



**INSTRUCTION SHEET:
BALL TRAMMEL KIT FOR USE WITH THE SILK 3-21, 6-30
& 14-45 FLANGE FACING MACHINES**

Original Instructions
Revision C

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THIS INSTRUCTION SHEET

This Instruction Sheet describes how to safely install, operate and maintain the ball trammel kit. It is an essential part of the equipment and it is important that you take the time to read it thoroughly.

Additional copies are available for purchase from TEAM[®] or from an authorised agent.

HEALTH AND SAFETY AT WORK

This document should be read carefully and fully understood before proceeding to install, use, maintain or service the equipment.

DO NOT USE THE EQUIPMENT UNTIL YOU ARE SURE YOU KNOW HOW IT WORKS AND WHAT ITS INTENDED FUNCTION IS.

The equipment described in this document is intended to be used by professional personnel in an industrial environment.

Installation, operation, maintenance and servicing should only be carried out by suitably qualified and experienced personnel.

The following symbols are used to highlight important areas of this document which relate to potential hazards and residual risks:



Important statements regarding the use, handling or operation of the equipment.



Warnings to prevent injury to operator and or local personnel.



Cautions to prevent misuse and damage to the equipment.

IMPORTANT NOTICE

TEAM[®] has made every effort to ensure that the information given in this document is as accurate and as up-to-date as possible at the time of publication.

TEAM[®] will not be held responsible for any accident or equipment failure that may occur due to misuse, unauthorised modification, inadequate maintenance, use of non genuine parts or use by unsuitable personnel.

TEAM[®] reserves the right to update, correct or otherwise change any information relating to this equipment, at any time and without obligation.

TEAM[®] also reserves the right not to provide updated, corrected or amended versions of this publication.



The specification and design of the ball trammel kit (including the copyright, design right or other intellectual property in them) shall, at all times, remain the property of TEAM[®]. Where any designs or specifications have been supplied by the client for manufacture by TEAM[®] or to the order of the client then the client warrants that the use of those designs or specifications for the manufacture, processing, assembly or supply of the ball trammel kit shall not infringe the rights of any third party.

WARRANTY, SPARES AND AFTER SALES SERVICE

Subject to the provisions of any bespoke terms and conditions of sale, this ball trammel kit is guaranteed for twelve (12) months from the date of purchase against faulty materials and/or workmanship. During this period it will be repaired or have parts replaced free of charge provided that:

- 1 it is returned immediately to TEAM[®] with evidence of the purchase date;
- 2 it has been purchased by the user and has not been used for hire purposes;
- 3 it has not been misused or handled carelessly and has been stored and maintained in accordance with any instructions provided by TEAM[®];
- 4 repairs have not been attempted other than by a member of TEAM[®] service team or by a service provider duly authorised by TEAM[®] to carry out such repairs; and
- 5 the cost of such repair or replacement does not exceed the original purchase value.

A full spare parts service is available from TEAM[®] or from an authorised agent. Additionally, TEAM[®] can supply a recommended spare parts kit suitable for a specified period of normal service life.

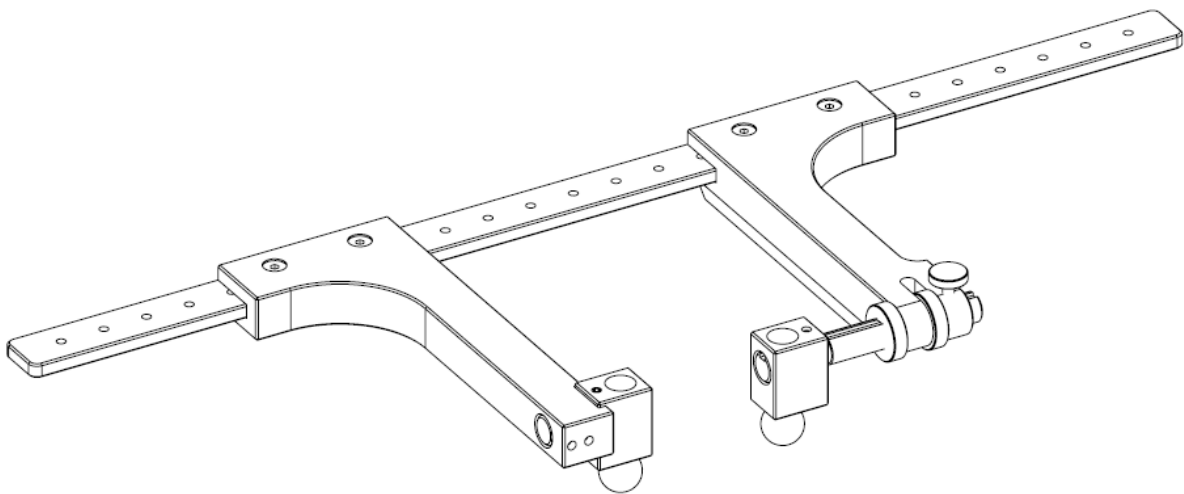
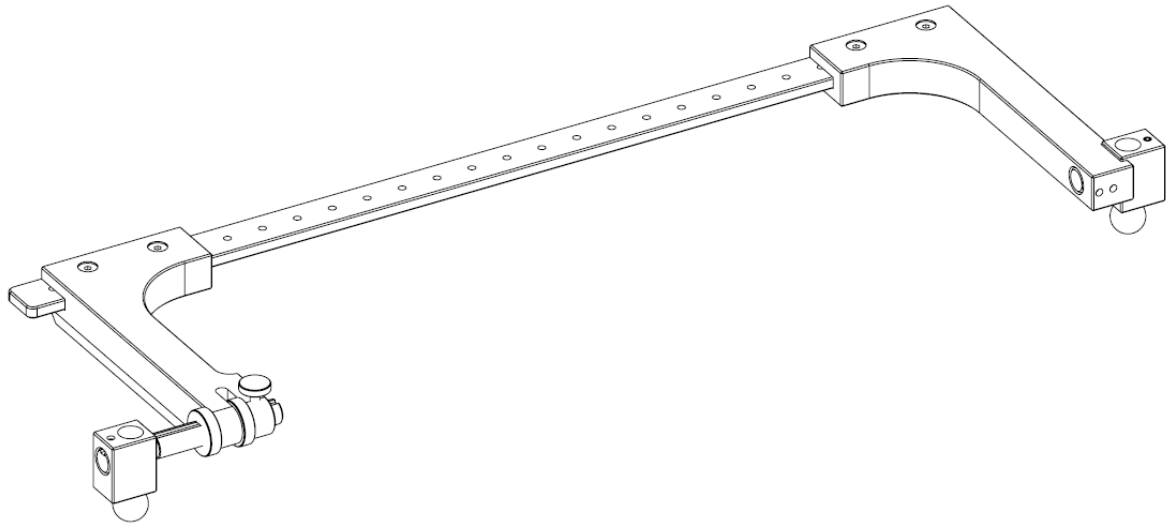
Also offered is a Factory Service, in which the equipment can be returned to TEAM[®] for inspection. A quotation may then be given for the overhaul, repair or replacement of the equipment.

TEAM[®] warrants that the ball trammel kit supplied will at the time of delivery correspond to the description given by TEAM[®]. All other warranties, conditions or terms relating to fitness for purpose, quality or condition of the ball trammel kit, whether express or implied by statute or common law or otherwise are excluded to the fullest extent permitted by law.



CONTENTS

Section 1:	TECHNICAL DESCRIPTION	5
1.1	Introduction	5
1.2	Equipment description	5
Section 2:	SPECIFICATIONS	6
Section 3:	SAFETY INFORMATION	7
3.1	Warnings and cautions	7
Section 4:	INSTALLATION AND OPERATION	9
4.1	Assembling the ball trammel kit	9
4.2	Using the ball trammel kit	11
Section 5:	FAULT DIAGNOSIS	12
5.1	Introduction	12
5.2	Fault diagnosis chart	12
Section 6:	MAINTENANCE INSTRUCTIONS	13
6.1	Introduction	13
6.2	Periodic maintenance	13
Section 7:	PARTS LISTS	14



Ball Trammel Kit



SECTION 1: TECHNICAL DESCRIPTION

1.1 INTRODUCTION

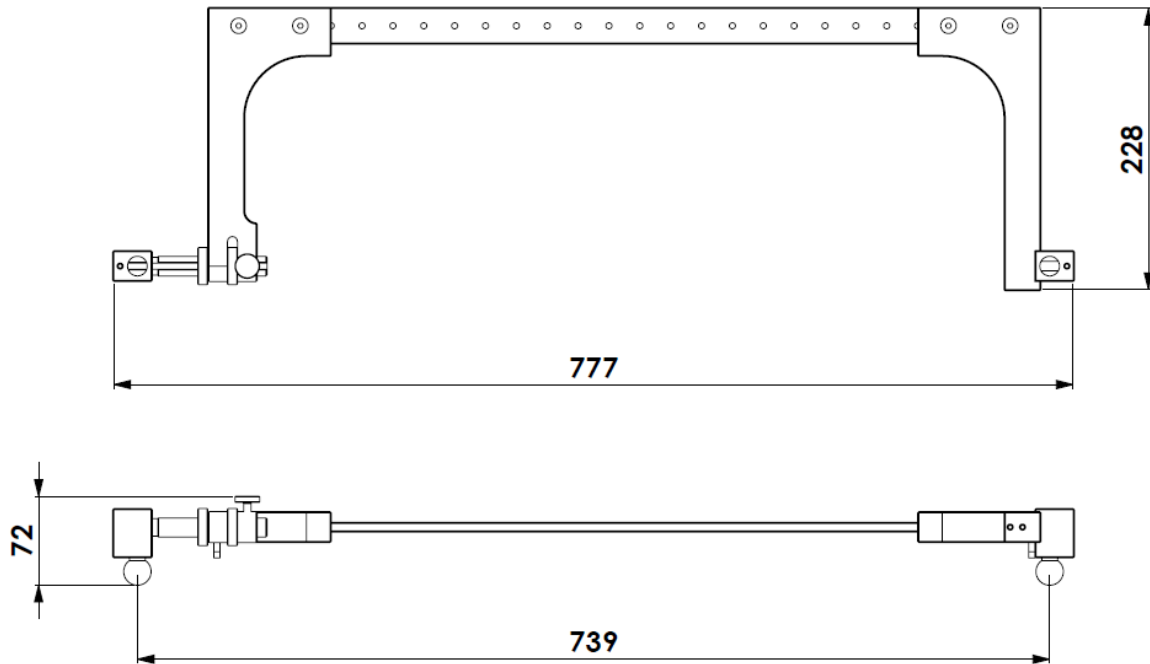
The TEAM[®] ball trammel kit is constructed from the highest quality materials and great care has been taken in its design and manufacture. Its design will give every satisfaction provided that it is properly installed, operated and maintained in accordance with the information contained within this instruction sheet.

Take care of this instruction sheet; it is an essential source of information.

1.2 EQUIPMENT DESCRIPTION

This equipment is for measuring 'V' groove pitch diameters after the "V" groove has been machined in the sealing face of a flange or similar component.

SECTION 2: SPECIFICATIONS



PRINCIPAL DIMENSIONS:

Maximum assembled weight	3.4kg	7.5lbs
Length	777mm	30.6"
Width	228mm	9"
Height	72mm	2.8"
Maximum ball centre distance	739mm	29"
Maximum RTJ ring size	R79	
Minimum ball centre distance	24mm	0.95"
Minimum RTJ ring size	R11	



SECTION 3: SAFETY INFORMATION

3.1 WARNINGS AND CAUTIONS

GENERAL:



ALL SAFETY PROCEDURES MUST BE OBSERVED AND STRICTLY ADHERED TO WHEN INSTALLING, USING, MAINTAINING AND SERVICING THIS EQUIPMENT.

ONLY TRAINED AND COMPETENT PERSONNEL SHOULD INSTALL, USE, MAINTAIN AND SERVICE THIS EQUIPMENT.

INTENDED USE OF THIS EQUIPMENT:



THIS EQUIPMENT IS FOR USE AS A MEASURING COMPARATOR. IT IS INTENDED TO BE USED BY PROFESSIONAL, TRAINED PERSONNEL WORKING IN AN INDUSTRIAL ENVIRONMENT.

THIS EQUIPMENT IS INTENDED FOR USE ON METALS AND ANALOGOUS SUBSTANCES.

THIS EQUIPMENT IS NOT INTENDED FOR USE ON WOOD, PLASTIC OR SIMILAR ANALOGOUS SUBSTANCES.

USE OUTDOORS:



THIS EQUIPMENT SHOULD NOT BE USED DURING SEVERE WEATHER CONDITIONS.

PERSONNEL SHOULD NOT OPERATE THIS EQUIPMENT IN WEATHER CONDITIONS WHICH MAY GIVE RISE TO THE FOLLOWING:

- INADEQUATE VISIBILITY
- THE BUILD-UP OF ICE, SNOW, WATER, SAND OR DUST ON PLATFORMS, LADDERS, CONTROLS, VISUAL INDICATORS, MOVING PARTS etc.
- RISK OF INJURY DUE TO STRONG OR GUSTING WINDS

THIS EQUIPMENT SHOULD BE SUITABLY PROTECTED FROM ALL SEVERE WEATHER CONDITIONS.

PERSONAL PROTECTIVE EQUIPMENT:



PERSONAL PROTECTIVE EQUIPMENT MAY BE REQUIRED WHEN WORKING WITH THIS EQUIPMENT.

SUGGESTIONS INCLUDE SAFETY HAT, GLOVES, SAFETY GLASSES, SAFETY SHOES, AND FLAME RETARDANT COVERALLS.

OTHER PROTECTIVE EQUIPMENT MAY BE REQUIRED AS PER THE PLANT OPERATOR'S REQUIREMENTS.

PERSONNEL WORKING ABOVE GROUND LEVEL MUST ALSO WEAR A SAFETY HARNESS CONNECTED TO A SUITABLE ANCHOR POINT OR FALL ARRESTOR.

**LIFTING:**

ENSURE LIFTING IS CARRIED OUT IN A SAFE AND PROPER MANNER, IN ACCORDANCE WITH APPLICABLE HEALTH AND SAFETY REGULATIONS.

ALWAYS KNOW THE WEIGHT OF THE EQUIPMENT AND THE COMPONENT PARTS. REFER TO THE SPECIFICATION PAGE IN THIS INSTRUCTION SHEET OR THE MARKING PLATE ON THE EQUIPMENT.

INSTALLATION AND REMOVAL:

THIS EQUIPMENT IS INTENDED TO BE PORTABLE AND MAY BE USED IN A VARIETY OF LOCATIONS AND ORIENTATIONS. ALWAYS ENSURE THAT THIS EQUIPMENT IS PROPERLY SUPPORTED AND RESTRAINED DURING USE.



SECTION 4: INSTALLATION AND OPERATION

4.1 ASSEMBLING THE BALL TRAMMEL KIT

Assemble the component parts of the ball trammel kit using the fasteners provided so the equipment resembles fig 1.

The Precision Spheres must be pre-set so they are in the correct position for measuring the desired V groove. A coarse setting is achieved by moving the Adjustable Clamp. A fine setting is achieved by first loosening the Locking Screw and Locking Nut and then rotating the Thumb Nut.

The clamps and trammel blocks should be reversed to enable the Trammel Kit to be used on small diameter ring grooves, fig 2.

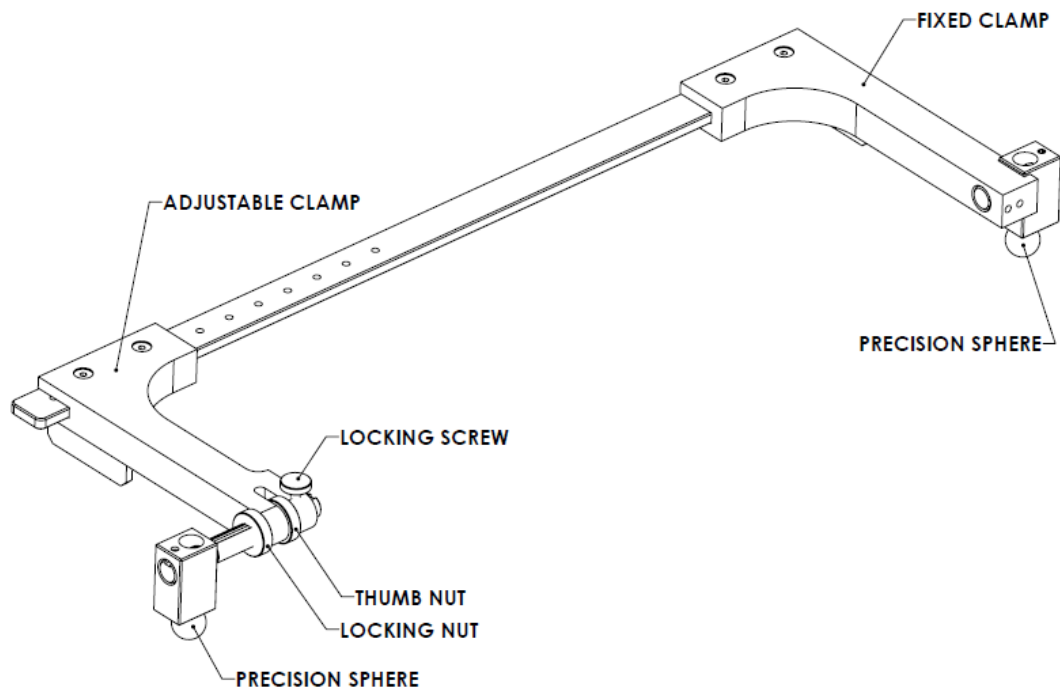


Fig 1.

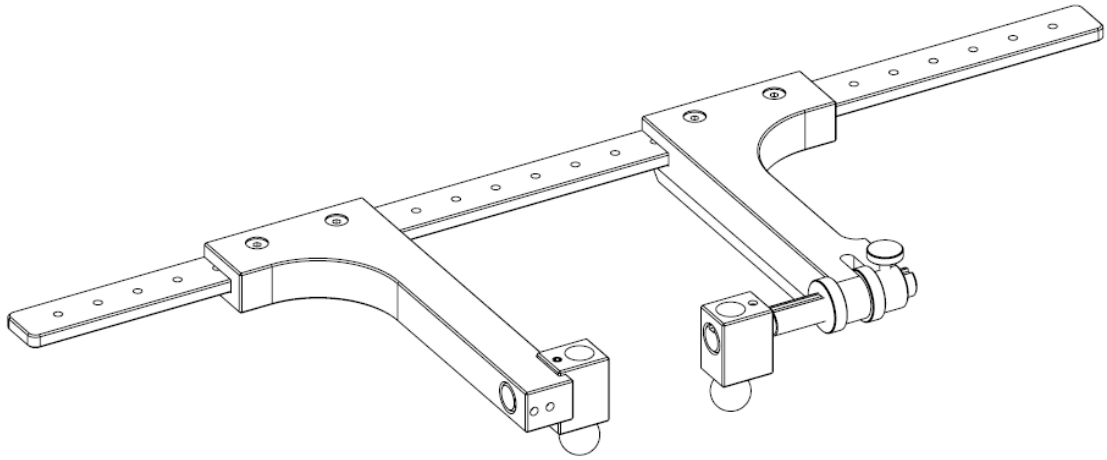
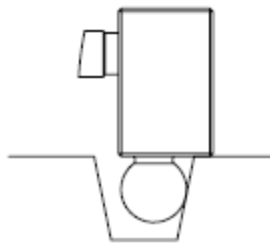


Fig 2

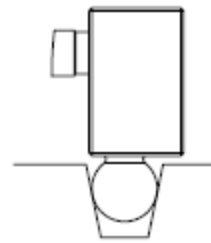


NOTE

The precision spheres should be the correct size for the V groove being measured; the precision sphere should be small enough so it sits in the V groove being measured without contacting the V groove on both sides of the same Precision Sphere, fig 3.



CORRECT



WRONG

Fig 3.



4.2 USING THE BALL TRAMMEL KIT

Before attempting to measure the V groove make sure the V groove is clean and the access is un-restricted.

To obtain the pitch diameter of the V groove a measurement either **OVER** or **INSIDE** the Precision Spheres is needed.

Measurement **OVER** Precision Spheres method:

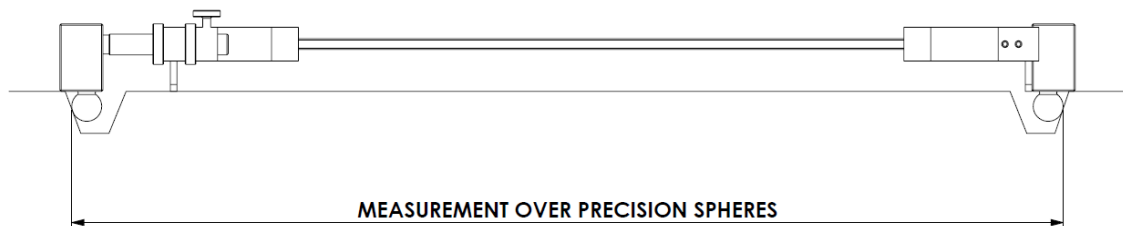


Fig 4

Position the Ball Trammel Kit on the V groove and adjust the Thumb Nut so the Precision Spheres contact the outside faces of the V groove across its **WIDEST** part, i.e. across the **MAXIMUM** diameter of the V groove. Ensure that the Precision Spheres do not lift out of the V groove during this process, see Fig 3 & 4.

Once the Ball Trammel Kit has been adjusted correctly, the Locking Screw and the Locking Nut should be lightly nipped-up before the Ball Trammel Kit is removed from the V groove.

Using the Vernier Calliper provided, carefully measure the distance **OVER** the Precision Spheres. The pitch diameter of the V groove may now be calculated using this dimension.

Measurement **INSIDE** Precision Spheres method:

If required, an alternative method of measurement may be used. The Precision Spheres can be set to contact the **INSIDE** faces of the V groove and then by measuring the distance **BETWEEN** the Precision Spheres the pitch diameter of the V groove may be calculated.



SECTION 5: FAULT DIAGNOSIS

5.1 INTRODUCTION

A fault diagnosis chart is provided to assist the user to identify basic faults. The chart is not exhaustive and the recommended action may not be the only solution to a fault.



In order to prevent possible injury to personnel or damage to equipment it is recommended that faults are corrected as soon as they arise.

5.2 FAULT DIAGNOSIS CHART

Symptom	Possible cause	Action
Precision Sphere clamp block does not touch the flange face	The Precision Sphere is too large for the V groove, Fig 3.	Use a smaller Precision Sphere.
Measurement is difficult to obtain due to movement of the Precision Spheres	Ball Trammel Kit has not been correctly assembled or fasteners are not tight.	Refer to Fig 1 for correct assembly.



SECTION 6: MAINTENANCE INSTRUCTIONS

6.1 INTRODUCTION

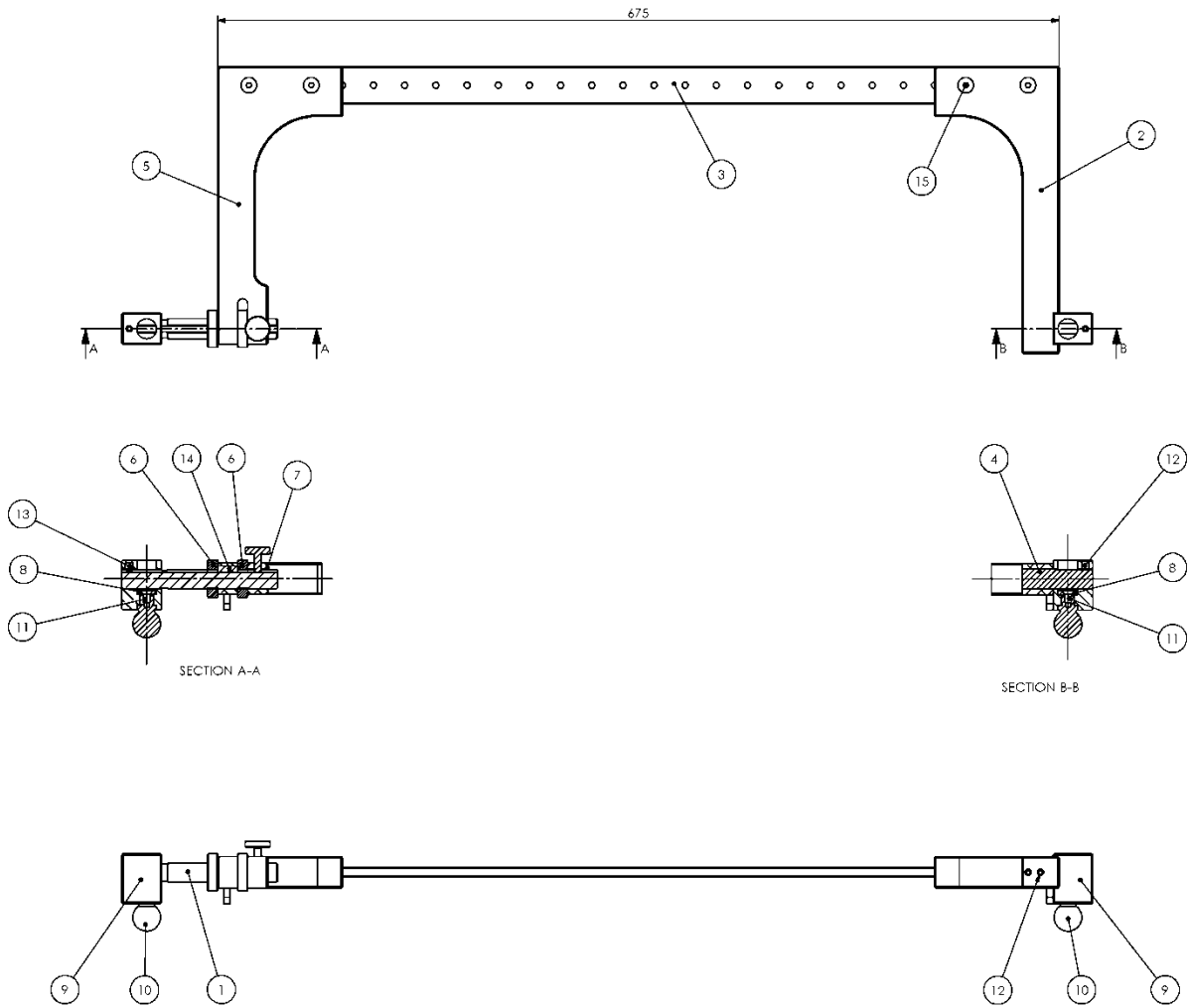
The following information sets out recommendations for the maintenance of this equipment. Periodic maintenance, when carried out as specified, will help to prevent premature failure of the equipment. Should a component fail or its operation become suspect the equipment should not be used until the fault has been rectified.

6.2 PERIODIC MAINTENANCE

The following maintenance tasks are those required to help prevent premature failure of the equipment. It is recommended that all the tasks should be carried out when specified.

PERIOD	TASK
Daily when in use or on completion of a job	Clean the equipment.
	Check that all the components are present and in good working order.
	Check all fasteners are properly tight.
Returning to storage	Complete the daily tasks.
	Protect all the exposed areas of the equipment from corrosion.
Annually when in storage	Un-pack the equipment and check for signs of corrosion or other deterioration.
	Check that all the components are present and in good working order.

SECTION 7: PARTS LISTS




MACHINE: BALL TRAMMEL KIT FOR THE SILK 3-21, 6-30 & 14-45 MACHINES

ITEM No.	PART No.	QTY	DESCRIPTION
1	KE6078-00-01-001	1	ADJUSTING SCREW
2	KE6078-01-01-002	1	FIXED BRACKET
3	KE6078-00-01-003	1	BAR
4	KE6078-00-01-004	1	PIN
5	KE6078-01-01-005	1	ADJUSTABLE BRACKET
6	KE6078-00-01-006	2	THUMB WHEEL
7	KE6078-00-01-007	1	THUMBSCREW
8	KE6078-01-01-008	2	WASHER
9	KE6078-01-01-009	2	TRAMMEL BLOCK
10	TRA 002	2 EACH	SPHERICAL INSERT. TRA 002 TO TRA 006. TRA 016 & TRA 017
11	---	2	CSK SOC SCR M5 x 8
12	---	3	SOC SET SCR M6 x 8 (FLAT POINT)
13	---	1	DOG POINT SOC SET SCR M6 x 8
14	---	1	KEY 5 x 5 x 16. FORM A
15	---	4	CSK SOC SCR M6 x 20
16	---	1	VERNIER CALLIPER 0 TO 1000mm