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PRODUCT AND MAINTENANCE MANUAL

TNF115 (SERIES 2) SINGLE HEAD MITRE SAW FOR ALUMINIUM AND PVC

INDEX **PAGE No.**

1.0 GENERAL INFORMATION

1.1 Introduction

While writing this manual we have taken in consideration all the operations necessary for normal use and regular maintenance of the machine. Therefore for correct use of the machine, it is necessary to follow instructions in this manual.
The use and maintenance of this machine must be permitted exclusively to authorised and trained personnel only.

1.2 Warranty

This machine comes with a 2 year warranty starting from the date of invoice. This includes the free replacement of all defect mechanical parts or standard components. The guarantee doesn't cover the electrical components and electronics. Moreover, the breakdown or defects due to external factors, maintenance errors and improper use of the machine are not covered by the warranty.

1.3 Correspondence Information

For any correspondence with the dealer or the manufacturer it is necessary to give the following information:

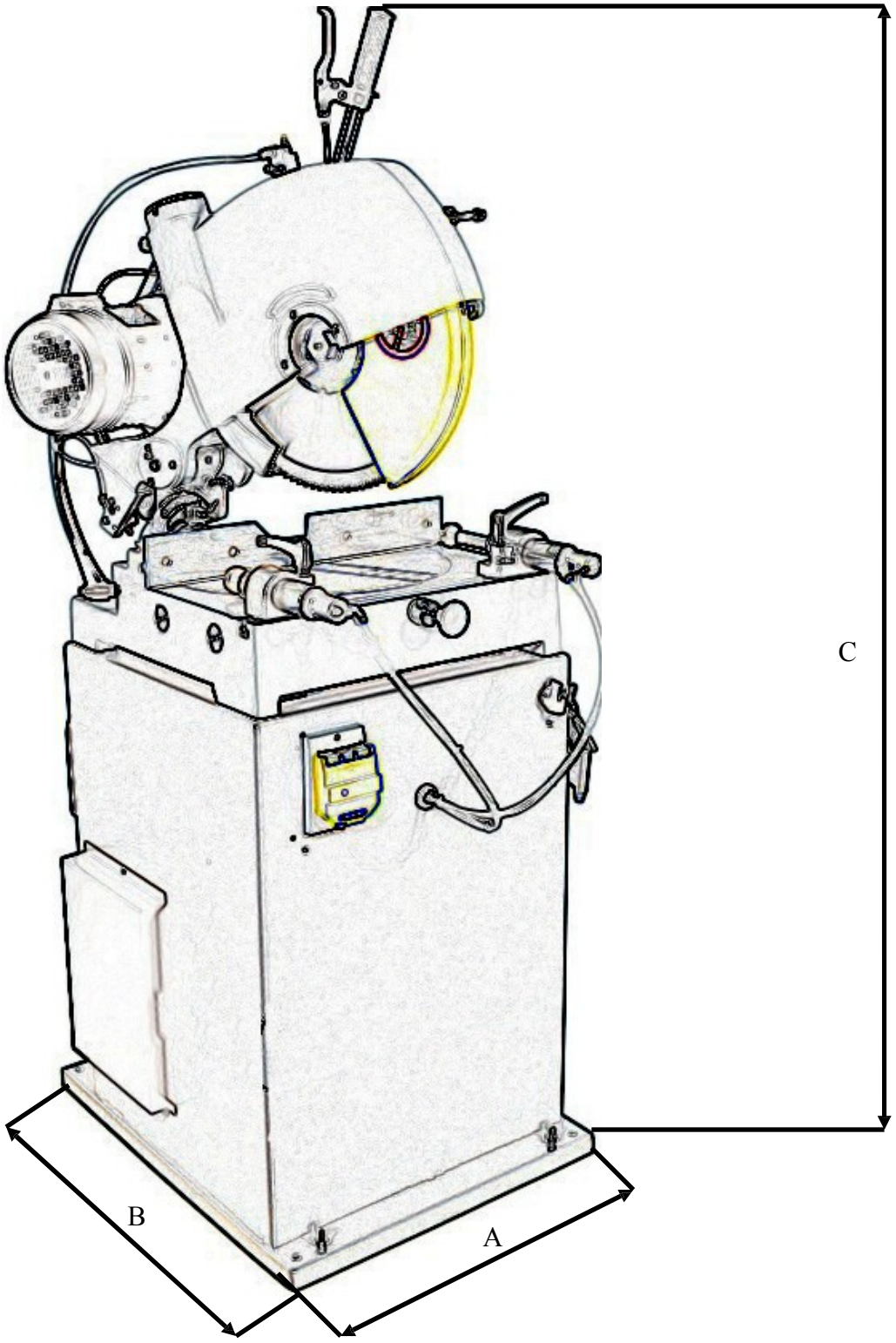
- Machine model
- Serial number
- Voltage and frequency of the machine
- Description of the eventual defect encountered
- Description of the type of cutting performed

1.4 Machine Identification

The machine model & serial number is indicated on the ID plate located on the front side of the cabinet.

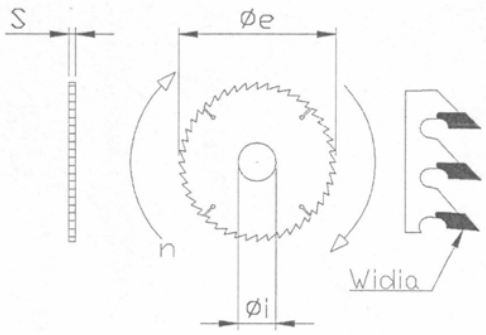
2.0 DESCRIPTION OF MACHINE & SPECIFICATIONS

2.1 Overall Dimensions

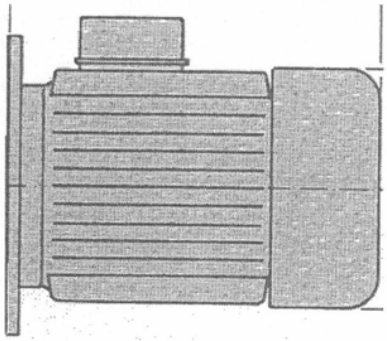


A = 550, B = 850, C = 1460, WEIGHT = 138 Kg

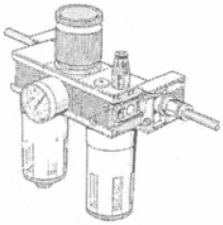
2.2 Technical Features



$Ø_e$ [mm]	400	
$Ø_i$ [mm]	30	
S [mm]	4	
Z [denti]	96	
Vt [m/s]	66,5	
n [G/min]	3190	

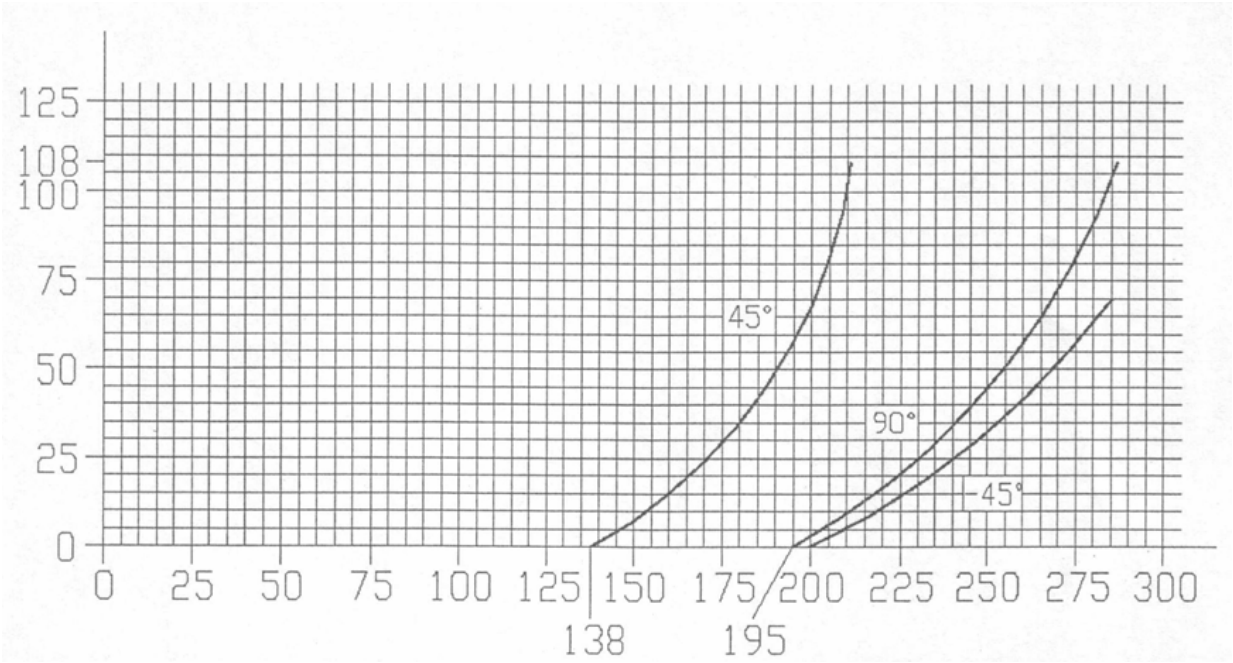


N [KW]	1,5	
n [G/min]	2800	
	3	
Hz	50	
A [380 V]	3,5	
A [220 V]	5,2	



p [bar]	6,5	

2.3 Cutting Range Chart



2.4 Standard Equipment

Pneumatic Clamps
Automatic Lubrication
TCT Saw Blade: Ø 400mm x 4/3.2mm x 30mm x 120T
3m Feed in Conveyor & 3m Feed Out Conveyor with Length Stop

3.0 TRANSPORT AND INSTALLATION

3.1 Machine Unloading

WARNING – HEAD HEAVY MACHINES

The metal sawing machines are heaviest where the saw heads are fitted and as such, care must be taken while relocating or moving the machines.

Upon receiving the ***Brobo TNF115 Series 2 Aluminium Cutting Saw***, the machine should be standing upright and positioned centrally on top of a wooden pallet. While the machine is situated on the pallet, position the forklift arms under the pallet between the runners, keeping in mind that the machine is **head heavy**. Move the entire unit to an accessible area as close as possible to the final location.

Carefully remove the bubble wrapping surrounding the saw unit and the four bolts from the base of the saw which are holding the saw to the pallet. Once completed, proceed by elevating the machine away from the pallet base using a sling harness attached to the cutting table. Ensure that the floor is as level as possible before finally positioning the machine to the desired location.

3.2 Placement Requirements

For the machine to function correctly, the room in which the saw unit is to be installed must be in the vicinity of, and satisfy the following conditions:

- *415V Power Supply*
- *Ambient Temperature* - From -10°C to +50°C.
- *Relative Humidity*: Not more than 90%.
- *Lighting*: More than 500 LUX.
- *Do not use in damp or wet environments*.

> **WARNING – OPERATING VOLTAGE VARIATION**
>
> *Each saw model has an inbuilt safety system to protect it against voltage variations. However, for the machine to perform efficiently, ensure that the saw unit operates within ±10% limits of the recommended voltage of the motor.*

3.3 Anchoring the Saw

Prior to anchoring the saw unit, take into consideration the requirements mentioned in *Section 3.1* and *Section 3.2*, and other aspects regarding the usage of the machine such as accessibility to cut parts and safe access for the operator.
For added stability, it is strongly recommended that the machine stand be fastened to the floor.

3.4 Electrical Connection

The electrical connection and the checks here indicated must always be done by a qualified electrician. Before connecting the machine to the power supply, check that the socket is not connected in series with other machines. This condition is critical for the ideal operation of the saw unit.

Make sure that the electric line of the factory is correctly rated so that it can stand the power of the machine and check that the voltage corresponds to that of the machine. NOTE: The nominal voltage and tolerances for low voltage supply systems and electrical installations for Australia are, 230/400V +10% to -6% (in accordance with AS 60038)

(Refer to Figure 4 for wiring of "**4-CORE**" power supply cable from the machine to a power plug. Saw should be fitted with a suitable approved four pin plug.

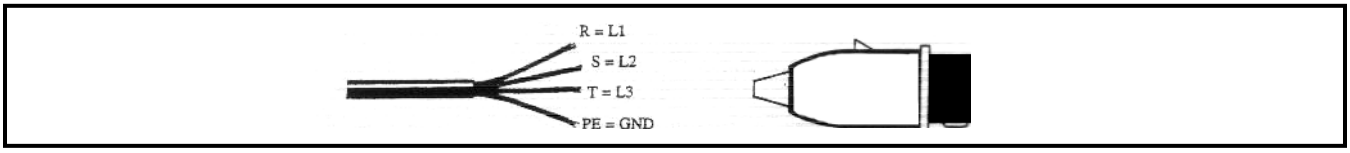


Figure 4. Connection for "**4-CORE**" Wire System with Neutral

Electrically insulate the machine and connect the 3 cables (phases) to the terminals L1, L2, L3.
Connect the cable yellow-green (earth) to the terminal (PE) or marked by the symbol and the cable of neutral, if requested, to the terminal N.
Check that the rotation sense of the blade is correct; starting the machine as described afterwards.

If the blade doesn't turn in the correct (clockwise) direction, you must:

- Invert two phases
- Check rotation again, which must be in a clockwise direction.

Consult the table shown below to use the correct section of cables and to install correct machine fuses of type "DELAYED".

CURRENT (A) ABSORBED	SECTION OF THE CABLES	DELAYED FUSES
From 3 to 6	2,5 mm	10 A
From 6 to 10	2,5 mm	10 A
From 10 to 14	4 mm	16 A

4.0 SAFETY & ACCIDENT PREVENTION

The ***Brobo TNF115 Series 2 Aluminium Cutting Saw*** has been designed and manufactured in accordance to Australian Standards. It is ***HIGHLY RECOMMENDED*** that the instructions and warnings contained in this chapter be carefully followed for correct usage of the machine.

4.1 Operation of the Machine

The saw is specifically design to cut Aluminium & PVC profiles. Other types of material and machining are not compatible for use with the specifications of the saw. ***This machine involves a high-speed blade rotation; therefore extreme caution is required when operating the device.***
The employer is responsible for instructing the personnel who, in turn, are obliged to inform the operator of any accident risks, safety devices, noise emission and accident prevention regulations provided for by national and international laws governing the use of the machine. ***The operator must be fully aware of the position and functions of all the machine's controls.***

ATTENTION: Before operating the saw, carefully check the functionality of the safety devices and check for any damaged parts/components. Check the functionality of the moving parts, which must be free and operating correctly. Check all the other conditions/components which influence the regular functioning of the saw.

All those concerned must strictly adhere to ALL instructions, warnings and accident prevention standards in this manual.

The following definitions are those provided for by the ***EEC DIRECTIVE ON MACHINERY No. 98/37/CE***:

- **Danger Zone -** any zone in and/or around a machine in which the presence of a person constitutes a risk for the safety and health of that person.
- **Person Exposed** - any person finding him or herself, either completely or partly in a danger zone.
- **Operator -** the person or persons given the responsibility of installing, operating, adjusting, maintaining, cleaning, repairing, and transporting the machine.

WARNING – UNAUTHORISED MODIFICATIONS/REPLACEMENTS/USE

The manufacturer declines any responsibility whatsoever, either civil of criminal, in the case of unauthorised interference or replacement of one or more parts or assemblies on the machine, or if accessories, tools and consumable materials used are different from those recommended by the manufacturer, or if the machine is inserted in a plant system and its proper function is altered.

4.2 Noise Level

Acoustic emission of the miter saw type TNF115 Series 2

ALLUMINIUM	IN VACUM	
	Medium value of the sonorous level measured	Lmp= 75,1 dB (A)
	Value of the sonorous level in the working position measured	Lmp= 81,3 dB (A)
	Factor of environmental correction	K= 1 dB (A)
	Medium value of the correct sonorous level	Lpc= 74,1 dB (A)
	Value of sonorous level in the correct working position	Lpc= 80,3 dB (A)
	LOADED	
	Medium value of the sonorous level measured	Lmp= 86,3 dB (A)
	Value of the sonorous level in the working position measured	Lmp= 91,1 dB (A)
	Factor of environmental correction	K= 1 dB (A)
	Medium value of the correct sonorous level	Lpc= 85,3 dB (A)
	Value of sonorous level in the correct working position	Lpc= 90,1 dB (A)

Please note that peak impulse noise levels will be experienced due to variables including blade characteristics, type, and condition. This will also vary accordingly depending on the size and type of sample being cut. Under these circumstances, management should make available to the operator(s) the appropriate hearing protection equipment as prescribed under the ***Australian Occupational Health and Safety (Noise) Regulations 1992 act***.

4.3 Power Supply

The 415V power supply requirements for this machine are of a high level and unauthorised interference and or inadequate maintenance could result in a situation that could put the operator at risk. **The degree of protection of the electric installation is IP 54.** A ***qualified*** electrical engineer should always be assigned to maintain and repair the system.

4.4 Compressed Air Supply

Various functions of the saw are carried out via the use of 6kPa compressed air. During these operations, situations would arise where machine parts and materials are clamped together and would potentially pose a serious safety issue to an inexperienced operator. Operators should be thoroughly instructed about these hazards. ***Only a qualified electrician should carry out regular maintenance of this system.***

5.0 GENERAL REQUIREMENTS

5.1 Lighting

Insufficient lighting during the operation of the saw unit would constitute a safety hazard for the people concerned. For this reason, the user of the machine must provide adequate lighting in the working area to eliminate areas in shadow, whilst also preventing dazzling illumination sources (reference standard ***ISO 8995 - 2002 'Lighting of Indoor Workplaces'***).

5.2 Connection

Check that the power supply cables, compressed air supply (if applicable) and coolant system complies with, and are operating within the acceptable range of the saw capabilities. ***Faulty, damaged or worn components must be replaced immediately.***

5.3 Earthing Systems

The installation of the earthing system must comply with the requirements stated in the ***IEC Standards Part 195: Earthing and Protection against Electric Shocks 1998.***

6.0 ADVICE TO THE OPERATOR

Protective eyewear and hearing protection must be worn at all times while attending and operating the metal saw.

Do not attempt to operate the machine unless all safety guards are in operation. The guard must fully cover the blade when the head is in the uppermost position.

Ensure that hands and arms are kept clear of the cutting zone when the machine is operating. Pay attention when using the saw and don't get distracted, a distraction could cause an accident.

Do not wear oversize clothing with long sleeves and oversize gloves, bracelets, necklaces or any other loose object that may become entangled in the machine's blade during cutting. Long hair must be tied back or placed in a hair net.

Always disconnect the power supply to the machine before carrying out any maintenance work or adjustments. This includes cases of abnormal operations of the machine.

Any maintenance work performed on the hydraulic, pneumatic or coolant systems must be carried out only after the pressure in the system has been released.

The operator ***MUST NOT*** conduct any risky operations or those not required for the cutting in course (eg. remove swarf shavings from the machine while cutting). ***Never move the saw while the machine is operating***.

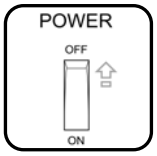
Always keep the workplace are as clean as possible. Remove equipment, tools or any other objects from the cutting zone.

Support the work piece on both sides of the machine to prevent it falling or jamming during the cutting cycle.

Ensure that the specimen being cut is secured firmly with the pneumatic clamps and the machine has been correctly set.

Do not use cutting blades of different sizes to those recommended to the machine's specifications. Always follow safe practices and inspection procedures when installing blades.

If the blade jams during a cut, activate the emergency stop function immediately. Do not continue forcing the blade through. This could damage the blade, the specimen or be a cause for potential injury to the operator.



Always turn off the machine before carrying out any repair work.

7.0 MACHINE SAFETY DEVICES

This product and maintenance manual is not purely intended as a guide for the usage, operation and maintenance of the saw unit in a strictly production environment; it is instead an instrument to providing information on how to use the machine correctly and safely. The following standards listed in this manual are applicable to the **TNF115 Series 2 Saw**, are those specified by the EEC Committee that governs safety of machinery, health and safety at work, personal protection and safeguarding of the work environment. In addition, the saw also complies with the Australian Standards regarding the safeguarding and general requirements for electrical equipment.

8.0 REFERENCE STANDARDS

MACHINE SAFETY

- *EEC Directive No. 98/37/CE* - Machines Directive
- *EEC Directive No. 91/368 - 94/68* - Amends sections of EEC Directive No. 98/37/CE relating to machine safety
- *EEC Directive No. 73/23* - Low Voltage Directive
- *AS4024.1 - 1996* - Safeguarding of Machinery

HEALTH AND SAFETY AT WORK

- *AS3100 - 2002* - General Requirements for Electrical Equipment
- *OH. & S. 1995.81/1995* - Compliance References
- *EEC Directive No. 80/1107; 83/477; 86/188; 88/188; 88/642* - Protection of workers against risks caused by exposure to physical, chemical and biological agents in workplace
- *EEC Directive No. 73/23* and *Special EEC Directives No. 89/654*; *89/655* - Improvements in health and safety at work

9.0 MAINTENANCE

The maintenance must be performed by a competent person. The various operations for the ordinary and extraordinary maintenance are indicated in the following pages of this manual.
It is always recommended to turn the main power switch in position 0 before any adjustments on the machine. An important safety factor is keeping the saw clean, the working tables, the floor and surrounding environment should be clean at all times.

10.0 USE AND ADJUSTMENTS

10.1 Air Supply

The saw needs to be connected to the air supply via the regulator located at the back right hand side of the cabinet prior to operating the saw.

10.2 Activate/Release Saw Head

ATTENTION: During the use of the machine do not remove the protections/guarding and make sure that they are in correct working order.

The machine is equipped with a locking system that prevents the movement of the head and block from the upright safety position (see Fig. 1 part A).

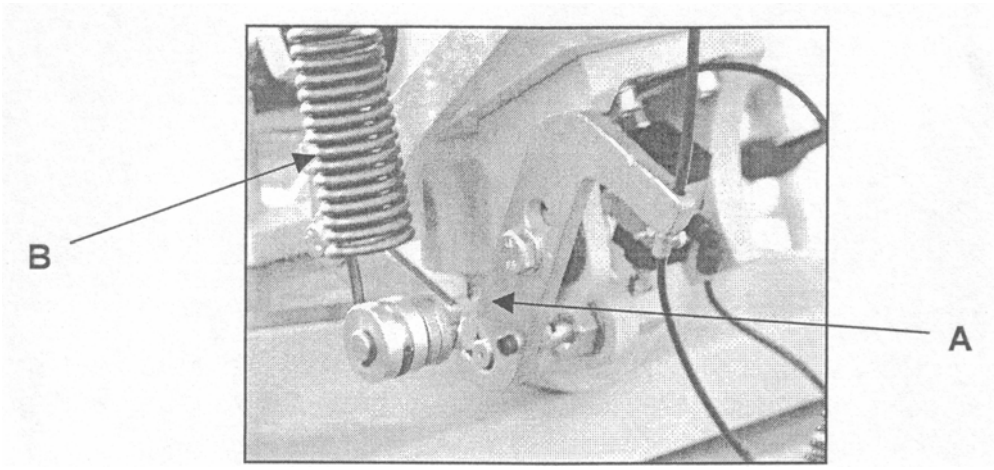


Fig. 1

The saw is held in the safety rest position by a locking device (see Fig. 1 part A), and assisted back to its rest position by a return spring (see Fig. 1 part B).

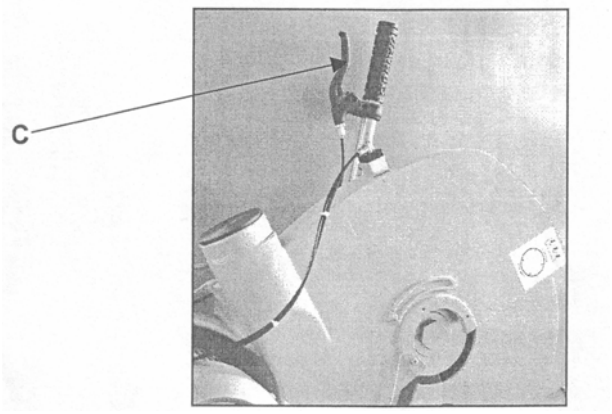


Fig. 2

In the rest position (with the arm lifted) the blade is completely covered by the yellow guard which can be activated for cutting by pulling the release handle (Fig. 2 part. C) and lowering the head.

11.0 PROCEDURE TO START SAW

To activate the blade, operate as follows.

1. Check the connections to the electric air supply. The working pressure must not be under 6 BAR.

2. Activate the locking of the pneumatic clamps through the selector placed on the front side of the machine (Fig. 3 part. A).

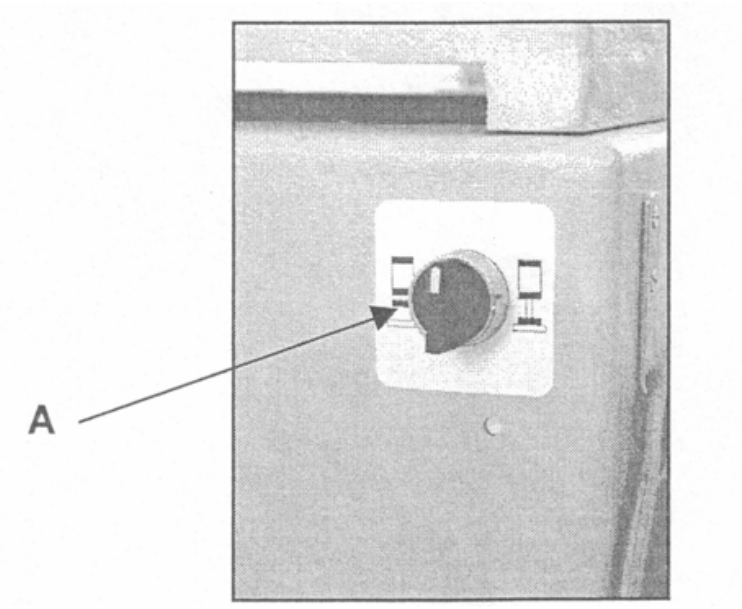


Fig. 3

3. Turn the main power switch to position 1 (Fig. 4 part. B). At this point check the direction of blade rotation, which must correspond to that indicated from the arrow on the guard (Fig. 5 part. D).

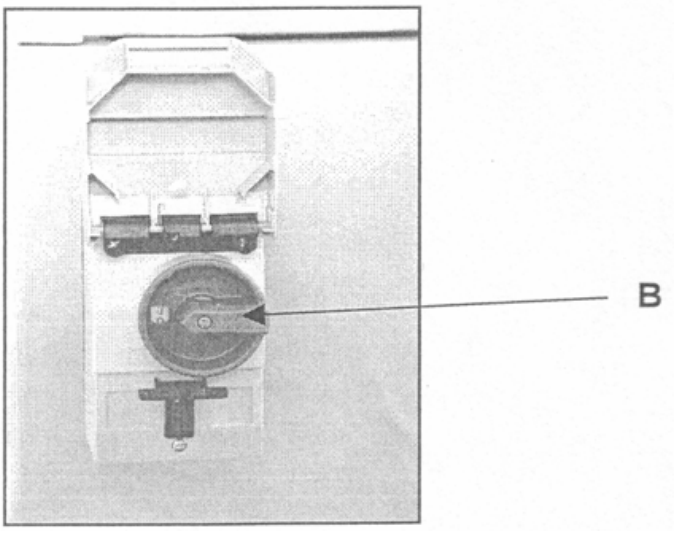


Fig. 4

4. To proceed release the safety stop of the head using the lever situated on the handle for the blade descent (Fig. 5 part. C).

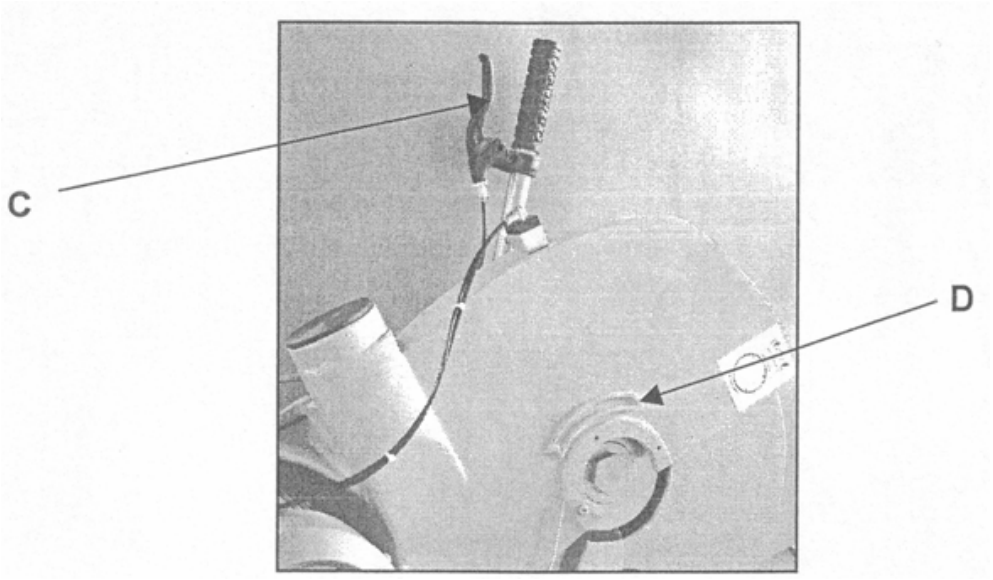


Fig. 5

NOTE: If you don't close the clamps before turning on the start switch, the blade will not activate.

12.0 LUBRICATION ADJUSTMENT

On the upper part of the fixed guard a lubricator is located for cooling the blade during the cutting operation.
Adjusting the screw placed on the body of the lubricator (Fig. 6 part. A) enables you to adjust the quantity of the liquid emitted.

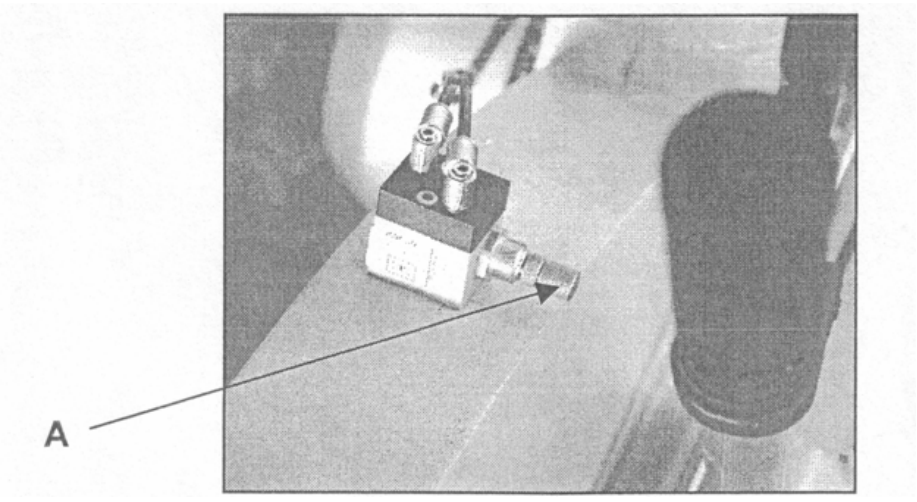


Fig. 6

The reservoir for the lubricator liquid must not be empty (Fig. 7 part. B).
Recommended lubricant (9601481) Brobolube Fluid.

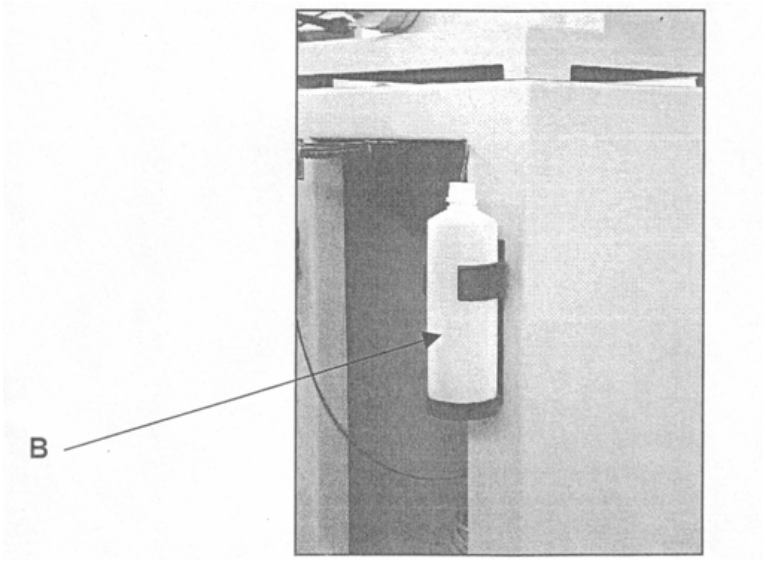


Fig. 7

13.0 BELT TENSIONING

In order to restore the stop time of the blade (within 10 seconds) you need to tension the transmission belts from time to time. To do that please follow the procedure described below:

1. Release the motor by loosening the lever in Fig. 8 part C.
2. Move the motor toward the rear of the machine to increase the belts tension.
3. Lock the lever and test the stop time of the blade to check the efficiency of the tensioning.
4. If the time is still over the 10 seconds, repeat the procedure.

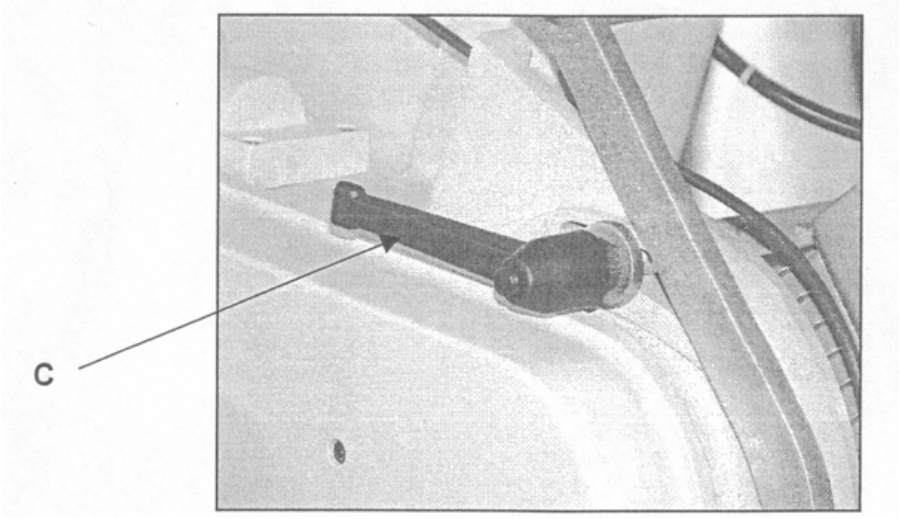


Fig. 8

14.0 REPLACING THE SAW BLADE

To replace the blade:

1. Release the lock nut (Fig. 9 part. A) to release the tie-rod that activates the yellow guard.

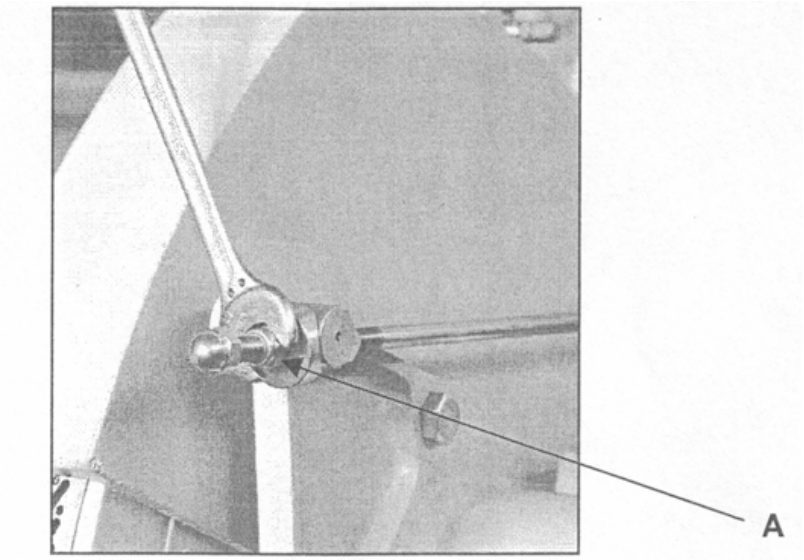


Fig. 9

2. Remove the rod from the pivot fixed on the connecting rod. Lift the yellow guard manually to allow you to insert a 36mm spanner around the blocking screw (Fig. 10 part. B).

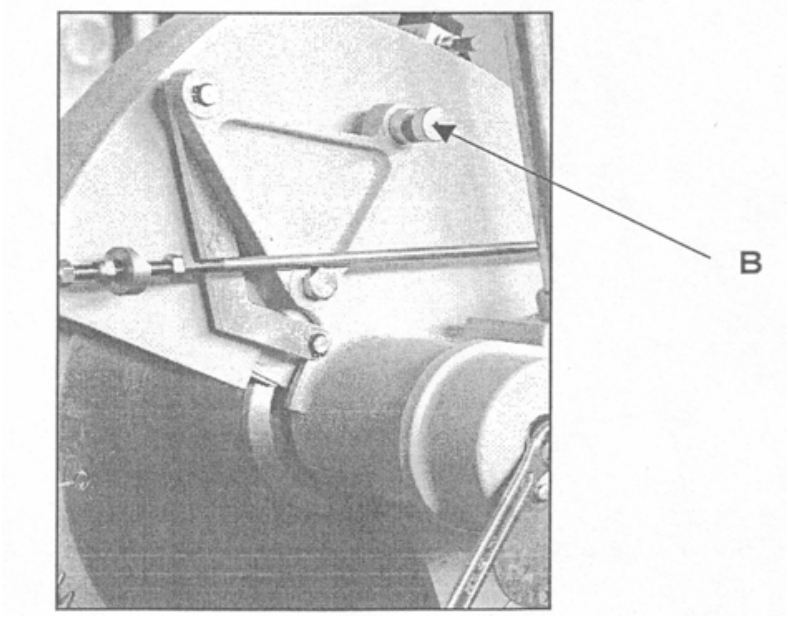


Fig. 10

3. Remove the yellow guard (Fig. 11 part C) and remove two of the three fixing screws.

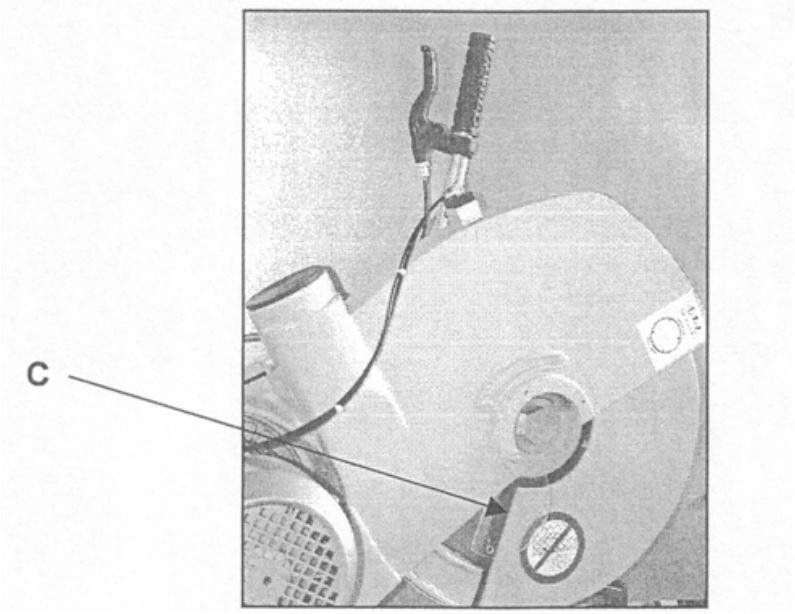


Fig. 11

4. Remove the lower blade protection cover (Fig. 12 part E) to facilitate the removal of the blade from its seat.

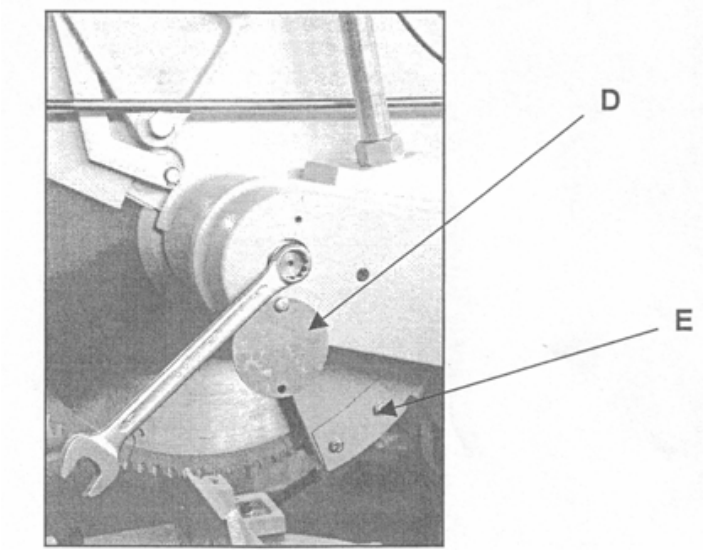


Fig. 12

5. Remove the shaft cover (Fig. 12 part D). Insert a 17mm spanner to remove the blade counter plate screw.

6. Using a 36mm spanner, loosen the blade counter plate screw in a clockwise direction (Fig. 13 part. G). Keeping in place the contrast spanner (Fig. 13 part. F) release the screw and remove the counter plate to be able to remove the blade from the shaft.

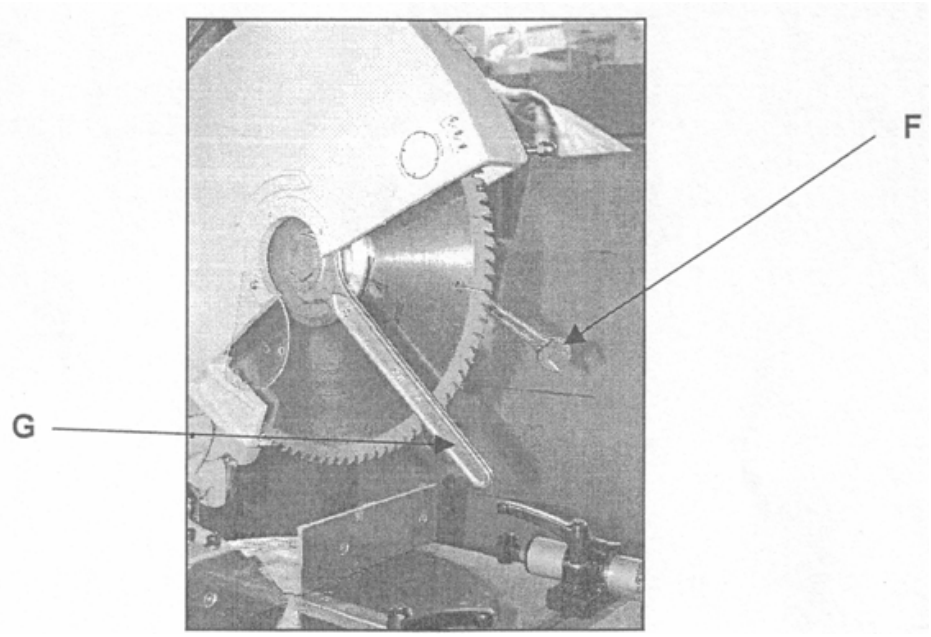


Fig. 13

15.0 ADJUSTING THE HEAD TILT

ERROR 0° HEAD TILTING

If the arm holding the saw head is at 0° position and the saw head is not perfectly perpendicular with the working table, adjust the calibration nut (Fig. 14 part. A) located on the right side of the support.

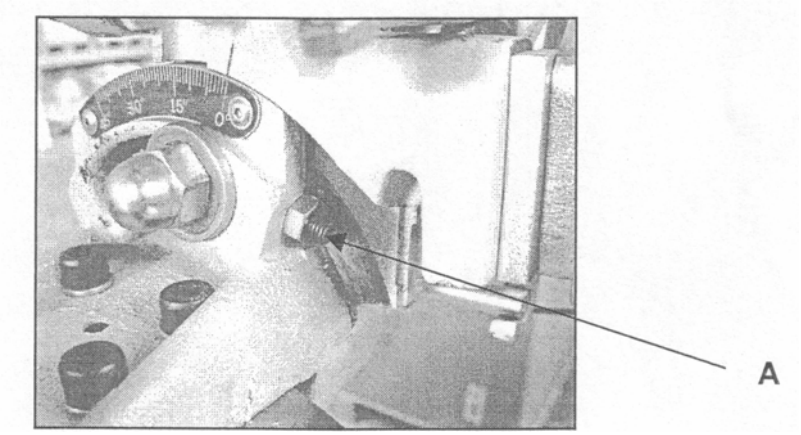


Fig. 14

ERROR 45° HEAD TILTING

If the 45° angle of tilting is not exact, adjust the calibration nut (Fig. 15 part. B) located on the left side of the support.

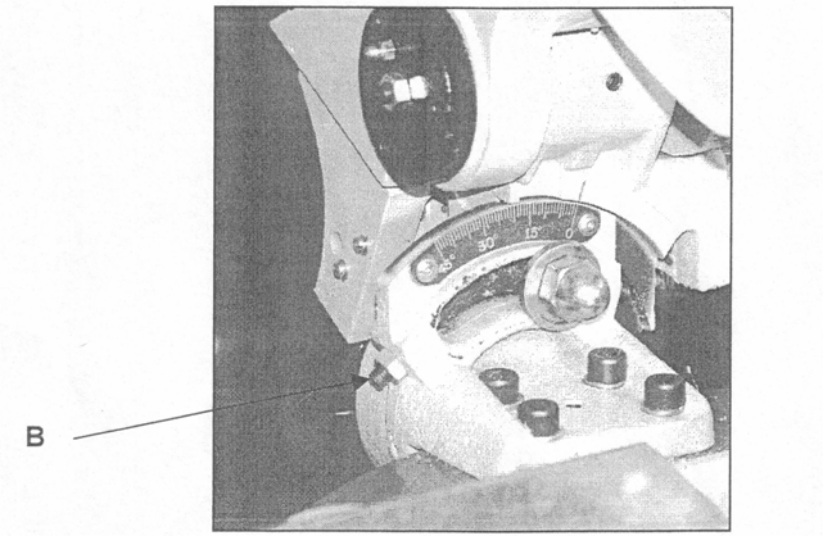


Fig. 15

16.0 PIVOT STOP ADJUSTMENT

If the blade doesn't go all the way through the work piece, adjust the stop (Fig. 16 part C) located on the lower side of the support. Pay attention when adjusting the stop making sure that the blade does not make contact with the table, otherwise you will end up cutting the table.

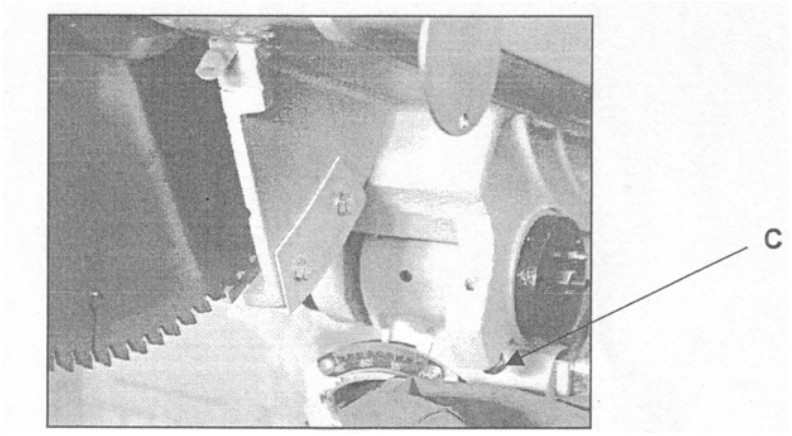


Fig. 16

17.0 ADJUSTING CUTTING TABLE ANGLES

The table can be rotated to the right or to the left in 4 fix positions: 15°, 22.5°, 30°, 45° and at 90Á

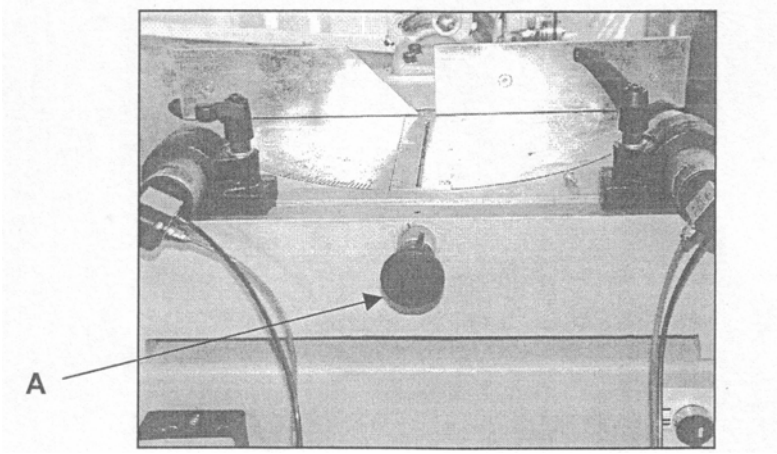


Fig. 17

To rotate the table unsecure it by pulling the quick release knob (Fig. 17 part. A) and loosening the two handless placed on the right and left hand sides of the support (Fig. 18 part. B Fig. 19 part C). Once released, turn the table and read to the desired angle on the graded scale. Secure the table at desired cutting angel position by returning the quick release knob in its seat (Fig. Part. A).
Lock the two handles (Fig. 18 part. B Fig. 19 part. C).

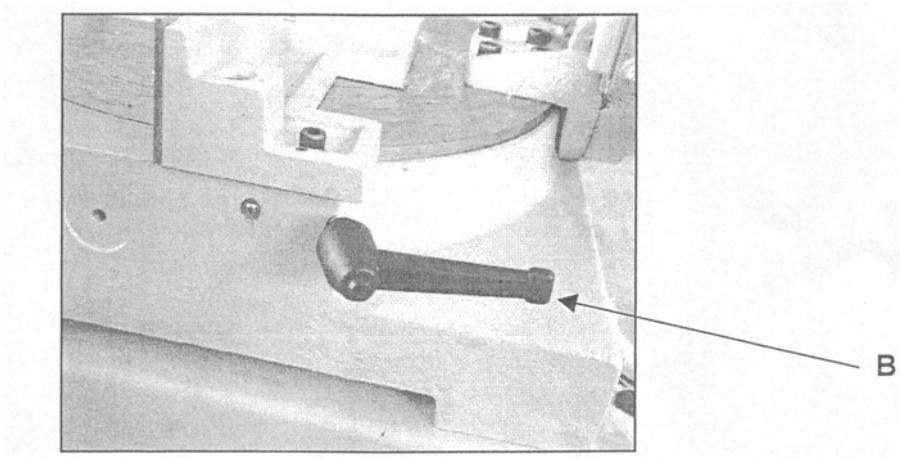


Fig. 18

For cuts at intermediate degrees, release the table by using the quick action knob (Fig.17 part. A) and then lock into desired position using only the two levers situated on the sides of the machine (Fig. 18 part. B Fig. 19 part. C).

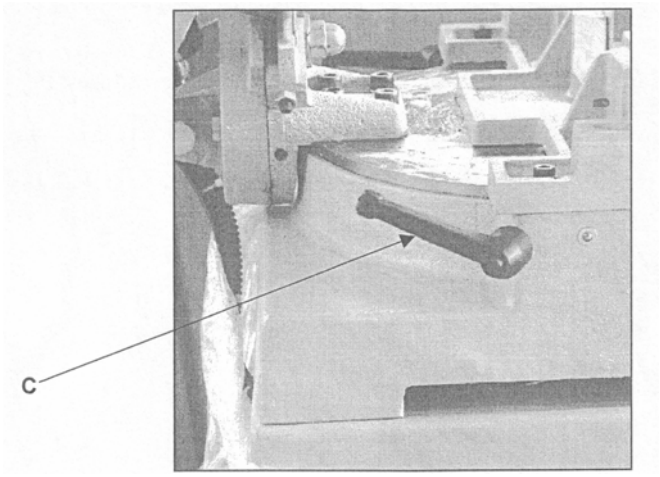


Fig. 19

18.0 CLAMP ADJUSTMENT

Depending of the dimensions of the work piece the clamps can be adjusted to the left and right hand side and along the depth of the clamping table (Fig. 20). Adjustment is done by first releasing the levers (Fig. 20 part. A) and then moving the cylinder holders to the left or right or moving the cylinders backwards and forwards. The cylinders inside the holders and the holders themselves move independently from each other.

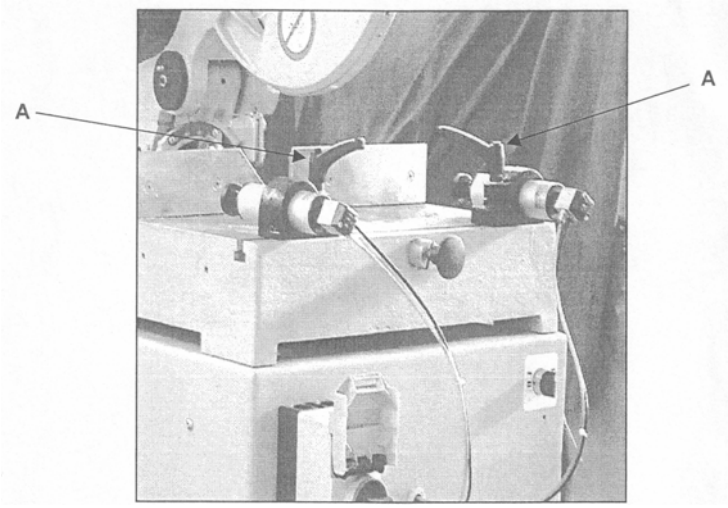
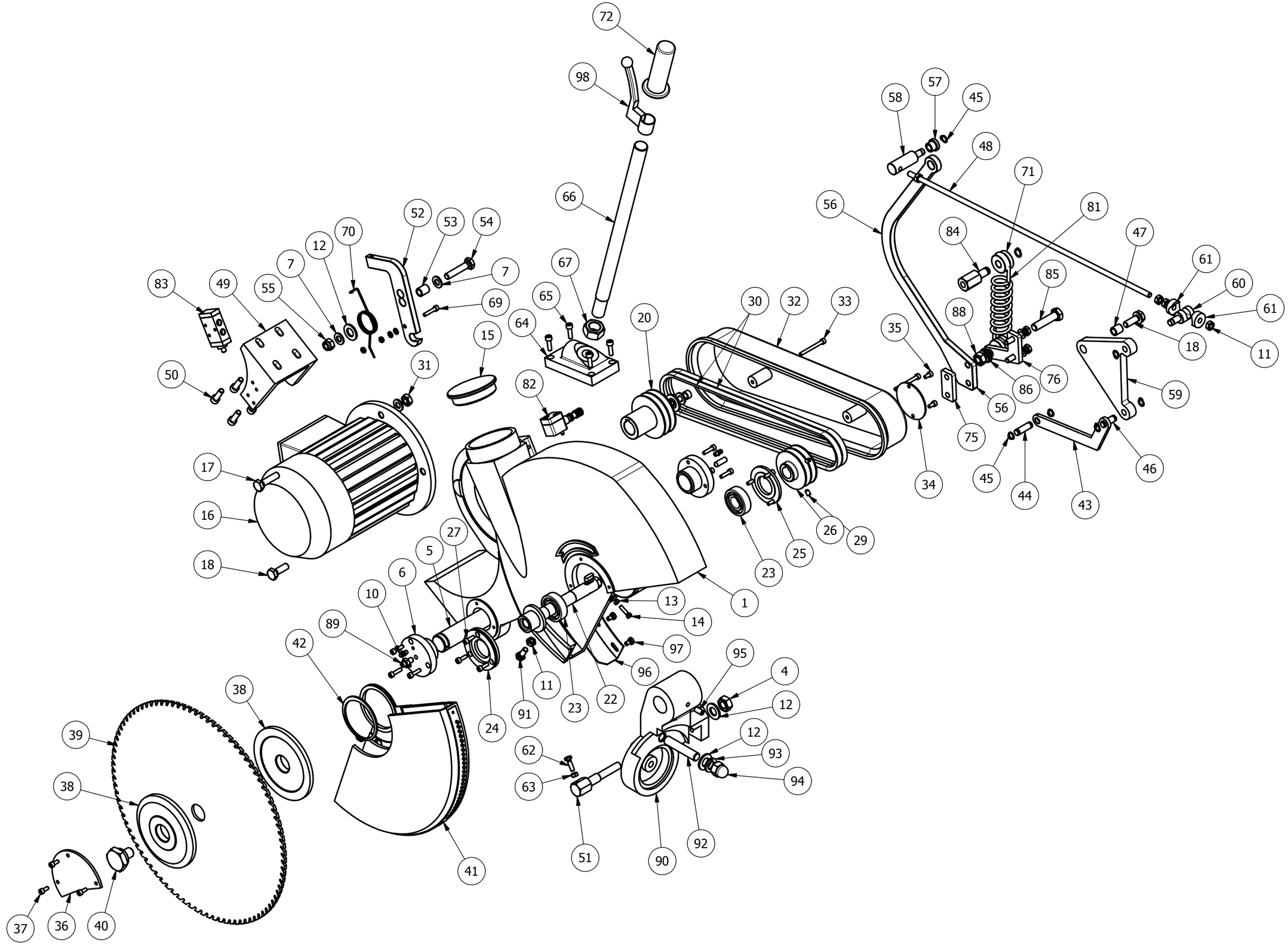


Fig. 20

Date: 29.11.2009	Author: Bratislav	EXPLOSION VIEW	



Date: 29.11.2009	Author: Bratislav	EXPLOSION VIEW	

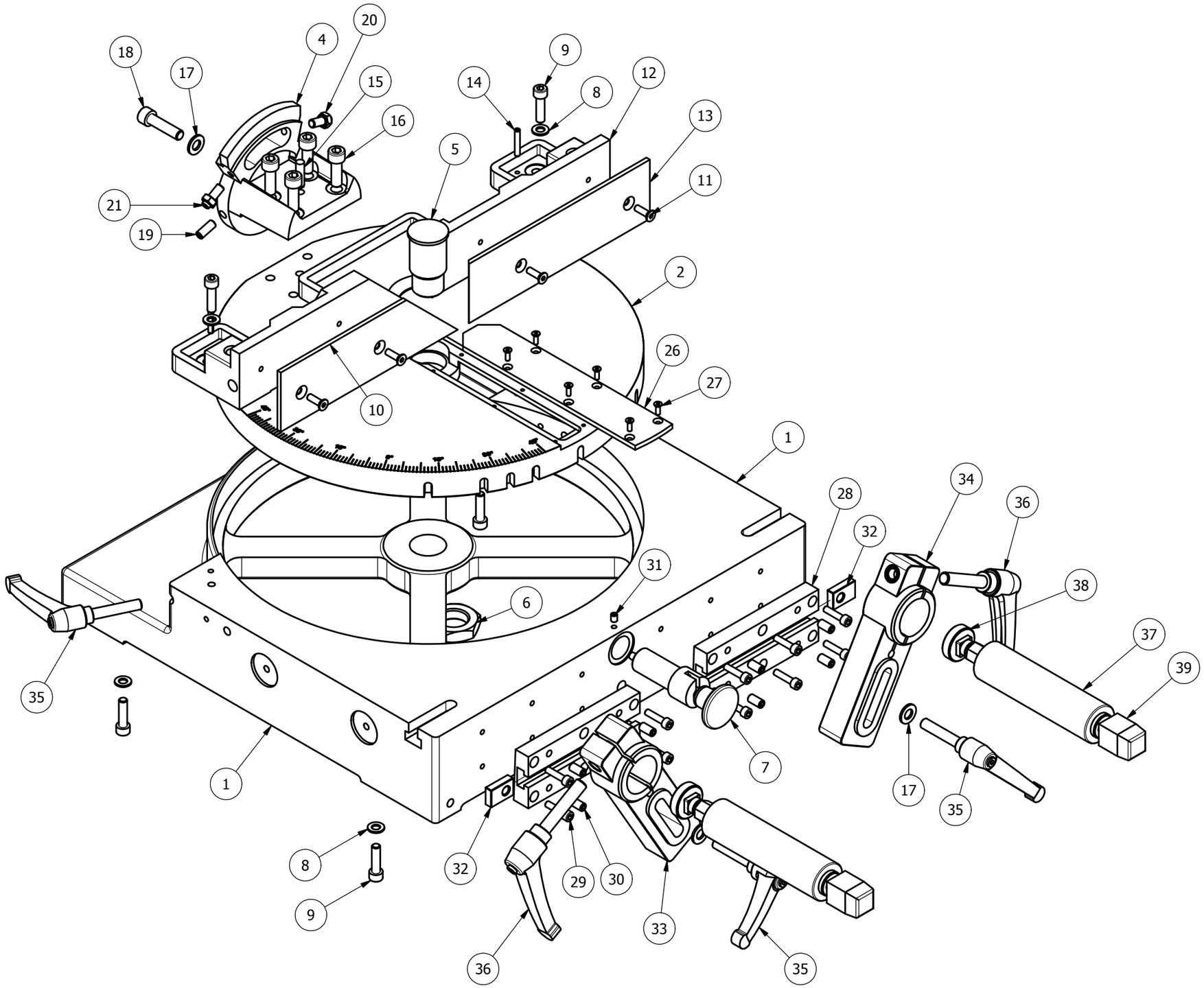
Parts List

ITEM	QTY	PART NUMBER	TITLE	DESCRIPTION
1	1	03M/05	HAUBA LIJEVA	
2	2	DIN 125 - A 8,4		Washer
3	1	DIN 912 - M8 x 30		Cylinder Head Cap Screw
4	1	DIN 934 - M14		Hex Nut
5	1	22-03/06	OSOVINICA HAUBE	
6	2	23-03/06	DISK	
7	6	DIN 125 - A 10,5		Washer
8	6	DIN 912 - M5 x 20		Cylinder Head Cap Screw
10	2	DIN 71412 - AM 6 (coned short)		Lubricating Nipple, coned Type A
11	7	DIN 934 - M8		Hex Nut
12	3	DIN 125 - A 15		Washer
13	3	DIN 934 - M5		Hex Nut
14	1	DIN 933 - M5 x 20		Hex-Head Bolt
15	1	36-03/06	POKLOPAC ODSISA	
16	1	Elektromotor	MT90c2-STD-(1,5kW)-B5	
17	1	DIN 933 - M10 x 40		Hex-Head Bolt
18	2	DIN 933 - M10 x 30		Hex-Head Bolt
19	1	DIN 6885 - A 8 x 7 x 40		Parallel Key
20	1	38-03/06	REMENICA MOTORA	
21	1	DIN 125 - A 17		Washer
22	1	15-03/06	OSOVINA PILE-LIJEVA	
23	2	DIN 625 SKF - SKF 6204-2Z		Deep groove ball bearings single row with two Z shields SKF
24	1	12-03/06	POKLOPAC OSOVINE PILE	
25	1	08-03/06	POKLOPAC OSOVINE PILE	
26	1	10-03/06	REMENICA OSOVINE	
27	6	DIN 912 - M5 x 16		Cylinder Head Cap Screw
28	1	DIN 6885 - A 6 x 6 x 18		Parallel Key
29	2	DIN 914 - M6 x 10		Hexagon Socket Set Screw
30	2	V-Belt		
31	1	DIN 934 - M10		Hex Nut
32	1	02-03/06	ŠTITNIK REMENA	
33	2	DIN 912 - M5 x 50		Cylinder Head Cap Screw
34	1	04-03/06	POKLOPAC ŠTITNIKA REMENA	
35	2	DIN 912 - M5 x 10		Cylinder Head Cap Screw
36	1	45-03/06	PVC-PROZOR	
37	3	DIN 912 - M5 x 12		Cylinder Head Cap Screw
38	2	17-03/06	DISK TESTERE	
39	1	Pila	PILA 400	
40	1	16-03/06	LIJEVI VIJAK OSOVINE PILE	
41	1	05/06	ŠTITNIK PILE-LIJEVI-KOMPLET	
42	1	DIN 471 - 72x2,5		Retaining rings for shaft
43	1	16-26/06	L-POLUGA	
44	1	18-26/06	OSOVINICA-DUŽA	
45	6	DIN 471 - 10x1		Retaining rings for shaft
46	1	13-26/06	OSOVINICA-KRATKA	
47	1	21-26/06	ČAURA	
48	1	10-23/05	POLUGA-ŠIPKA	
49	1	01-13/05	NOSAČ PNEUM. PREKIDAČA BRIZGALJKE	

Parts List

ITEM	QTY	PART NUMBER	TITLE	DESCRIPTION
50	4	DIN 912 - M8 x 25		Cylinder Head Cap Screw
51	1	02-27/05	OSLONAC	
52	1	27/05	KLJUČAONICA	
53	1	08-27/05	DISTANTNA ČAURA	
54	1	DIN 933 - M10 x 50		Hex-Head Bolt
55	1	DIN 6924 - M10		Hex Nut
56	1	01-26/05	BUMERANG POLUGA	
57	1	04-23/05	ROLNA	
58	1	03-23A/05	OSOVINA	
59	1	01-22/05	POLUGA	
60	1	05-22/05	VILJUŠKA	
61	2	07-26/06	POLUOKRUGLA PODLOŠKA	
62	1	DIN 933 - M6 x 20		Hex-Head Bolt
63	1	DIN 934 - M6		Hex Nut
64	1	01-16/05	NOSAČ RUČKE	
65	4	DIN 912 - M6 x 20		Cylinder Head Cap Screw
66	1	17/05	POLUGA	
67	1	DIN 934 - M20 x 1,5		Hex Nut
68	2	DIN 125 - A 5,3		Washer
69	1	DIN 912 - M5 x 25		Cylinder Head Cap Screw
70	1	17-27/05	OPRUGA	
71	2	02-30/05	ROLER	
72	1	04-17/05	GUMENA RUČKA	
74	1	DIN 471 - 12x1		Retaining rings for shaft
75	1	03-26/05	PODLOŽNA PLOČICA	
76	1	05-26/05	UGAONA PLOČICA	
77	2	DIN 933 - M8 x 45		Hex-Head Bolt
81	1	OPRUGA	OPRUGA	
82	1	Brizgaljka	BRIZGALJKA	
83	1	T228_32_0_1	VENTIL 3/2	
84	1	29	GORNJI OSLONAC OPRUGE	
85	1	DIN 931-1 - M12 x 50		Hex-Head Bolt
86	1	DIN 125 - A 13		Washer
87	1	DIN 127 - A 12		Spring Washer
88	1	DIN 934 - M12		Hex Nut
89	2	DIN 914 - M8 x 25		Hexagon Socket Set Screw
90	1	01-25M	TIJELO ZGLOBA-LIJEVO	
91	1	DIN 933 - M8 x 20		Hex-Head Bolt
92	1	11-25	GOLI VIJAK M14x70	
93	1	DIN 127 - A 14		Spring Washer
94	1	DIN 1587 - M14 - SW 21		Hexagon Domed Cap Nuts
95	1	DIN 913 - M8 x 16		Hexagon Socket Set Screw
96	1	32	ZAŠTITNI LIM HAUBE	
97	2	DIN 933 - M6 x 10		Hex-Head Bolt
98	1	Kočnica	RUČKA KOČNICE	

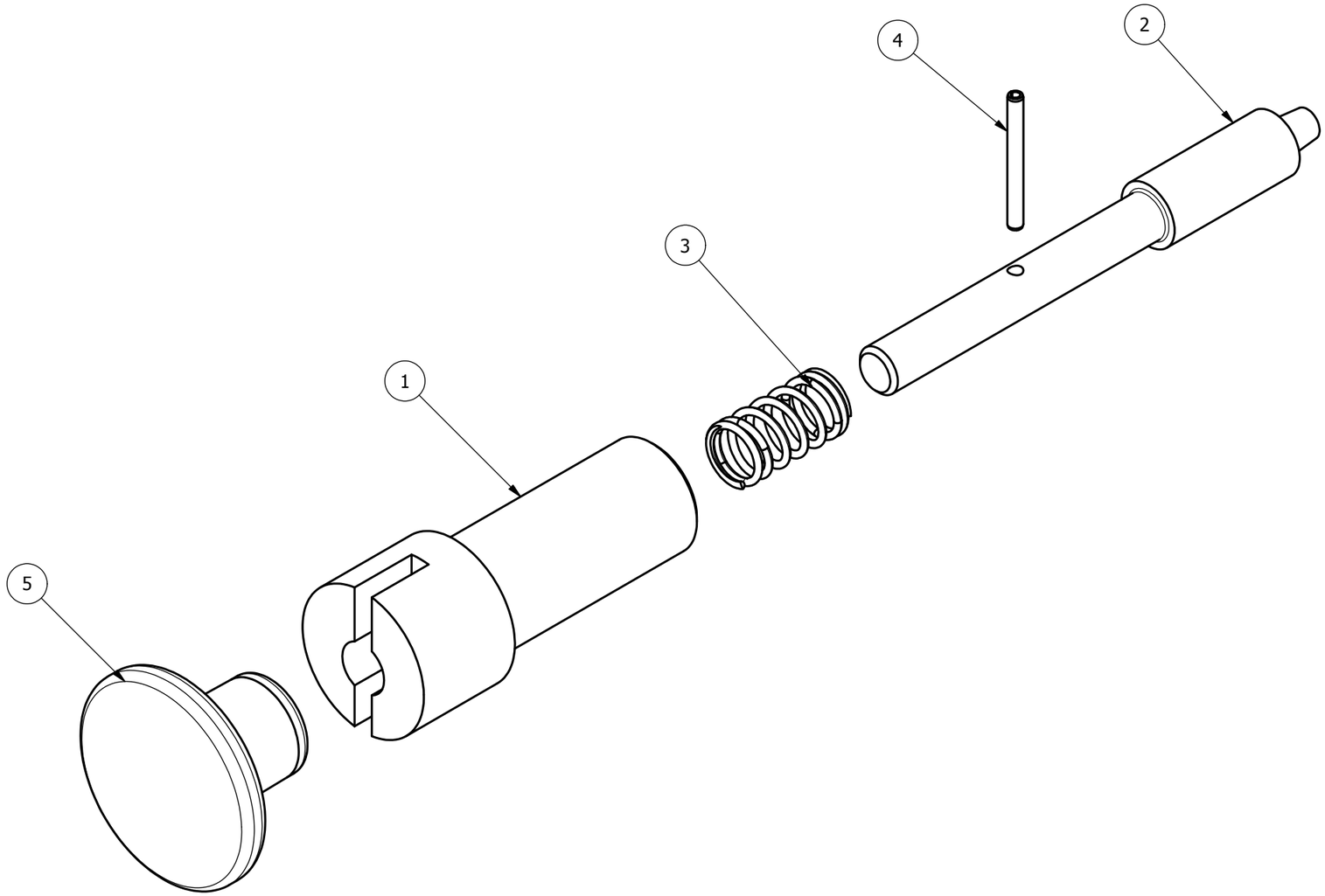
Date: 29.11.2009	Author: Bratislav	EXPLOSION VIEW	



Parts List

ITEM	QTY	PART NUMBER	TITLE	DESCRIPTION
1	1	02/05	SUPORT NEPOKRETNI	
2	1	13-01/06	OKRETNA PLOČA LIJEVA	
4	1	02-25/06	STOPA ZGLOBA-LIJEVA	
5	1	14-01/06	OSOVINA OBRTNE PLOČE	
6	1	15-01/06	NAVRTKA M30x2	
7	1	23/06	ŠNAPER	
8	6	DIN 125 - A 8,4		Washer
9	6	DIN 912 - M8 x 30		Cylinder Head Cap Screw
10	1	04-01/06	FIRUNG ZAKOŠENI-LIJEVI	
11	4	DIN 7991 - M6 x 20		Countersunk Screw
12	1	02-01/06	NOSAČ FIRUNGA LIJEVI	
13	1	03-01/06	FIRUNG RAVNI-LIJEVI	
14	2	ISO 8752 - 5 x 30		Spring-Type Straight Pin
15	1	ISO 8734 - 8 x 30 - A		Parallel Pin
16	4	DIN 912 - M10 x 30		Cylinder Head Cap Screw
17	3	DIN 125 - A 10,5		Washer
18	1	DIN 912 - M10 x 40		Cylinder Head Cap Screw
19	1	DIN 913 - M8 x 20		Hexagon Socket Set Screw
20	2	DIN 934 - M8		Hex Nut
21	2	DIN 913 - M8 x 25		Hexagon Socket Set Screw
26	1	16-01/06	UMETAK	
27	6	DIN 7991 - M4 x 12		Countersunk Screw
28	2	01-18-01A/06	NOSAČ DRŽ. HOR. CILINDRA	
29	12	DIN 912 - M6 x 25		Cylinder Head Cap Screw
30	8	DIN 913 - M8 x 16		Hexagon Socket Set Screw
31	1	DIN 913 - M6 x 8		Hexagon Socket Set Screw
32	2	27-01/06	ČETVRTASTA NAVRTKA M10	
33	1	18-01A/06	DRŽAČ CILINDRA-LIJEVI	
34	1	18-02A/06	DRŽAČ CILINDRA-DESNI	
35	3	Ručica M10X50	A593080.TM10X5001	
36	2	Ručica M12X55	A593094.TM12X6001	
37	2	Cilindar PA35P80	STEZNI CILINDAR	
38	2	Stezni čep	STEZNI ČEP	
39	2	Blokator 11_044_4	BLOKATOR	

Date: 29.11.2009	Author: Bratislav	EXPLOSION VIEW	



	MOST, ZETA	*Sklop šnapera E-04/05*	Page: ***1 /2***

Parts List

ITEM	QTY	PART NUMBER	TITLE	DESCRIPTION
1	1	03-23/06	EKSCENTAR	
2	1	01-23/06	ŠNAPER	
3	1	Opruga šnapera	OPRUGA ŠNAPERA	
4	1	ISO 8752 - 3 x 30		Spring-Type Straight Pin
5	1	Ručka M10	I11745.TM1001	

DRG/PART No.

306220

DO NOT SCALE

COMMERCIAL STOCK SIZES EXCEPTED AND UNLESS OTHERWISE NOTED TOLERANCES ON DIMENSIONS ARE:

METRIC

Size To	Mach.	Cast*
6 mm	± 0.1	± 0.5
30 mm	± 0.2	± 1.0
100 mm	± 0.3	± 1.5
300 mm	± 0.5	± 2.0
1000 mm	± 0.6	± 3.0
2000 mm	± 1.2	± 5.0

* INCLUDES STRUCTURAL STEEL WORK.

REMOVE ALL BURRS AND SHARP EDGES BY 0.3 x 45° UNLESS OTHERWISE STATED

SURFACE FINISH

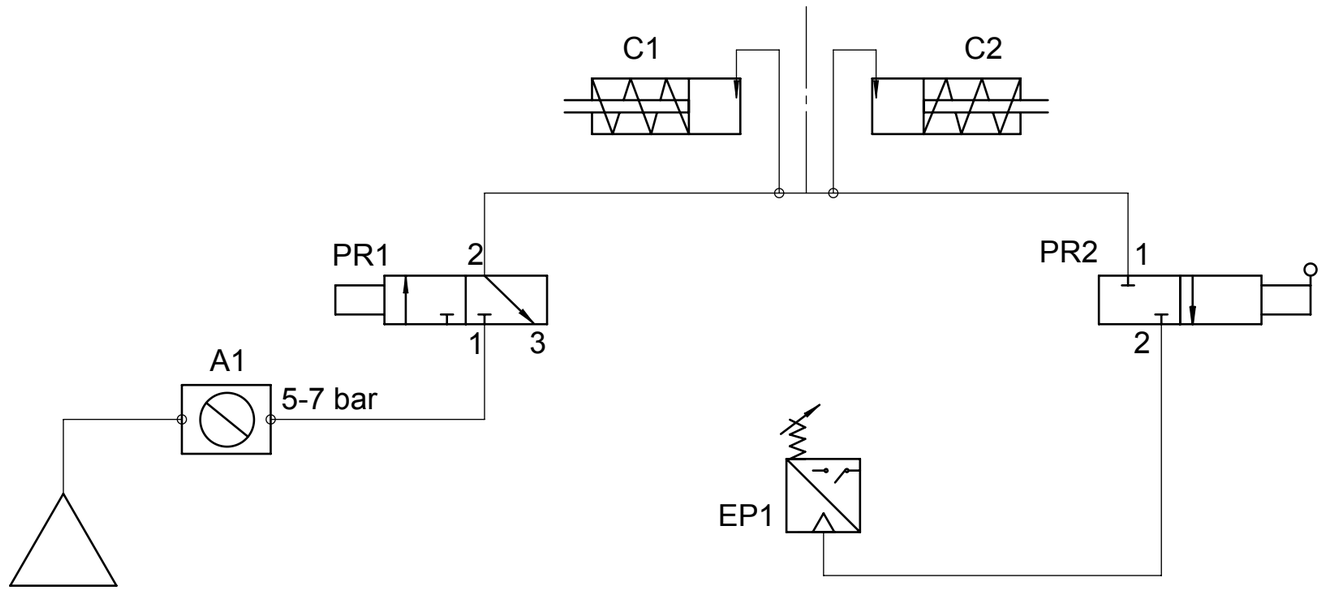
	Roughness Value	
	Met Umm	Grade No.
	50	N12
	25	N11
ROUGH	12.5	N10
	6.3	N 9
MED	3.2	N 8
FINE	1.6	N 7
S FINE	0.8	N 6
POLISH	0.4	N 5
LAP	0.2	N 4
	0.1	N 3
	0.05	N 2
	0.025	N 1

DRAWING PRACTICE TO AS 1100 - PROJECTION SYSTEM (UNLESS NOTED)

3RD ANGLE

ANGULARITY TOLERANCE
< 0° 7'

CONCENTRICITY
0.1 mm



A1 - PREPARATION UNIT
PR1 - CYLINDER SWITCH
C1-C2 CYLINDERS
PR2 - SWITCH-HANDLE
EP1 - ELECTRO PNEUMATIC SWITCH

Det.	Part No.	Qty.	Name & Material	Sheet	Remark

Raw Mat. #. N/A	Drawn O.Dj.	Checked S.R.	Scale 1:1	BROBO WALDOWN AUSTRALIA PTY LTD
Mass in kg. N/A	Date 18.5.2015.	Date 18.5.2015.	Sub Ass'y - / Layout No. -	
Mat/Spec	Titled		Drg No. 306220	Revision -

SHEET 1 OF 1 A3

DRG/PART No. 306221

DO NOT SCALE

COMMERCIAL STOCK SIZES EXCEPTED AND UNLESS OTHERWISE NOTED TOLERANCES ON DIMENSIONS ARE: METRIC

Size To	Mach.	Cast*
6 mm	±0.1	±0.5
30 mm	±0.2	±1.0
100 mm	±0.3	±1.5
300 mm	±0.5	±2.0
1000 mm	±0.6	±3.0
2000 mm	±1.2	±5.0

* INCLUDES STRUCTURAL STEEL WORK.

REMOVE ALL BURRS AND SHARP EDGES BY 0.3 x 45° UNLESS OTHERWISE STATED

SURFACE FINISH

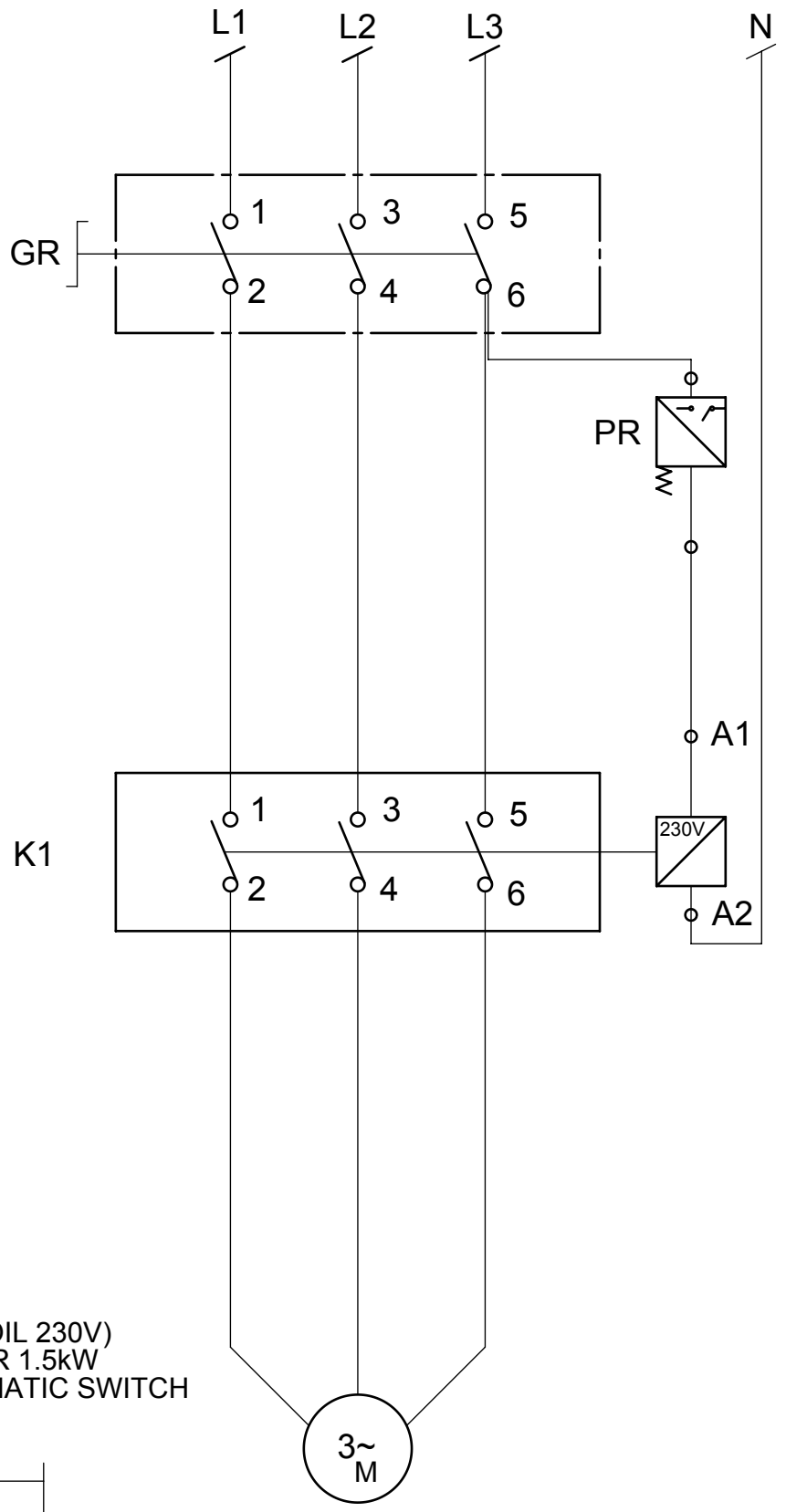
	Roughness Value	
	Met Umm	Grade No.
	50	N12
	25	N11
ROUGH	12.5	N10
	6.3	N 9
MED	3.2	N 8
FINE	1.6	N 7
S FINE	0.8	N 6
POLISH	0.4	N 5
LAP	0.2	N 4
	0.1	N 3
	0.05	N 2
	0.025	N 1

DRAWING PRACTICE TO AS 1100 - PROJECTION SYSTEM (UNLESS NOTED)

3RD ANGLE

ANGULARITY TOLERANCE < 0° 7'

CONCENTRICITY 0.1 mm



GR - CAM SWITCH
K1 - CONTACTOR (COIL 230V)
3~M - 3 PHASE MOTOR 1.5kW
PR - ELECTRO PNEUMATIC SWITCH

Det.	Part No.	Qty.	Name & Material	Sheet	Remark

Raw Mat. #	Drawn	Checked	Scale	Sub Ass'y
N/A	O.Dj.	S.R.	1:1	-
Mass in kg.	**Date**	**Date**	**Layout No.**	
N/A	18.5.2015.	18.5.2015.	-	

BROBO WALDOWN
AUSTRALIA PTY LTD

Mat/Spec	Titled	Drg No.	Revision
		306221	-

SHEET 1 OF 1 A4

BROBO GROUP© 34

A.C.N. **098 264 316**
A.B.N. **42 098 264 316**

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Victoria, AUSTRALIA.
Tel: 61 3 9792 9944
Fax: 61 3 9791 9955

Email: info@brobo.com.au
Website: www.brobo.com.au

APPENDIX - RISK/HAZARD ASSESSMENT

Hazard Type	Hazard Identification	Hazard Assessment	Hazard Management Strategies (Recommended for the Purchasing / Buyer / User)
Mechanical	Cutting/Severing	Med	▪ Keep machine correctly guarded and operational at all times. ▪ Keep hands clear of rotating blade when cutting.
	Entanglement	Low	▪ Do not wear loose jewellery, clothing or items that might get caught in the saw. ▪ Always keep the work area free of unnecessary objects or tools.
	Puncturing	Low	▪ Wear protective gloves when handling and /or changing the blades. ▪ Power source is to be isolated prior to opening electrical enclosures.
Electrical	Electrocution	Low	▪ Remove the power supply when any maintenance and/or repairs are to be undertaken. ▪ Power source is to be isolated prior to opening electrical enclosures.
Thermal	Burn	Low	▪ Under normal working conditions the saw and blade can become hot thus, do not touch. ▪ Be careful when handling work piece after cutting, as it might be hot.
Noise	-	Low/Med	▪ If the noise level becomes too high during a cutting cycle, stop the process and inspect for problem, if any are present.
Substance	-	Low	▪ Care must be taken as some coolants may be harmful or cause allergic reactions. Please read the labels carefully. ▪ Keep the work area clean and regularly remove excess coolant, oils and other impurities.
Hazardous Events	Unexpected Start Up	Low	▪ During a power failure, turn the machine off. ▪ If problem persists, please contact Brobo Group engineering department.
	Failure of Control System	Low	▪ If the ON/OFF switch fails, isolate the machine at the power source. ▪ Ensure that no fuses are blown and that all electrical circuitry are operating within normal parameters.
Additional Hazards	Operator Error	Low	▪ Ensure blades, clamps and materials are correctly secured.
	Impact	Low	▪ Wear safety glasses and hearing protection at all times during cutting cycle.

MACHINE TYPE: _____

SERIAL NO.: _____

RECEVING COMPANY: _____ (SAFETY OFFICER)