ tool into storage .....	22
6.1.2 Storage of ROLLER BOGIE™ tools .....	22
6.1.3 After removal of ROLLER BOGIE™ tool from storage .....	22
6.2 Transportation of ROLLER BOGIE™ tools .....	22
6.2.1 Prior to transporting a ROLLER BOGIE™ tool .....	22
6.2.2 During Transportation of ROLLER BOGIE™ tools .....	22
6.2.3 Procedure following transportation of ROLLER BOGIE™ tools .....	22
<b>7 Appendices.....</b>	<b>23</b>

Document Number:	TM11223600-0001	Revision:	H	ECN 1180	Date:	17-Feb-11
Created by:	B. Taylor	Checked by:	B Greenfield	Approved by:	M Innes	

## Symbols

The following symbols are used throughout the manual to highlight particular levels of hazard associated with an operation.



A danger symbol highlights a hazard with potential risk of life-threatening injury or death of personnel.



A warning symbol highlights a hazard with potential risk of physical harm to personnel.



A caution symbol highlights a hazard with potential risk of damage to or loss of equipment, software, data or environment.



An information symbol highlights information that requires special attention.



A hint symbol highlights a tip or hint which will help improve a procedural step.

Document Number:	TM11223600-0001	Revision:	H	ECN 1180	Date:	17-Feb-11
Created by:	E. Taylor	Checked by:	R Greenfield	Approved by:	M Innes	

# 1 General Information

## 1.1 Introduction

Wireline Engineering has developed a unique advanced roller technology and has engineered this into a series of innovative and functionally diverse conveyance products that allow intervention tool-strings to be run with virtually no frictional drag.

Installed strategically at critical points in the tool-string, Advanced Roller Systems lift and eliminate friction between the toolstring and the tubing surface.

Advanced Roller Systems from Wireline Engineering / Wireline International have become established in the international oil & gas community as the preferred means of transferring wireline or coiled tubing tool-strings to the required depth in deviated and tortuous well-bores.

With an extensive track record spanning six continents, successful operations have been performed at inclinations up to 86° and at depths below 24500ft (7470m).

The designs have also been developed to enable through-connection of hydraulic, electrical or ballistic control signals, allowing complete flexibility for integration and optimum positioning of the Advanced Roller Systems in the toolstring.

## 1.2 ROLLER BOGIE™ Cutter

This style of Cutter is based around Patented Roller Bogie technology and is designed specifically for use in highly deviated and long reach well bores.

The Tool will cut and hold the wire or cable when activated by a Roller Bogie Dropbar, **which is dropped independently.**

The same Cutter is capable of cutting a range of sizes from 5/16" cable to .092" wire by exchanging some internal components.

Other features include a quick and safe method of attachment to the cable or wire at surface.

Document Number:	TM11223600-0001	Revision:	H	ECN 1180	Date:	17-Feb-11
Created by:	B. Taylor	Checked by:	B Greenfield	Approved by:	M Innes	

## 2 Safety Manual

### 2.1 General Safety

#### **SAFETY IS EVERYONE'S RESPONSIBILITY**

This section of the manual highlights the residual hazards (associated with the ROLLER BOGIE™ tools) that have been identified at the design stage.

Planning (e.g. risk assessment) must be undertaken prior to any operation involving a ROLLER BOGIE™ tool in order to minimise (as far as is reasonably practical) the risks associated with these residual hazards.

This manual is not a substitute for local or national legal requirements in the region where the ROLLER BOGIE™ tool is to be used, or additional procedural requirements of the end user. These must be dealt with locally during the job planning stage.

#### **PLAN – THINK HSE IN ADVANCE**

Document Number:	TM11223600-0001	Revision:	H	ECN 1180	Date:	17-Feb-11
Created by:	B. Taylor	Checked by:	R Greenfield	Approved by:	M Innes	

## 2.2 Residual Hazards – transportation and storage

### 2.2.1 Residual Hazard – Heavy equipment



ROLLER BOGIE™ tools can be very heavy. The weight of the ROLLER BOGIE™ tool is shown on the assembly drawing (see section 8). Do not manually handle the ROLLER BOGIE™ tool unless it is unavoidable. Only manually handle the ROLLER BOGIE™ tool if you have been trained in safe manual handling practices. If the ROLLER BOGIE™ tool is too heavy for safe manual handling, use a mechanical lifting device.

Potential Loss: Personal injury

### 2.2.2 Residual Hazard – Inadequate restraint during storage



Always store the ROLLER BOGIE™ tool either in a suitable container, or suitably restrained. Failure to do so could result in the ROLLER BOGIE™ tool rolling from its storage position and causing damage or personal injury.

Potential Loss: Personal injury / Equipment damage / Equipment Loss

### 2.2.3 Residual Hazard – Inadequate preparation for storage



Regardless of the expected duration of storage, always carry out appropriate maintenance (see section 4.2.2) before putting the ROLLER BOGIE™ tool into storage. Failure to do so could result in corrosion of parts and subsequent reduced performance of the ROLLER BOGIE™ tool.

Potential Loss: Equipment damage / Poor performance

### 2.2.4 Residual Hazard – Inappropriate storage conditions



Regardless of the expected duration of storage, always store the ROLLER BOGIE™ tool in a suitable environment indoors and protected from extremes of temperature and humidity. Failure to do so could result in corrosion of parts and subsequent reduced performance of the ROLLER BOGIE™ tool.

Potential Loss: Equipment damage / Poor performance

### 2.2.5 Residual Hazard – Inadequate preparation for transportation



Bearing in mind the expected duration and mode of transport, always transport the ROLLER BOGIE™ tool either in a suitable container or suitably restrained / protected. Failure to do so could result in contamination / corrosion of or vibration damage to parts and subsequent reduced performance of the ROLLER BOGIE™ tool.

If the tool has been in field use, ensure that the tool has been examined and serviced in accordance with section 4.2.2 before transportation.

Potential Loss: Equipment damage / Poor performance / Regulation breach

### 2.2.6 Residual Hazard – potentially hazardous substances



ROLLER BOGIE™ tools require the use of potentially hazardous substances. Material Safety Data Sheets are included in section 10. These substances must be handled, stored and transported in accordance with the appropriate countries' regulations.

Potential Loss: Personal injury / Environmental Damage

### 2.2.7 Residual Hazard – Inadequate Personal Protective Equipment (PPE)



Appropriate PPE must be worn during all ROLLER BOGIE™ operations. The level of PPE required must be determined locally during job planning.

Potential Loss: Personal injury

### 2.2.8 Residual Hazard – Sharp Edges and Pinch Points



In addition to the use of appropriate PPE, personnel must familiarise themselves with the potential pinch points and potentially sharp edges on the ROLLER BOGIE™ tool.

Potential Loss: Personal injury

Document Number:	TM11223600-0001	Revision:	H	ECN 1160	Date:	17-Feb-11
Created by:	B. Taylor	Checked by:	R Greenfield	Approved by:	M Innes	

## 2.3 Residual Hazards – Field Use

### 2.3.1 Residual Hazard – Heavy equipment



ROLLER BOGIE™ tools can be very heavy. The weight of the ROLLER BOGIE™ tool is shown on the assembly drawing (see section 8). Do not manually handle the ROLLER BOGIE™ tool unless it is unavoidable. Only manually handle the ROLLER BOGIE™ tool if you have been trained in safe manual handling practices. If the ROLLER BOGIE™ tool is too heavy for safe manual handling, use a mechanical lifting device.

Potential Loss: Personal injury

### 2.3.2 Residual Hazard – Inadequate restraint during field use



Always ensure that the ROLLER BOGIE™ tool is effectively restrained and is not left unattended on its wheels on an inappropriate surface. Failure to do so could result in the ROLLER BOGIE™ tool rolling uncontrolled from the position in which it was left and causing damage or personal injury. This is a particular hazard on floating vessels.

Potential Loss: Serious personal injury / Equipment damage / Equipment loss

### 2.3.3 Residual Hazard – Inadequate preparation for use



Regular maintenance of the ROLLER BOGIE™ tool is critical to its continued safe / reliable operation. Before releasing a ROLLER BOGIE™ tool for field use, ensure that it has been maintained correctly (see section 4) and is in a suitable condition for use. Failure to do so could result in reduced performance or failure of the ROLLER BOGIE™ tool.

Potential Loss: Equipment damage / Poor performance / Premature wear or tool failure

### 2.3.4 Residual Hazard – Incorrect tool selection or placement



Ensure that the most suitable ROLLER BOGIE™ tool is selected for the job being planned. In case of doubt, contact Wireline Engineering for technical help.

Potential Loss: Equipment damage / Poor performance

### 2.3.5 Residual Hazard – potentially hazardous substances



ROLLER BOGIE™ tools require the use of potentially hazardous substances. Material Safety Data Sheets are included in section 9. These substances must be handled, stored and transported in accordance with the appropriate country's regulations.

Potential Loss: Personal injury / Environmental Damage

### 2.3.6 Residual Hazard – Inadequate Personal Protective Equipment (PPE)



Appropriate PPE must be worn during all ROLLER BOGIE™ operations. The level of PPE required must be determined locally during job planning.

Potential Loss: Personal injury

### 2.3.7 Residual Hazard – Sharp Edges and Pinch Points



In addition to the use of appropriate PPE, personnel must familiarise themselves with the potential pinch points and potentially sharp edges on the ROLLER BOGIE™ tool.

Potential Loss: Personal injury

### 2.3.8 Residual Hazard – Use of damaged ROLLER BOGIE™ tool



If the ROLLER BOGIE™ tool has been exposed to an exceptional event (e.g. exposure to aggressive well fluids), or overload (e.g. during a fishing operation) or other damage, it is essential that the ROLLER BOGIE™ tool is examined to determine whether the exposure has been detrimental. Where damage is found, this must be rectified before further use of the ROLLER BOGIE™ tool.

Document Number:	TM11223600-0001	Revision:	H	ECN 1180	Date:	17-Feb-11
Created by:	B. Taylor	Checked by:	R Greenfield	Approved by:	M Innes	

Potential Loss: Personal injury / Poor performance / Premature wear or tool failure

### 2.3.8.1 Residual Hazard – Unauthorised Modification of the ROLLER BOGIE™ tool



The ROLLER BOGIE™ tool must not be modified in any way without prior approval from Wireline Engineering Department. Any unauthorised modification discovered must be rectified before proceeding with use.

Potential Loss: Personal injury / Poor performance / Premature wear or tool failure

### 2.3.9 Residual Hazard – Inadequate toolstring make-up



Connection of the ROLLER BOGIE™ tool to the toolstring (torque application method and torque value) must be made in accordance with the requirements of the party responsible for the toolstring e.g. the service company. Failure to do so could result in the ROLLER BOGIE™ tool becoming detached from the toolstring.

Potential Loss: Serious personal injury / Equipment damage / Equipment Loss

Document Number:	TM11223806-0001	Revision:	H	ECN 1180	Date:	17-Feb-11
Created by:	E. Taylor	Checked by:	R Greenfield	Approved by:	M Innes	

## 2.4 Residual Hazards – Maintenance

### 2.4.1 Residual Hazard – Heavy equipment



ROLLER BOGIE™ tools can be very heavy. The weight of the ROLLER BOGIE™ tool is shown on the assembly drawing (see section 8). Do not manually handle the ROLLER BOGIE™ tool unless it is unavoidable. Only manually handle the ROLLER BOGIE™ tool if you have been trained in safe manual handling practices. If the ROLLER BOGIE™ tool is too heavy for safe manual handling, use a mechanical lifting device.

Potential Loss: Personal injury

### 2.4.2 Residual Hazard – Inadequate restraint during maintenance



Always ensure that the ROLLER BOGIE™ tool is effectively restrained and is not left unattended on its wheels on an inappropriate surface. Failure to do so could result in the ROLLER BOGIE™ tool rolling uncontrolled from the position in which it was left and causing damage or personal injury. This is a particular hazard on floating vessels.

Potential Loss: Serious personal injury / Equipment damage / Equipment loss

### 2.4.3 Residual Hazard – Use of non-genuine spares / consumables



Only use genuine ROLLER BOGIE™ spare parts purchased directly from Wireline Engineering / Wireline International. Failure to do so could result in reduced performance or failure of the ROLLER BOGIE™ tool.

Potential Loss: Equipment damage / Poor performance / Premature wear or tool failure

### 2.4.4 Residual Hazard – Incorrect disassembly / reassembly



Always follow the disassembly / reassembly instructions carefully (see section 5). Always validate reassembly by testing the reassembled ROLLER BOGIE™ tool (see section 4)

Potential Loss: Equipment damage / Poor performance

### 2.4.5 Residual Hazard – Potentially hazardous substances



ROLLER BOGIE™ tools require the use of potentially hazardous substances. Material Safety Data Sheets are included in section 9. These substances must be handled, stored and transported in accordance with the appropriate country's regulations.

Potential Loss: Personal injury / Environmental Damage

### 2.4.6 Residual Hazard – Inadequate Personal Protective Equipment (PPE)



Appropriate PPE must be worn during all ROLLER BOGIE™ operations. The level of PPE required must be determined locally during job planning.

Potential Loss: Personal injury

### 2.4.7 Residual Hazard – Sharp Edges and Pinch Points



In addition to the use of appropriate PPE, personnel must familiarise themselves with the potential pinch points and potentially sharp edges on the ROLLER BOGIE™ tool.

Potential Loss: Personal injury

### 2.4.8 Residual Hazard – Unauthorised Modification of the ROLLER BOGIE™ tool



The ROLLER BOGIE™ tool must not be modified in any way without prior approval from Wireline Engineering Engineering Department. Unauthorised modifications discovered during maintenance must be rectified before releasing the ROLLER BOGIE™ tool for field service.

Potential Loss: Personal injury / Poor performance / Premature wear or tool failure

Document Number:	TM11223600-0001	Revision:	H	ECN 1180	Date:	17-Feb-11
Created by:	B. Taylor	Checked by:	H Greenfield	Approved by:	M Innes	

## 3 Operation Manual

### 3.1 Operation of ROLLER BOGIE™ Cutter

The following section of the manual describes the selection and operating instructions for the use of a ROLLER BOGIE™ Cutter.

#### 3.1.1 Operating Procedure for ROLLER BOGIE™ Cutter



Before proceeding with any ROLLER BOGIE™ tool operations ensure that provision has been made to minimise the risks associated with the residual hazards detailed in section 2.2

1. **Thorough Visual Examination** – Unpack the ROLLER BOGIE™ tool and carry out a thorough visual examination as described in section 4.2.2. This examination should determine whether the ROLLER BOGIE™ tool has suffered any damage or other ill effect during transportation to the well site.
2. **Routine Maintenance Service** – Carry out a routine maintenance service of the ROLLER BOGIE™ tool, as described in section 4.2.2.
3. **Thorough Visual Examination** – Clean the ROLLER BOGIE™ tool thoroughly and carry out a thorough visual examination as described in section 4.2.2. This examination should determine whether the ROLLER BOGIE™ tool has suffered any damage or other ill effect during the deployment.
4. **Major Maintenance Service** – Carry out a major maintenance service of the ROLLER BOGIE™ tool, as described in section 4.3.2. The extent of the major maintenance service may be customised by the competent person, taking into account the well conditions and fluids to which the ROLLER BOGIE™ tool has been exposed. Consumables may also be reused as deemed acceptable by the competent person following a visual examination and after taking into account well conditions and fluids to which the ROLLER BOGIE™ tool has been exposed.
5. **Re-run** – Repeat steps 3 to 4 if the ROLLER BOGIE™ tool is to be run in hole again.
6. **Prepare for Transportation** – If the ROLLER BOGIE™ tool is not to be run in hole again, it should be prepared for transportation as described in section 6.2.1.

Document Number:	TMT1223600-0001	Revision:	H	ECN 1180	Date:	17-Feb-11
Created by:	B. Taylor	Checked by:	R Greenfield	Approved by:	M Innes	

### 3.1.2 Operation, Assembly onto wire

**Note: Ensure correct parts used to suit wire size**

1. Remove Retaining Screw (23) from Button Housing (2).
2. Back out Retainer Screw (10) until it stops against Cap Screw (11) & rotate Button (3), Housing (2), Latch (27) & Rotating Sleeve (4) 180°.
3. Remove Retaining Screws (28) from Main Body (1).
4. Remove Bottom Sub (14) complete with Cutter Nose (15) from Main Body (1).
5. Remove Retaining Screw (22) from Cutter Nose (15).
6. Remove Rotating Knife (17), Wedge Housing (13) complete with Wedge (19) and Key (16).
7. Remove Shear Pin (25) from Wedge Housing (13).
8. Remove Key (16) from Wedge Housing (13).
9. Place Bottom Sub (14) complete with Cutter Nose (15) and Fixed Knife (18) onto wire and fit Retaining Screw (22).
10. Place Rotating Knife (17) into Bottom Sub (14) so as the slots in the Fixed & Rotating Knife are **180° out of line to each other**.
11. Place Wedge Housing (13) complete with Wedge (19) onto wire, above Bottom Sub (14).
12. Slide Key (16) into Wedge Housing (13) and insert Shear Pin (25).
13. Slide assembly into Bottom Sub (14) ensuring Roll Pin (20) is located in **short slot** in Bottom Sub (14) and that the Rotating Knife (17) is inline with Wedge (19).
14. Use Knurled Knob (29) supplied to hold cutter assembly in position in Bottom Sub (14).
15. Rotate Rotating Sleeve (4), Button (3), Button Housing (2) & Latch (27) 180° so that slots are all in line and place Main Body (1) onto wire.
16. Once on the Wire rotate above items (4), (3), (2) & (28) back 180° & make-up Retainer Screw (10) to locate in slot on Rotating Sleeve (4).
17. Insert Retaining Screw (23) into Button Housing (2).
18. Insert Retaining Screws (28) to Main Body (1).
19. Make-up Main Body assembly to cutter assembly and **remove Knurled Knob (29) prior to running tool.**

Document Number:	T611223600-0801	Revision:	H	ECN 1180	Date:	17-Feb-11
Created by:	B. Taylor	Checked by:	R Greenfield	Approved by:	M Innes	

## 4 Maintenance Manual

### 4.1 General Maintenance Guidelines



**Before proceeding with any ROLLER BOGIE™ tool maintenance ensure that provision has been made to minimise the risks associated with the residual hazards detailed in section 2.3**

Regular maintenance is critical to the continued safe and reliable operation of ROLLER BOGIE™ tools. It is recommended that systems are put in place to control and record the correct periodic maintenance of ROLLER BOGIE™ products.



**Application of grease is a critical part of ROLLER BOGIE™ maintenance. It is required both for lubrication, and for the exclusion of wellbore contaminants from the ROLLER BOGIE™ tool.**

**Ensure that suitable grease is used (see section 4.4 for Wireline Engineering recommended greases).**

Document Number:	TM11223600-0001	Revision:	H	ECR 1186	Date:	17-Feb-11
Created by:	B. Taylor	Checked by:	R Greenfield	Approved by:	M Innes	

## 4.2 Routine Maintenance Service

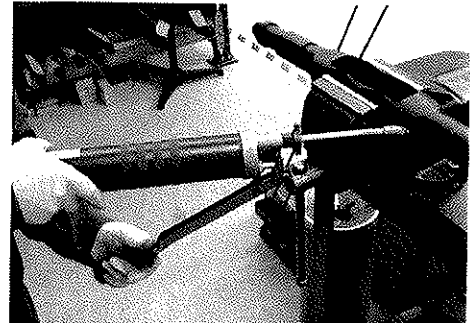
### 4.2.1 Routine Maintenance Service Frequency

A routine service should be carried out at the following times:

- Prior to placing the ROLLER BOGIE™ tool into storage.
- Prior to packing the ROLLER BOGIE™ tool for transportation.
- Prior to connecting the ROLLER BOGIE™ tool to the toolstring for running in hole.
- At any other time as deemed necessary by the owner / user e.g. when the current condition of a ROLLER BOGIE™ tool is unknown.

### 4.2.2 Routine Maintenance Service Procedure (for all ROLLER BOGIE™ Tool Types)

1. Carry out a thorough visual examination of the ROLLER BOGIE™ tool. This examination should determine whether the ROLLER BOGIE™ tool is fit for purpose. Partial or complete disassembly may be required to the extent deemed necessary to complete the thorough examination. The examination must include:
  - An assessment of the condition of the upper and lower end connections fitted to the ROLLER BOGIE™ tool.
  - An assessment of the level of wear of the ROLLER BOGIE™ components.
  - An assessment of the level of corrosion of the ROLLER BOGIE™ components.
2. Repair or replace any components found to be inadequate during the thorough visual examination (**section 5** details the procedures for disassembly and reassembly required to replace parts). Only use genuine spare parts procured through Wireline Engineering Ltd or Wireline International LLC.
3. Use the grease gun to inject grease. There is one port per roller and one or two ports per body. Approximately 3-5 strokes are likely to be required per port; excess grease will exit from the opposite side. (see section 4.4 for suitable greases)



### 4.2.3 Validation Following a Routine Maintenance Service



**Rollers and swivels may lock up initially after greasing and need to be manipulated until they rotate freely.**

After completion of the routine maintenance service, the ROLLER BOGIE™ tool must be tested to ensure that it functions correctly:

1. Rotate the upper and lower swivels to ensure that they rotate freely.
2. Lay the assembly on a flat workbench and roll back and forth to ensure that all rollers rotate freely.
3. Lay the assembly on a flat workbench and jar back and forth to ensure that the jar rod travels freely.

Document Number:	TM11223600-0001	Revision:	H	ECN 1180	Date:	17-Feb-11
Created by:	B. Taylor	Checked by:	B Greenfield	Approved by:	M Innes	

## 4.3 Major Maintenance Service

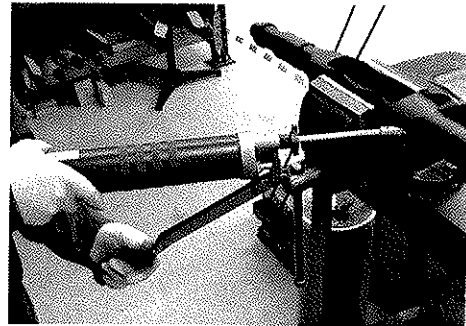
### 4.3.1 Major Maintenance Service Frequency

A major maintenance service should be carried out at the following times:

- Following retrieval of a ROLLER BOGIE™ tool from a run in hole.
- Following an extended period of storage of the ROLLER BOGIE™ tool.
- When inferior performance or condition of the ROLLER BOGIE™ tool has been observed.
- Following an exceptional event (e.g. exposure to aggressive well fluids, or following overload – during fishing for example)
- At any other time as deemed necessary by the owner / user e.g. when the current condition of a ROLLER BOGIE™ tool is unknown and there is doubt about its performance.

### 4.3.2 Major Maintenance Service Procedure

1. Follow the procedure in **section 5** to disassemble the ROLLER BOGIE™ tool.
2. Carry out a thorough visual examination of all of the ROLLER BOGIE™ tool components. The examination must include:
  - An assessment of the condition of the upper and lower end connections fitted to the ROLLER BOGIE™ tool.
  - An assessment of the condition of all of the internal threaded parts in the ROLLER BOGIE™ tool.
  - An assessment of the level of wear of the ROLLER BOGIE™ components.
  - An assessment of the level of corrosion of the ROLLER BOGIE™ components.
3. Repair or replace any components found to be inadequate during the thorough visual examination. Only use genuine spare parts procured through Wireline Engineering Ltd or Wireline International LLC.
4. Follow the procedure in **section 5** to reassemble the ROLLER BOGIE™ tool.
5. Use the grease gun to inject grease. There is one port per roller and one or two ports per body. Approximately 3-5 strokes are likely to be required per port; excess will exit from the opposite side. (see section 4.4 for suitable greases).



Document Number:	TM11223600-0001	Revision:	H	ECN 1160	Date:	17-Feb-11
Created by:	E. Taylor	Checked by:	R Greenfield	Approved by:	M Innes	

### 4.3.3 Validation Following a Major Maintenance Service



Rollers and swivels may lock up initially after greasing and need to be manipulated until they rotate freely.

After completion of the major maintenance service, the ROLLER BOGIE™ tool must be tested to ensure that it functions correctly:

1. Rotate the upper and lower swivels to ensure that they rotate freely.
2. Lay the assembly on a flat workbench and roll back and forth to ensure that all rollers rotate freely.
3. Lay the assembly on a flat workbench and jar back and forth to ensure that the jar rod travels freely.

### 4.4 Approved Grease Types



Application of grease is a critical part of ROLLER BOGIE™ maintenance. It is required both for lubrication, and for the exclusion of wellbore contaminants from the ROLLER BOGIE™ tool.

Ensure that suitable grease is used (see below).

#### 4.4.1 Recommended grease for grease nipples & grease points

Wireline Engineering recommends the following high temperature grease for all ROLLER BOGIE™ tool grease nipples and grease holes, e.g. all rollers and swivels.

- **'Duron Foodmaster Clear 2'**

If an alternative grease must be used, ensure that it has equivalent or superior viscosity and high temperature performance characteristics to this recommended grease. 'Duron Foodmaster Clear 2' must be used for all ROLLER BOGIE™ tool operations within USA waters.

Other regions may also have regulatory requirements which influence the choice of grease. Ensure that the grease used satisfies local regulatory and company requirements.

#### 4.4.2 Recommended grease for other areas of lubrication during assembly

When applying grease to areas not detailed in section 4.4.1, (e.g. grubs screws, O-ring & thread lubrication) Wireline Engineering recommends the following grease during assembly:

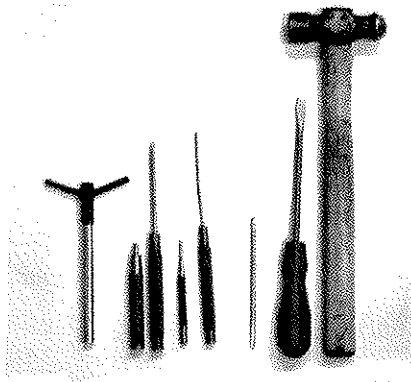
- **'Duron Multip 2'**

Document Number:	TM11223800-0001	Revision:	H	ECN 1180	Date:	17-Feb-11
Created by:	E. Taylor	Checked by:	H Greenfield	Approved by:	M Innes	

## 5 Disassembly & Assembly Instructions

### 5.1 Disassembly & Reassembly of a ROLLER BOGIE™ Cutter

The following section of the manual describes the disassembly and reassembly instructions for a ROLLER BOGIE™ Cutter.



#### 5.1.1 Tools Required

Hammer.

1/8" Short & Long Punch.

3/16" Short & Long Punch.

1/8" Allen Key.

3/16" Allen Key.

Flat Blade Screwdriver.

Grease Nipple Driver.

O-Ring Extraction Tool.

2 Roller Bogie Keys (Part No: - 11180000-0199).

Bench vice with non-marking jaws.

Adjustable Spanner

#### 5.1.2 Disassembly of a ROLLER BOGIE™ Cutter



Throughout the following procedures, reference must be made to the relevant assembly drawings (see section 7)

##### 5.1.2.1 Prior to Disassembly

Before starting disassembly, carry out a thorough visual examination of the ROLLER BOGIE™ tool. This examination should assess the general condition of the ROLLER BOGIE™ tool. The examination must include:

1. An assessment of the condition of the upper and lower end connections fitted to the ROLLER BOGIE™ tool.
2. A general assessment of the level of external wear of the ROLLER BOGIE™ components.
3. An assessment of the level of external corrosion of the ROLLER BOGIE™ components.
4. An assessment of whether there are any ROLLER BOGIE™ parts missing from the assembly.
5. An assessment of the functionality of the ROLLER BOGIE™ tool. Check the rollers to assess whether they rotate freely and smoothly. Check that the ROLLER BOGIE™ tool self rights and rolls onto its wheels from all orientations.

Document Number:	TM11223600-0001	Revision:	H	ECN 1180	Date:	17-Feb-11
Created by:	B. Taylor	Checked by:	R Greenfield	Approved by:	M Innes	

### 5.1.2.2 ROLLER BOGIE™ Cutter Disassembly Procedure

1. Secure Body in vice (1).
2. Remove Roll Pin (8) and (9) from Body (1).
 

**Note:** - The following step requires (2 off) ROLLER BOGIE™ Keys (Part No: - 11180000-0199) to unscrew Roller Pin (6.1) from Roller Pin Retaining Head (6.2).

**Note:** - Roller Pin (6.1) and Roller Pin Retaining Head (6.2) are matched pairs, identified by etched letters; keep screwed together to maintain relationship.
3. Roller (5) should now be free to be removed from milled slot in Body (1).
4. Remove O-Rings (7) from Roller (5).
5. Repeat steps 2 to 4 for the disassembly of all Rollers (5) from Body (1).
6. Unscrew Knurled Knob (29) from Bottom Sub (14).
7. Unscrew Bottom Sub (14), Wedge Housing (13) and Cutter Nose (15) from Body (1).
8. Unscrew Socket Head Cap Screw (11) from Body (1).
9. Unscrew Retainer Screw (10) from Body (1).
10. Unscrew Retaining Screws (28) from Body (1).
11. Rotate Button (3), Button Housing (2) and Latch (27) 180° and align hole in Body (1) and remove Socket Head Set Screw (12) from Rotating Sleeve (4).
12. Insert screw driver into slot in Body (1), Rotating Sleeve (4) and hold in position and unscrew Button Housing (2).
13. Remove Rotating Sleeve (4) from Body (1).
14. Remove Body (1) from vice.
15. Secure Bottom Sub (14) in vice.
16. Unscrew Retaining Screw (22) from Cutter Nose (15).
17. Remove Roll Pin (8) from Bottom Sub (14).
18. Remove Cutter Nose (15) from Bottom Sub (14).
19. Remove Wedge Housing (13) from Bottom Sub (14).
20. Remove Rotating Knife (17) and Fixed Knife (18) from Bottom Sub (21).
21. Remove Roll Pin (21) from Bottom Sub (14).
22. Remove Bottom Sub (21) from vice.
23. Secure Wedge Housing (13) in vice.
24. Remove Shear Pin (24) & (25) from Wedge Housing (13) to remove Key (16) and Wire Wedge (19).
25. Remove Roll Pin (20) from Wedge Housing (13).
26. Remove Wedge Housing (13) from vice.
27. Secure Button Housing (2) in vice.
28. Remove Retaining Screw (23) from Button Housing (2).
29. Remove Shear Pin (26) from Button Housing (2).
30. Remove Latch (27) and Button (3) from Button Housing (2).

Document Number:	TM11223600-0001	Revision:	H	ECN 1100	Date:	17-Feb-11
Created by:	E. Taylor	Checked by:	R Greenfield	Approved by:	M Innes	

31. Remove Button Housing (2) from vice.

**The Roller Bogie Cutter is now fully disassembled.**

### 5.1.2.3 Following Disassembly

After disassembly, carry out a thorough visual examination of the ROLLER BOGIE™ components. This examination should assess in detail the condition of the ROLLER BOGIE™ components. The examination must include:

1. An assessment of the condition of the upper and lower end connections fitted to the ROLLER BOGIE™ tool.
2. A general assessment of the level of internal wear of the ROLLER BOGIE™ components.
3. An assessment of the level of internal corrosion of the ROLLER BOGIE™ components.

**Repair or replace components as deemed necessary. All O-rings and roll pins should be replaced after every disassembly.**

Document Number:	TM11223600-0001	Revision:	H	ECK 1180	Date:	17-Feb-11
Created by:	B. Taylor	Checked by:	R Greenfield	Approved by:	M Innes	

### 5.1.3 Reassembly of a ROLLER BOGIE™ Cutter



Throughout the following procedures, reference must be made to the relevant assembly drawing (see section 9)

#### 5.1.3.1 ROLLER BOGIE™ Cutter Reassembly Procedure

1. Secure Button Housing (2) in vice.
  2. Insert Button (3) into Button Housing (2) and ensure slot in Button (3) and Button Housing (2) are in-line.
  3. Insert Retaining Screw (23) into Button Housing (2).
  4. Insert Shear Pin (26) into Button Housing (2).
  5. Slide Latch (27) over Button Housing (2) and ensure slot in Latch (27) and Button Housing (2) are in-line.
  6. Remove Button Housing (2) from vice.
  7. Secure Body (1) in vice.
  8. Insert Rotating Sleeve (4) into Body (1) and ensure slot in Rotating Sleeve (4) and Body (1) are in-line.
  9. Insert screw driver into slot in Body (1), Rotating Sleeve (4) and hold in position.
  10. Insert Button Housing (2) into Body (1) and screw onto Rotating Sleeve (4).
  11. Rotate Button (3), Button Housing (2) and Latch (27) 180° and align to hole in Body (1).
  12. Secure Button Housing (2) to Rotating Sleeve (4) with Socket Head Set Screw (12), ensure Socket Head Set Screw (12) is flush with Button Housing (2).
  13. Rotate Button (3), Button Housing (2) and Latch (27) and Rotating Sleeve (4) 180°.
  14. Insert Retainer Screw (10) into Body (1) this will keep Rotating Sleeve (4) in position.
  15. Insert Socket Head Cap Screw (11) into Body (1) to maintain Retainer Screw (10) in position.
  16. Insert Retaining Screws (28) into Body (1).
  17. Remove Body (1) from vice.
  18. Secure Wedge Housing (13) in vice.
  19. Insert Wire Wedge (19) into Wedge Housing (13) and secure in position with Shear Pin (24).
  20. Insert Key (16) into Wedge Housing (13) and ensure slot is positioned facing Wire Wedge (19) and secure in position with Shear Pin (25).
- Note:-** Slot in Key (16) is only on 5/16" Roller Bogie Cutter Assembly.
21. Insert Roll Pin (20) into Wedge Housing (13).
  22. Remove Wedge Housing (13) from vice.
  23. Secure Bottom Sub (14) in vice.
  24. Insert Cutter Nose (15) into Bottom Sub (14) and ensure slot in Cutter Nose (15) and Bottom Sub (14) are in-line.
  25. Insert Roll Pin (21) into Bottom Sub (14).
  26. Insert Retaining Screw (22) into Cutter Nose (15).
  27. Insert Roll Pin (8) into Bottom Sub (14).

Document Number:	TM11223600-0001	Revision:	H	ECN 1180	Date:	17-Feb-11
Created by:	B. Taylor	Checked by:	R Greenfield	Approved by:	M Innes	

28. Insert Fixed Knife (18) into Bottom Sub (14) and ensure Roll Pin (21) locates hole in Bottom Sub (14).
29. Rotating Knife (17) should be positioned to allow access of wire thru the tool.
30. Remove Bottom Sub (14) from vice.
31. Secure Body (1) in vice.
32. Insert Wedge Housing (13) into body.
33. Align Roll Pin (20) on Wedge Housing (13) with Slot on Bottom Sub (14) and screw into Body (1).  
**Note:** - Slot in Bottom Sub (14) is off-set 180° to slot in Body (1).
34. Screw Knurled Knob (29) into Bottom Sub (1).
35. Fit O-Rings (7) into Roller (5).
36. Insert Roller (5) into milled pocket in Body (1).  
**Note:** - The following step requires (2 off) ROLLER BOGIE™ Keys (Part No: - 11180000-0199) to screw Roller Pin (6.1) into Roller Pin Retaining Head (6.2).  
**Note:** - Roller Pin (6.1) and Roller Pin Retaining Head (6.2) are matched pairs, identified by etched letters; keep screwed together to maintain relationship.
37. Retain Roller (5) by inserting Roll Pin (6.1) and Roller Pin Retaining Head (6.2) thru Body (1).
38. Insert Roll Pin (8) and (9) in Body (1) to retain Roller Pin (6.1) and Roller Pin Retaining Head in Position (6.2).
39. Repeat Steps 33 to 36 for the assembly of all Rollers (5) to Body (1).
40. Remove Body (1) from vice.

**The Roller Bogie Cutter is now fully assembled.**

### 5.1.3.2 Validation



Rollers and swivels may lock up initially after greasing and need to be manipulated until they move freely.

After completion of the reassembly, the ROLLER BOGIE™ tool must be tested to ensure that it functions correctly:

1. Rotate the swivel to ensure that it rotates freely. Lay the assembly on a flat workbench and roll back and forth to ensure that all rollers rotate freely.
2. Lay the assembly on a flat workbench and jar back and forth to ensure that the jar rod travels freely and strikes positively at end of its travel.

Document Number:	TM11223600-0001	Revision:	H	ECN 1180	Date:	17-Feb-11
Created by:	B. Taylor	Checked by:	R Greenfield	Approved by:	M Innes	

## 6 Storage & Transportation

The following section of the manual describes the storage and transportation instructions for all ROLLER BOGIE™ tools.



Before storing or transporting any ROLLER BOGIE™ tool, ensure that provision has been made to minimise the risks associated with the residual hazards detailed in section 2.2

### 6.1 Storage of ROLLER BOGIE™ tools

#### 6.1.1 Prior to placing a ROLLER BOGIE™ tool into storage

**Routine Maintenance Service** – Carry out a routine maintenance service of the guide ROLLER BOGIE™ tool, as described in section 4.2.2

#### 6.1.2 Storage of ROLLER BOGIE™ tools

##### 6.1.2.1 Packing Requirements

It is recommended that where possible a ROLLER BOGIE™ tool is stored in a suitable and appropriately sized container. Do not put other tools or items in the same container. Storage in a container serves 2 functions: firstly it provides protection and minimises the risk of damage; secondly it restrains the ROLLER BOGIE™ tool to prevent it rolling from its storage position and causing loss, damage or injury.

The contents of the container should be clearly marked for future reference, as well as the date the tool was placed into storage.

##### 6.1.2.2 Conditions of Storage

Before placing a ROLLER BOGIE™ tool into storage ensure that the storage location is clean, dry and unaffected by extremes of temperature or humidity.

#### 6.1.3 After removal of ROLLER BOGIE™ tool from storage

**Routine Maintenance Service** – Carry out a routine maintenance service of the ROLLER BOGIE™ tool, as described in section 4.2.2

### 6.2 Transportation of ROLLER BOGIE™ tools

#### 6.2.1 Prior to transporting a ROLLER BOGIE™ tool

**Routine Maintenance Service** – Carry out a routine maintenance service of the ROLLER BOGIE™ tool, as described in section 4.2.2

#### 6.2.2 During Transportation of ROLLER BOGIE™ tools

##### 6.2.2.1 Packing Requirements

It is recommended that where possible a ROLLER BOGIE™ tool is transported in a suitable and appropriately sized container. Do not put other tools or items in the same container. To minimise the risk of damage to the ROLLER BOGIE™ tool and container, ensure that the ROLLER BOGIE™ tool is suitably restrained.

##### 6.2.2.2 Conditions of Transportation

Ensure that the ROLLER BOGIE™ tool is transported in a container that is clean, dry and unaffected by extremes of temperature or humidity.

Ensure that the stored ROLLER BOGIE™ tool and/or container are adequately restrained to minimise the risk of damage or injury.

#### 6.2.3 Procedure following transportation of ROLLER BOGIE™ tools

- 1. Thorough Visual Examination** – Unpack the ROLLER BOGIE™ tool and carry out a thorough visual examination as described in section 4.2.2. This examination should determine whether the ROLLER BOGIE™ tool has suffered any damage or other ill effect during transportation.

Document Number:	TM11223600-0001	Revision:	H	ECN 1100	Date:	17-Feb-11
Created by:	B. Taylor	Checked by:	B Greenfield	Approved by:	M Innes	

2. **Routine Maintenance Service** – Carry out a routine maintenance service of the ROLLER BOGIE™ tool, as described in section 4.2.2.

## 7 Appendices

**Appendix i**  
COSHH Sheets

**Appendix ii**  
Assembly drawing(s)

Document Number:	TM11223600-0001	Revision:	H	ECN 1180	Date:	17-Feb-11
Created by:	S. Taylor	Checked by:	R Greenfield	Approved by:	M Innes	

**HEALTH & SAFETY DATA:**

**DURON FOODMASTER CLEAR 2** (Information copied here, original documents available)

**Fully Synthetic Food Safe Grease with PTFE Dispersion**

**Composition**

Blend of food safe synthetic grease with PTFE dispersion.

Preparation is not classified as dangerous for supply on the basis of health effects under CHIP2.

Preparation is not subject to recognised exposure limits.

**Hazards Identification**

No reasonably foreseeable hazards to man or environment.

**First aid Measures**

Inhalation n.a.

Skin Wash with plenty of soap and water.

Eyes Flush with plenty of water – if discomfort continues seek medical advice.

Ingestion Rinse out mouth with water. Do not induce vomiting. Seek medical advice.

**Fire Fighting Measures**

Extinguishing media: Sand, foam, CO2, powder.

Combustion hazards: Fluorine compounds from decomposition of PTFE at high temperatures.

Protective equipment: Self-contained breathing sets if large quantity of burning grease in confined space.

**Accidental Release Measures**

Personal precautions: Avoid contact with skin and eyes.

Environmental precautions: Avoid contamination of watercourses and drains.

Methods of cleaning up: Use absorbent such as a vermiculite and sweep up into containers.

**Handling and Storage**

Safe handling precautions: Normal hygiene precautions.

Safe storage: Keep drum closed.

**Exposure Controls/Personal Protection**

Exposure controls: Substance is not subject to recognised exposure limits.

Personal protection:

Respiratory: n.a.

Hands: Wear oil resistant gloves or barrier cream if regular skin contact is expected.

Eyes: Wear safety glasses if there is danger of spraying.

Document Number:	TM11223600-0001	Revision:	H	ECN 1180	Date:	17-Feb-11
Created by:	B. Taylor	Checked by:	R Greenfield	Approved by:	M Innes	

**(Duron Foodmaster Clear 2 cont'd)**

**Physical and Chemical Properties**

Appearance:	Clear Paste
Odour:	none
PH:	n.a
Flash point:	>235°C
Drop point:	none melting
Relative density:	0.98
Solubility in water:	insoluble
Kinematic viscosity:	NLGI No 2 Grease

**Stability and Reactivity**

Conditions to avoid:	No specific conditions
Materials to avoid:	Strong oxidising agents
Hazardous decomposition:	PTFE component may release fluorine compounds above 300 °C

**Toxicological Information**

Non toxic.  
 Low order of irritancy.  
 May act as mild laxative if swallowed.

**Ecological Information**

Not available.

**Disposal Considerations**

Disposal of virgin product should present no hazard. Do not incinerate. Used product may be contaminated with metal particles or other contaminants arising from the particular application for which the product has been used. Any method of disposal must take into account the contaminant present. The product may be disposed of via an authorised person/licensed waste disposal contractor.

All means of disposal should comply with local regulations and (in the UK) the Environmental Protection Act 1990. Dispose of product and containers carefully and responsibly. Do not allow product to contaminate ponds, water courses, solid or drains.

Do not re-use empty containers. Offer for recycling, reconditioning, or puncture to be disposed of in an approved land-fill site.

**Transportation Information**

Product is classified as **non-hazardous** under "Carriage of Dangerous Goods by Road and Rail" (Classification, Packaging and Labelling) Regulations 1994

Class:	n.a.
Packaging Group:	n.a.

**Regulatory Information**

**CHIP2 Classification**

This preparation is non hazardous and therefore falls outside the requirements of the CHIP2 Regulations. It is good working practice however to avoid contact with the skin and eyes.

The classification shown above does not remove the requirement for the user to conduct a Workplace risk assessment as required by COSHH.

Document Number:	TM11223600-0001	Revision:	H	ECN 1180	Date:	17-Feb-11
Created by:	B. Taylor	Checked by:	R Greenfield	Approved by:	M Innes	

**HEALTH & SAFETY DATA:**

**DURON MULTIP 2** (Information copied here, original documents available)

*High Performance Lithium No 2 Grease with Zonyl PTFE from Du Pont*

**Composition**

Blend of high purity mineral oil grease with Teflon dispersion, moisture displacement agents and corrosion inhibitors

Preparation is not classified as dangerous for supply on the basis of health effects under CHIP2.

Preparation is not subject to recognised exposure limits.

**Hazards Identification**

No reasonably foreseeable hazards to man or environment.

**First aid Measures**

- Inhalation n.a.
- Skin Wash with plenty of soap and water.
- Eyes Flush with plenty of water – if discomfort continues seek medical advice.
- Ingestion Rinse out mouth with water. Do not induce vomiting. Seek medical advice.

**Fire Fighting Measures**

- Extinguishing media: Sand, foam, CO2, powder.
- Combustion hazards: Fluorine compounds from decomposition of Teflon at high temperatures.
- Protective equipment: Self contained breathing sets if large quantity of burning grease in confined space.

**Accidental Release Measures**

- Personal precautions: Avoid contact with skin and eyes.
- Environmental precautions: Avoid contamination of water courses and drains.
- Methods of cleaning up: Use absorbent such as a vermiculite and sweep up into containers.

**Handling and Storage**

- Safe handling precautions: None required
- Safe storage: Keep drum closed.

**Exposure Controls/Personal Protection**

- Exposure controls: Substance is not subject to recognised exposure limits.
- Personal protection:
  - Respiratory: n.a.
  - Hands: Wear oil resistant gloves or barrier cream if regular skin contact is expected.
  - Eyes: Wear safety glasses if there is danger of spraying.

**Physical and Chemical Properties**

- Appearance: Light brown smooth grease
- NLGI Classification 2
- Thickner Lithium - Calcium
- Dropping Point: 180°C min. ASTM D566

Document Number:	TM11223600-0001	Revision:	H	ECN 1180	Date:	17-Feb-11
Created by:	B. Taylor	Checked by:	B Greenfield	Approved by:	M Innes	

**(Duron Multip 2 cont'd)**

**Stability and Reactivity**

Conditions to avoid: No specific conditions  
 Materials to avoid: No specific materials  
 Hazardous decomposition: Teflon component may release fluorine compounds above 300 °C

**Toxicological Information**

Current data does not indicate any delayed or immediate toxicological effects from short-term exposure.  
 Long term skin contact may cause dermatitis.

**Ecological Information**

Contains mineral oil. Will not readily biodegrade.

**Disposal Considerations**

Disposal of virgin product should present no hazard. It may be treated as waste oil. Used product may be contaminated with metal particles or other contaminations arising from the particular application for which the product has been used. Any method of disposal must take into account the contamination present. The product may be disposed of via an authorised person/licensed waste disposal contractor.

All means of disposal should comply with local regulations and (in the UK) the Environmental Protection.

Act 1990. Dispose of product and containers carefully and responsibly. Do not allow product to contaminate ponds, water courses, solid or drains.

Do not re-use empty containers. Offer for recycling, reconditioning, or puncture to be disposed of in an approved land-fill site.

**Transportation Information**

Product is classified as **non-hazardous** under "Carriage of Dangerous Goods by Road and Rail" (Classification, Packaging and Labelling) Regulations 1994

Class: n.a.

Packaging Group: n.a.

**Regulatory Information**

**CHIP2 Classification**

This preparation is non hazardous and therefore falls outside the requirements of the CHIP2 Regulations. It is good working practice however to avoid contact with the skin and eyes.

The classification shown above does not remove the requirement for the user to conduct a Workplace risk assessment as required by COSHH.

Document Number:	TM11223600-0001	Revision:	H	ECN 1180	Date:	17-Feb-11
Created by:	B. Taylor	Checked by:	R Greenfield	Approved by:	M Innes	





Item	Description	Part Number for 9.00mm Accessories <small>For 3/16" Wire Size</small>	Qty	Part Number for 6.35mm Accessories <small>For 7/32", 3/16" &amp; 5/16" Wire Sizes</small>	Qty	Part Number for 4.00mm Accessories <small>For 0.125", 0.108" &amp; 0.092" Wire Sizes</small>	Qty	Spares	Qty
1	Body	11223600-0303	1						
2	Burton Housing	11223600-3602	1	11223600-3902	1	11223600-3502	1		
3	Burton	11223600-4402	1	11223600-3802	1	11223600-3702	1		
4	Rotating Sleeve	11223600-1702	1	11223600-0202	1	11223600-1402	1		
5	Roller	10393600-0402	8						
6	Roller Pin Sub Assembly	10393600-0076	8						
7	O-Ring	83880014-0000	16						
8	Roll Pin	84100187-0299	5						
9	Roll Pin	84100187-0899	8						
10	Retainer Screw	11223000-0499	1						
11	Soc Head Cap Screw	84200250-1199	1					84200250-1199	2
12	Soc Head Set Screw	84000250-0205	1	84000250-0205	1	84000250-0205	1	84000250-0205	3
13	Wedge Housing	11223600-5302	1						
14	Bottom Sub	11223600-2902	1						
15	Cutter Nose	11223600-4101	1	11223600-2801	1	11223600-4001	1		
16	Key	11223600-2003	1	11223600-0703	1	11223600-0703	1		
17	Rotating Knife	11223600-4522	1	11223600-2522	1	11223600-2522	1	11223600-4522	1
18	Fixed Knife	11223600-4622	1	11223600-2622	1	11223600-2622	1	11223600-4622	1
19	Wire Wedge (0.092")								
19	Wire Wedge (0.108")								
19	Wire Wedge (0.125")								
19	Wire Wedge (0.160" & 0.187")								
19	Wire Wedge (0.218")	11223600-5203	1	11223600-5103	1	11223600-4903	1		
20	Roll Pin	84100125-0499	1	11223600-5203	1				
21	Roll Pin	84100125-0399	1						
22	Retaining Screw	11223600-1599	1	11223600-1599	1	11223600-1599	1	11223600-1599	2
23	Retaining Screw	11223600-3499	1	11223600-3499	1	11223600-3499	1	11223600-3499	2
24	Shear Pin	84430187-3610	1						
25	Shear Pin	84430125-3516	1						
26	Shear Pin 3/16" x 40mm lg	84430187-4010	1	84430187-4010	1	84430187-4010	1		
27	Latch	11223600-4302	1	11223600-4302	1	11223600-4302	1		
28	Retaining Screw	11223600-4299	3						
29	Knurled Knob	11220000-0199	1					11223600-4299	2
30	Grease Gun								
31	Grease Fitting							84629999-0599	1
32	Grease Cartridge							84629999-0699	1
33	Bogie Spanner							84629999-1099	1
								11180000-0199	2

Rev	Date	ECN No	Rev	Date	ECN No
H	16-Feb-11	1180	D	31-Oct-08	0166
G	12-Apr-10	1076	C	09-Oct-03	0176
F	23-Feb-10	1048	B	12-May-03	0147
E	23-Aug-08	0636	A	21-Feb-02	0111
			D	14-Feb-02	

Copyright, all rights reserved. The drawing is the property of Wireline Engineering Inc. This drawing is not to be reproduced or distributed in any form without the prior written permission of Wireline Engineering Inc.

Remove all burrs and sharp edges.

All dimensions in millimeters (M.M.).

Material Spec: UNLESS OTHERWISE STATED

Coating Spec: X.X ± 0.5 T.I.R. 0.15 DO NOT SCALE

Marking Spec: X.X ± 0.5 Corner Radii 0.25 Thread Lead 45°

Finish 1/8" Angle ± 0.50° Thread Back 30°

Checked By: M.J. Massie  
 Drawn By: B. Taylor  
 Approved Date: 17-Feb-11  
 Millwork: M.J. Massie  
 Project No: 11223600-0001

Design: Bogue Bogie Carriage w/ 30mm  
 Shaft 5.75mm, 6.35mm, 8.0mm  
 3/16" & 0.146mm 4.0mm Shaft 0.125mm  
 Part No: 0.108mm & 0.092mm Wire  
 Rev: 11223600-0001 H

