

SURFACE GRINDER

MODEL: G3104 / G3155

OPERATOR MANUAL

**PLEASE READ THIS MANUAL CAREFULLY
BEFORE OPERATION**

It is essential to give the serial number of your machine in
any order of repair parts to assure prompt and accurate service

GRIZZLY INDUSTRIAL, INC.

Thank you for purchasing the G3104/G3155 surface grinder. This machine can provide you with years of accurate service if properly cared for and operated. Please read this manual carefully before using your machine.

Warning: Failure to follow these warnings will result in serious personal injury:

1. Read and understand manual before starting machine.
2. Always wear eye protection.
3. Plug power cord into grounded outlet only.
4. Never place hands directly under cutter.
5. Keep all guards in place at all times.
6. Do not wear loose clothing, gloves or jewelry. Secure long hair and button all long sleeve shirts.
7. Disconnect power prior to servicing, setting up, adjusting, or changing speeds.
8. Do not expose to rain or dampness.
9. Do not operate under the influence of drugs or alcohol.
10. Make sure machine is properly adjusted and set up correctly before starting motor.
11. Before starting machine, make certain it rests securely on flat, level ground.
12. Never allow untrained people to use this machine.
13. Never use hands to hold work-piece during operation.
14. Be sure that bit is securely locked in the chuck before use.
15. Shut off power before leaving machine.
16. Keep Children and visitors away. All children and visitors should be kept a safe distance from work area.
17. Check damage parts. Before further use of the tool, a guard or other part that is damaged should be carefully checked to ensure that it will operate properly and perform its intended function check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.
18. Never leave tool running unattended. Turn power off. Don't leave tool until it come to a complete stop

This machine was designed for certain application only. We strongly recommend that this machine NOT be modified and /or used for any application other than for which it was designed. If you have any questions relative to its application DO NOT use the machine until you have had detail instruction from your dealer.

CLEANING:

1. Your machine has been coated with a heavy grease to protect it during shipment. This coating should be completely removed before operating the machine. Commercial degreaser, kerosene or similar solvent may be used to remove the grease from the machine, but avoid getting solvent on belts or other rubber parts.
2. After cleaning, coat all bright work with a light lubrication, Lubricate all points with medium consistency machine oil.

Main Specification:

Model	G3104	G3155
Max. width to be ground	6-1/2"	8-1/2"
Max. length to be ground	18-1/2"	21"
Max. height to be ground	12-1/2"	13"
Table size	6"x18"	8"x20"
Max. longitudinal travel of table	19"	22"
Max. cross travel of table	7"	9"
Max. distance, spindle to table	15-3/4"	17"
Down-feed dial per revolution, Graduation	0.05" 0.0002"	0.05" 0.0002"
Spindle diameter	1-1/4"	1-1/4"
Grinding wheel size (O.D x W x I.D)	7"x1/2"x1-1/4"	8"x3/4"x1-1/4"
Wheel spindle speed	3450rpm(60hz)	3450rpm(60hz)
Power of wheel head motor	2HP/2p	2HP/2p
Electric wiring	110v/220v pre-wired 110v 60Hz / single Phase	110v/220v pre-wired 220v 60Hz/3Ph
Coolant Tank (L x W x H)	19-1/2"x11"x9-7/8"	19-1/2"x11"x9-7/8"
Footprint	22"x22"	26-1/4"x26-1/4"
Machine weight	1518LBS	1838LBS
Gross weight	1738LBS	2058LBS
Machine dimension (L x W x H)	61"x39"x65"	66"x43"x67"
Package dimension (L x W x H)	45"x40"x73-1/2"	56"x45"x75"

All specification and designs are subject to change without notice.

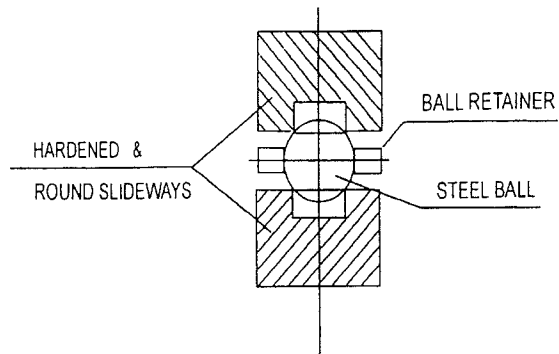


Fig. 2a

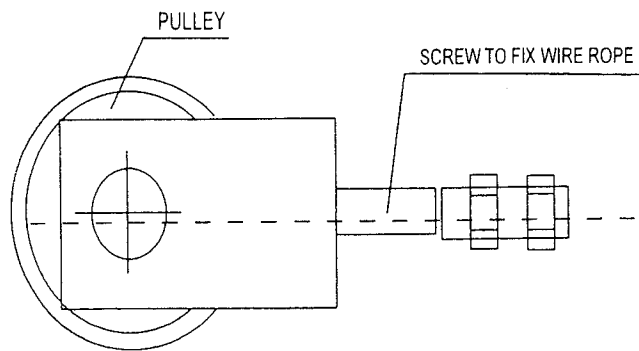


Fig 2b

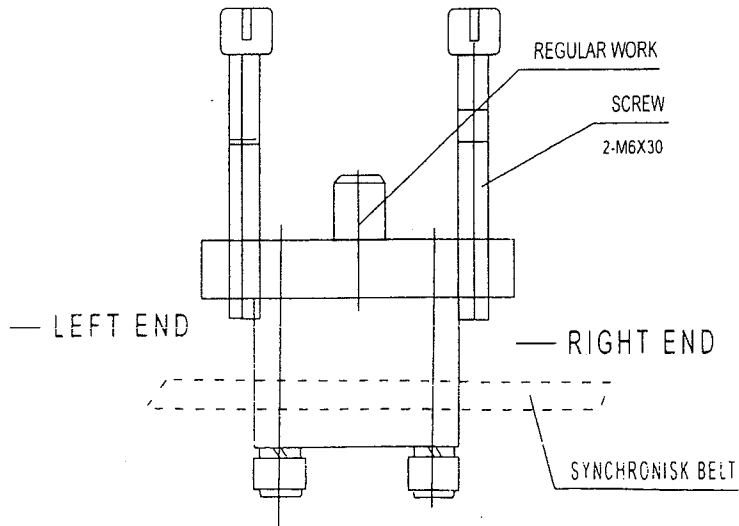


Fig. 2c

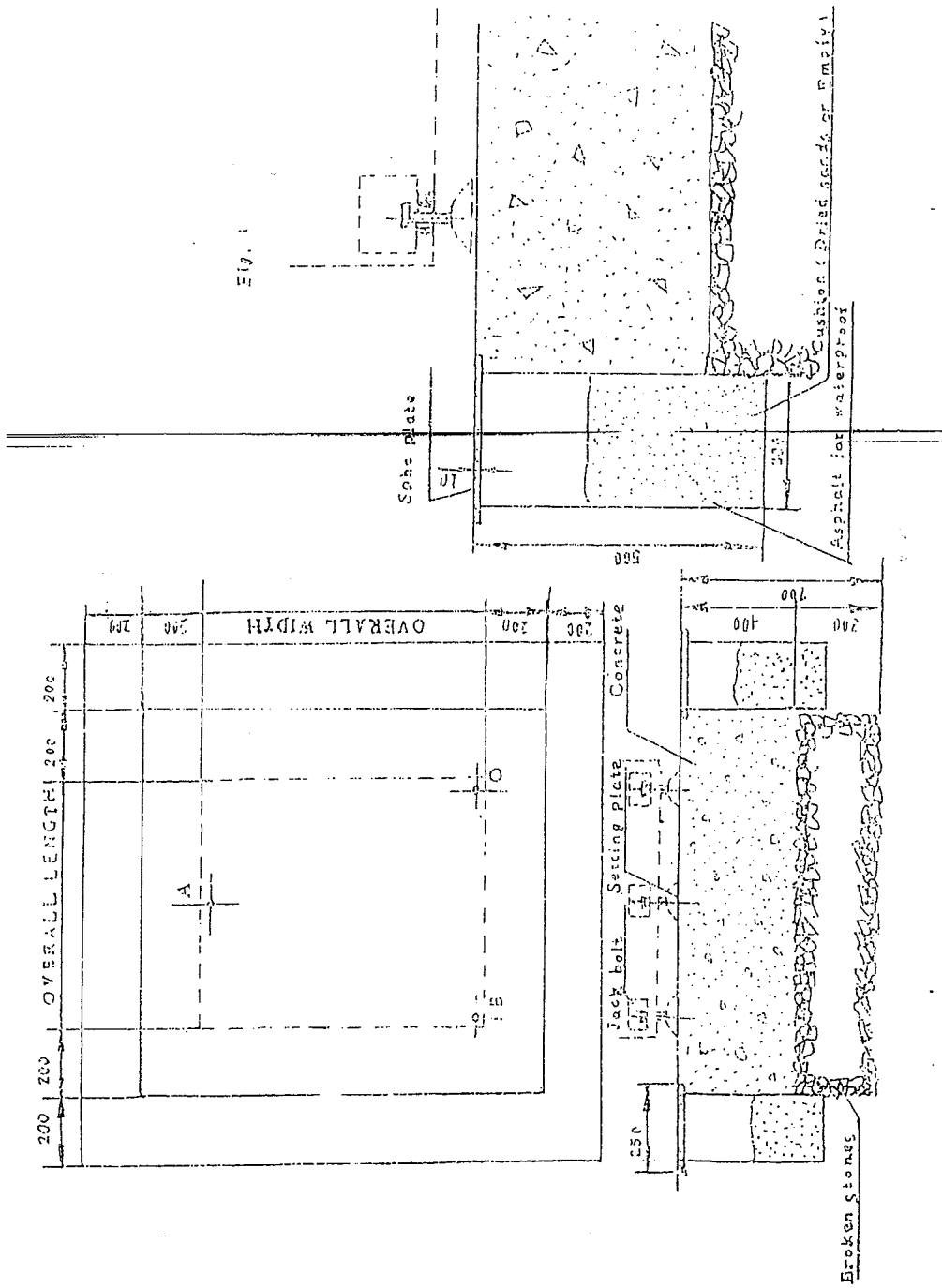


FIG. 1

Lubrication Instruction Chart

Lubrication points	Table guideways	Column guideways and Leadscrew	Saddle guideways and Leadscrew	
Interval	Automatically	Twice daily	Twice daily	
Instruction		Pull one shot Lubrication pump 5 times	Twice daily	
MOBIL	Vacouliue oil 1409			
SHELL	Tonna 33 or 27			
BP	BP Energol HP 20-c			

WHEEL

1. Wheel Fitting

1.1 Check the wheel surface carefully and tap it with a wood hammer, to ensure a clear sound. A crack inside of the wheel results in a sonant sound. Be sure to check for cracks carefully.

1.2 There are two pieces of paper washers on both sides of wheel and serve as elastic packing between wheel and flange. The packing washers must not be removed.

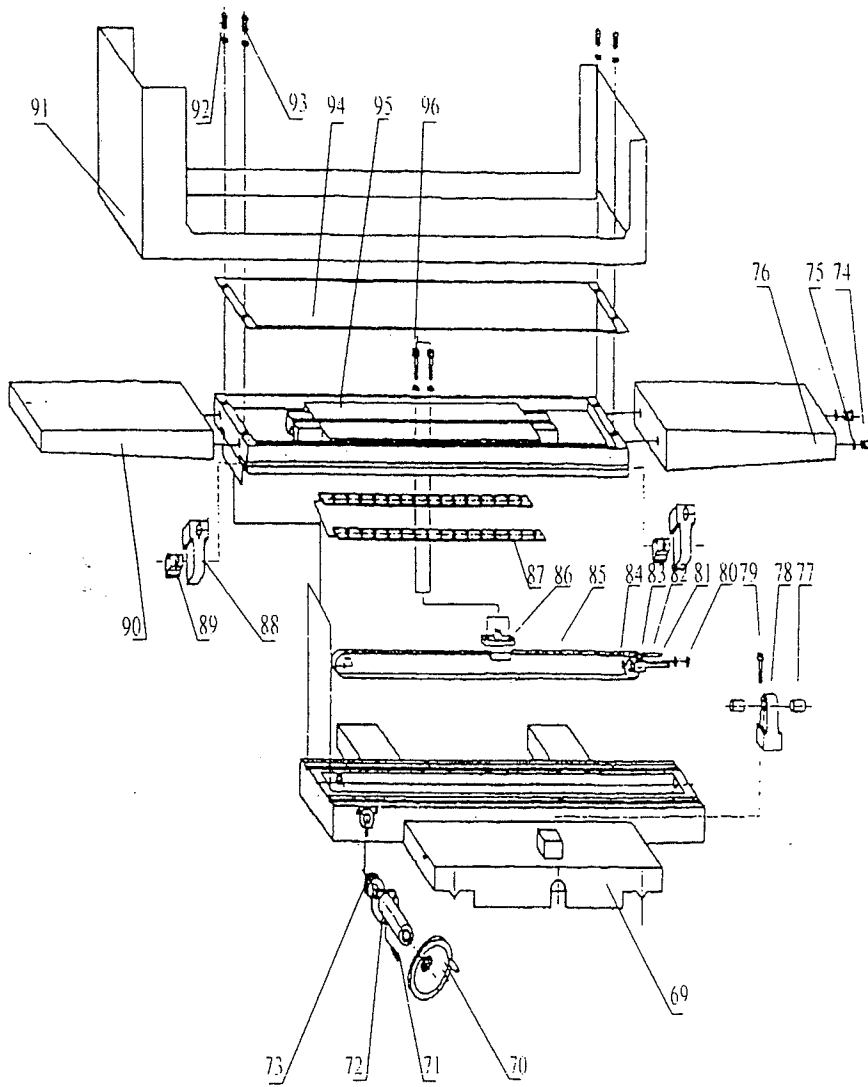
1.3 The flange fixing screws should be tightened gradually and diagonally. The wrench should be applied at least 4 to 6 times to each screw in turn.

1.4 When the wheel runs under coolant for some time the paper packing washers will be damp, so you must retighten the fixing screws again diagonally.

The wrench should be applied at least 4 to 6 times to each screw in turn.

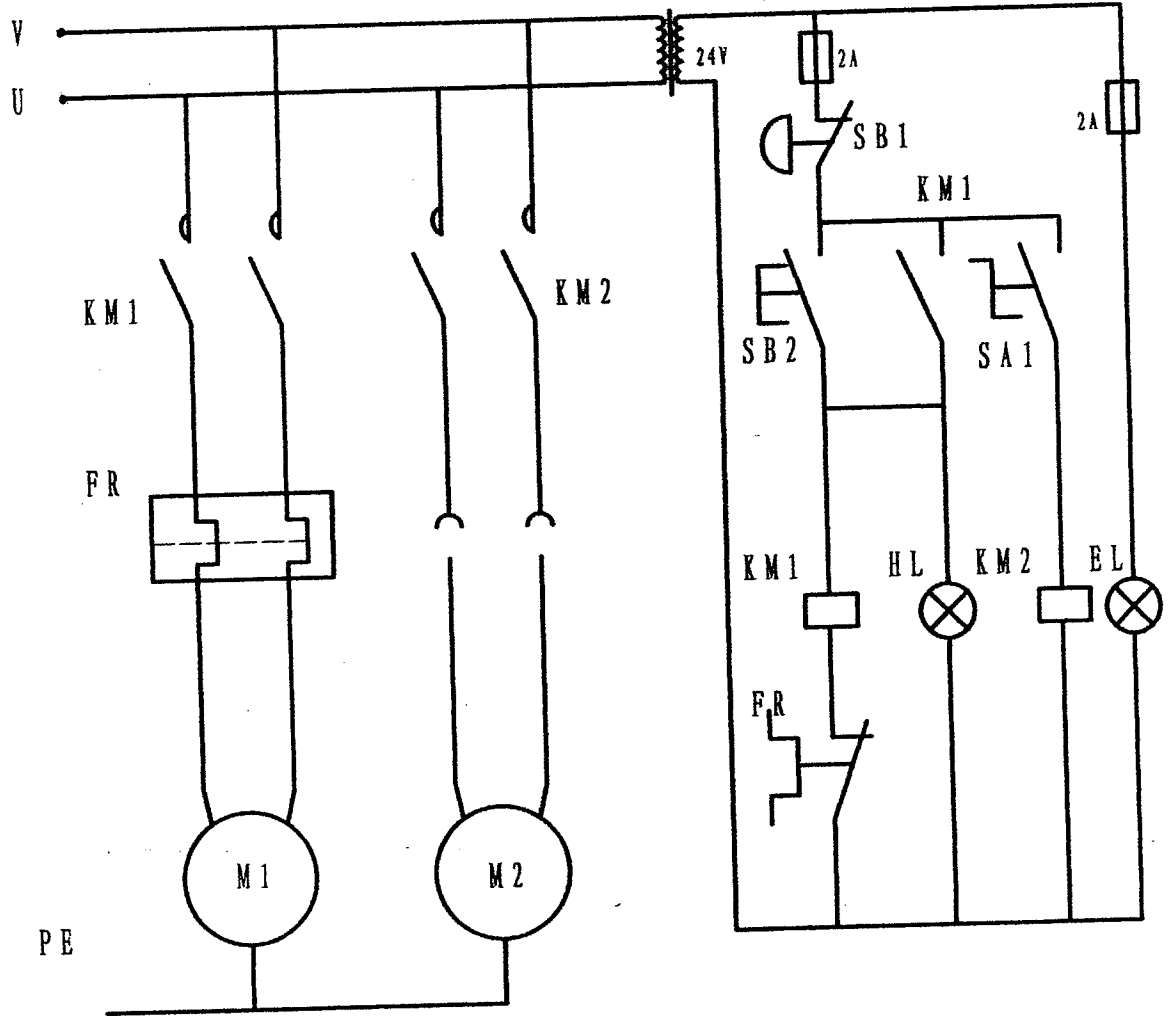
2. Wheel Complete

Check the following points before grinding:

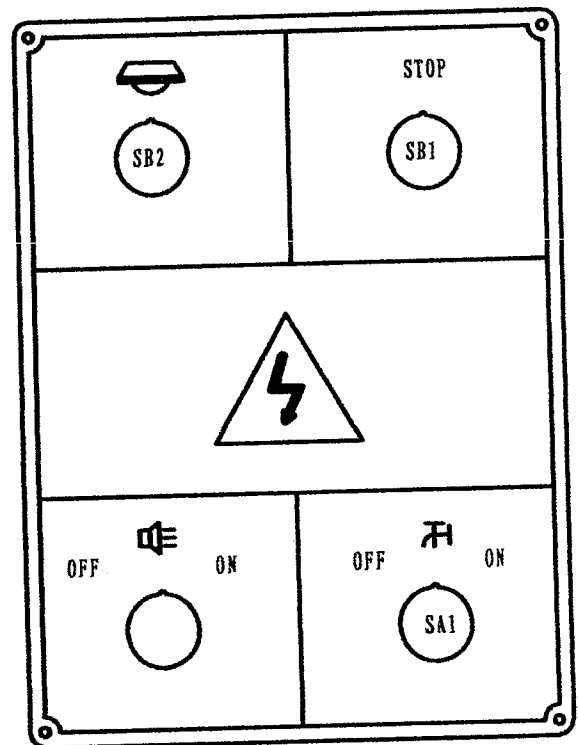


220V/110V

60Hz



SB1: Power Source "off" button
SB2: Grinding wheel "on" switch
SA1: Switch of coolant system
M1: Spindle motor 1.5KW
M2: Coolant motor 40W
EL: job lamp



- 2.1 Wheel guard is in its right position.
- 2.2 Turn the wheel without loading for a few minutes.

3. Wheel Balancing

3.1 How to balance the wheel:

Efficient balancing is essential to eliminate unnecessary and additional stress in the wheel. It is also unavoidable to obtain high quality results. Grinding accuracy and surface finish as well as life of grinding wheel, wheel spindle and bearings depend on some considerable extent on careful balancing. Static balancing will frequently for this purpose. The grinding wheel, together with the wheel. Flange, must be fitted to balance the arbor. Then place it on the wheel balancer, and balance the wheel, in the following way;

- 3.1.3 The wheel balancer must be leveled (Fig.4), check it by spirit.
- 3.1.4 Let the wheel oscillate, and find the center of gravity. Then mark with chalk. (Fig.9)
- 3.1.5 Fix the first balance weight "G" opposite to point "S" and set it. (Fig.10)
- 3.1.6 Place two correction weight "K" anywhere round the periphery, but at equal distance "a" from weight "G". (Fig.11)
- 3.1.7 Turn the wheel through 90 degree and see if it is in balance, if not, the correction weight "K" must be changed a place until the wheel is in balance, and no oscillation occur in every position. (Fig.12)
- 3.1.8 After balancing, the wheel, give a running test for at least five minutes, at full working speed.

3.1 Fitting the wheel flange:

Prior to placing the flange-mounted grinding wheel to the grinding wheel to the grinding spindle, flange cone bore and spindle taper must be absolutely clean, and the wheel is pushed by hand onto the spindle taper. Subsequently, tighten wheel flange securely with fixed bolt (Fig.7) release wheel flange from spindle taper with jacket bolt (Fig.8).

3.3 How to check the wheel vibration:

- 3.3.1 If vibration occurs it means the wheel balance is no good. Please rebalance it.

- 3.3.2 If the spindle still vibrates please, take down motor and spindle and check the rubber and coupling, if rubber is broken, change new one. If the couplings loosen, set them well.
- 3.3.3 The spindle can be used more than 10 years under normal operation. Please don't disassemble it without our advise.
- 3.3.4 Because of the spindle running at a very high speed the wheel must be balanced. Otherwise it will cause spindle vibration, owing to its wear. It is advisable to rebalance the wheels occasionally. Grinding wheel absorb humidity and coolant, therefore it is advisable not to start coolant supply when the wheel is nit running, otherwise the wheel will absorb liquid on bottom side only and make it out of balance. If the wheel is allowed to stand for any length of time, coolant will collect at the lowest point, unbalance will also be generated if the wheel is not allowed to idle after completing the grinding operation. So that idle running is essential to throw off coolant by centrifugal force.
- 3.4.1 The wheel can be dressed either by the diamond dresser on the chuck (Fig.13b) or on the parallel dressing attachment (Fig.13a), which is mounted beside the spindle carrier. The diamond tool is arranged at an angle to the center line of the wheel as shown on (Fig. 13a, 13b) so that when the diamond loses its keenness, as (Fig.13c) it can be turned on an angle, and another sharp edge is obtained as in (Fig.13d). When dressing the wheel, it begins from the middle of the width, as shown on (Fig.13e), due to two edges being worn out. If the dressing begins at the edges, there is danger of high pressure in the middle, than over stressing the diamond and shattering it. Light dressing, with more times, is better for the life of the grinding wheel and diamond, than a heavy dressing. Various degrees of roughness can be produced in the ground workpiece by varying the feed and speed of the diamond. If there is 0.2mm or 0.3mm stock removal it is advisable to roughen the wheel. This is done by feeding the diamond in about 0.03mm and let the diamond move quickly over the wheel. This will make the wheel bite well and the stock removal is good. If the workpiece is to be "finish-ground" to size, with the same wheel. The wheel must be dressed again. This time slowly, in two or three passes, with the

diamond feed only about 0.01mm. Experience has shown that, with highly accurate grinding, or better surface finish dressing with the diamond dresser which mounted on the magnetic chuck is better than that which is on the spindle housing (the former is more stable than later). The latter condition will cause light undulation in the surface of the wheel.

- 3.4.2 Sufficient coolant to contact point of wheel and the diamond is necessary.
- 3.4.3 Wheel speed, to pass through diamond, is between 250mm/min to 1000mm/min. For rough grinding, high speed is better.

GRINDING OPERATION

1. The grinding results obtained depend to very great degree on the choice of the correct grinding wheel and suitable operation:
 - 1.1 Stock removal efficiency:

For intensive stock removal a coarse grain (about 30-36) should be used. The wheel is dressed by passing the diamond over it quickly, so that the surface of the wheel is rough and bites well.
 - 1.2 Surface finish required:

If a fine finish is to be produced, a finer grain is required (40-80). The diamond in this case is passed slowly over the wheel, so as to break up the grain.
 - 1.3 Distortion of the workpiece: If the workpiece show too much distortion, when being ground, this means that the stock removal was too great and the longitudinal and cross movements of table too slow. Or the grinding wheel is blunt or "clogged".
 - 1.4 If undesirable burns and grinding cracks appear, this means that the wheel is too hard, or wheel blunt or "clogged".
2. Selection of suitable grinding wheels.

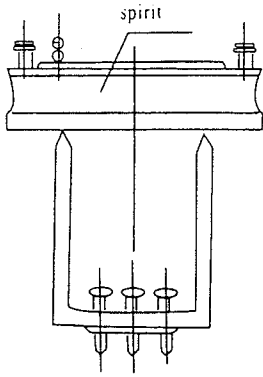


Fig. 4

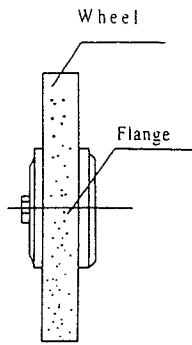


Fig. 5

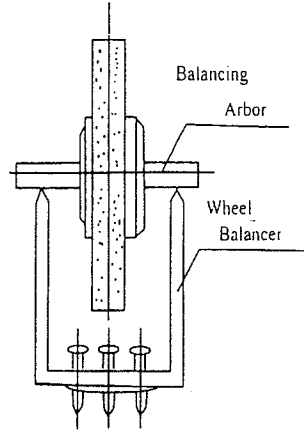
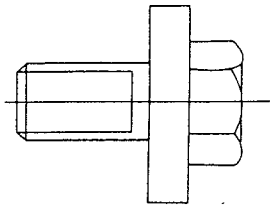
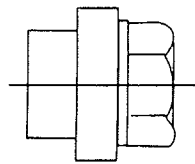


Fig. 6



Fixed Bolt

Fig. 7



Jacket Bolt

Fig. 8

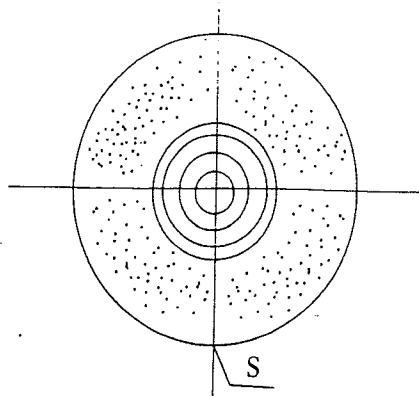


Fig. 8

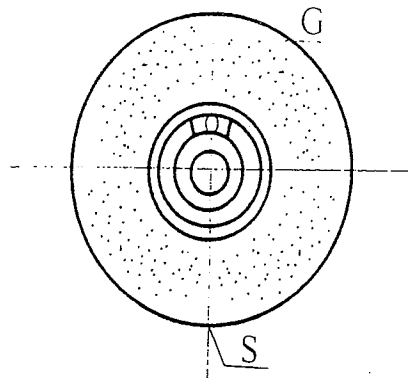


Fig. 10

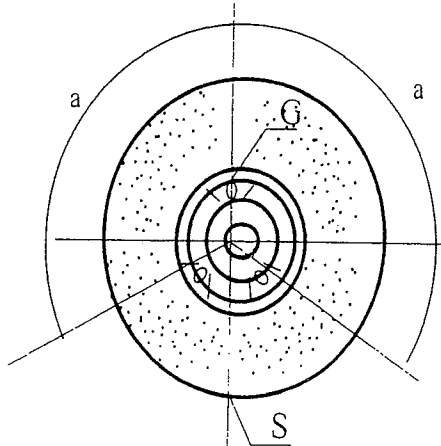


Fig. 11

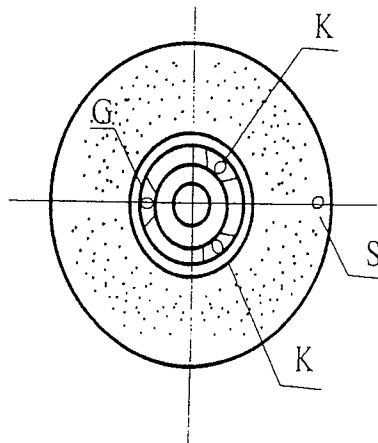


Fig. 12

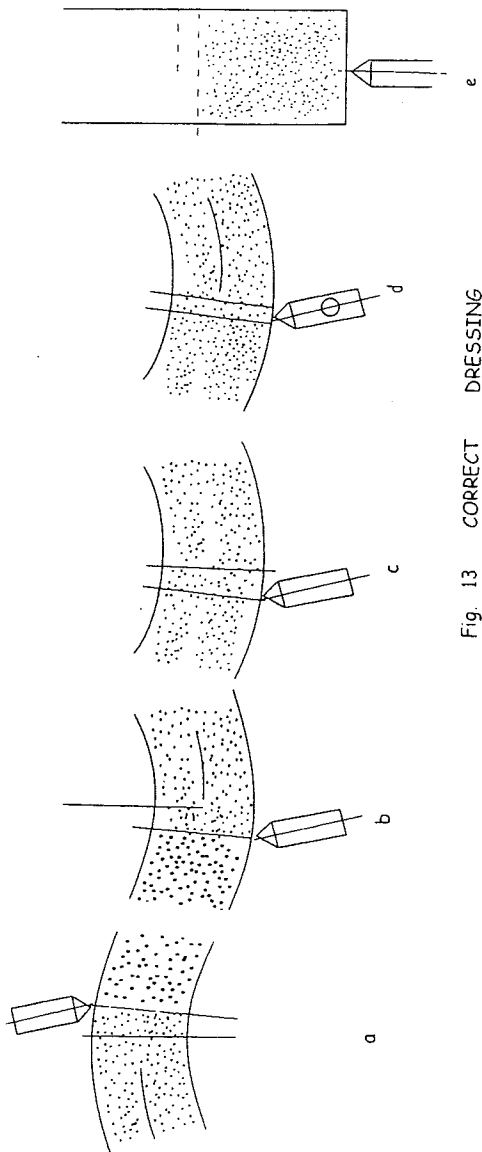


Fig. 13 CORRECT DRESSING



Fig. 14 INCORRECT DRESSING

2.1 Kinds of abrasive:

- A: For common steel grinding
- WA: For higher hardness materials grinding, such as heat-treated carbon steel, alloy steel etc.
- H: Suitable for higher hardness material particularly high-speed steel.
- C: For cast iron and non-ferrous grinding.
- GC: For super-hard grinding, such as tungsten carbide steel.

2.2 Grain size:

Coarse: 10, 12, 14, 16, 20, 24

Medium: 30, 36, 46, 54, 60

Fine: 70, 80, 100, 120, 150, 180

Grinding condition \ Grain Size	Coarse	Fine
Stock removal	much	Little
Surface roughness	coarse	Sine
Workpiece hardness	soft	Hard
Surface contacted	wide	Narrow
Diameter of the wheel	big	small

2.3 Grade: It indicates the strength of the bond which hold abrasive.

Soft: A-II

Medium: I -P

Hard: Q-Z

Grinding condition \ Grain	Soft	Hard
Workpiece hardness	hard	Soft
Surface contacted	wide	narrow
Movement of workpiece	slow	quick
Wheel speed	quick	slow

2.4 Structure: The structure number of a wheel refers to the relative spacing of the grains of abrasive. The larger the number, the wider the grain spacing.

Close: 0, 1, 2, 3, 4, 5

Medium: 6, 7, 8, 9

Wide: 10, 11, 12

Grinding Condition	Structure	Wide	Close
	Surface roughness	coarse	Fine
	Surface contacted	wide	Narrow
	Workpiece hardness	soft	hard

3. Wheel be recommended

Wheel Diameter		Under 205 mm	
Material be ground			
Carbon Steel	Under HRC 25	WA 46K or A 46K	
	Above HRC 25	WA 46J	
Alloy Steel	Under HRC 55	WA 46J	
	Above HRC 55	WA 46I	
Tool Steel	Under HRC 60	WA 46I	
	Above HRC 60	WA 46H	
Stainless Steel		WA 46J	
Cast Iron		C 46J	
Brass		C 30J	
Aluminum Alloy		C 30J	
Tungsten Carbide		GC 60-100H,I	
Glass		C 60K	
Marble		C 36M or GC 36M	

4. Choice of the Grinding Condition

4.1 Down feed of grinding wheel

Down Feed	Great	Small
Grinding resistance	great	small
Heat produced	much	less
Surface finish	rough	Fine
Wheel worn-out	much	little

4.2 Cross Feed

Cross Feed	Great	Small
Grinding resistance	great	small
Heat produced	less	much
Surface finish	rough	fine
Wheel worn-out	much	little

Rough grinding: 100-500mm/min. or under 1/2 of the wheel width. Fine grinding: under 50mm/min. or under 1/4 of the wheel width.

4.3 Table Longitudinal traverse:

Table Traverse	Quick	Slow
Grinding resistance	Quick	small
Heat produced	Less	much
Surface finish	rough	fine
Wheel worn-out	much	little

Suitable speeds of the table traverse: m/min

Workpiece Material	Soft steel	Heat-treated Steel	Tool steel	Cast Iron
Speed	6-15	30-50	6-30	16-20

4.4 Suitable peripheral speeds of wheel: 20-30w/sec.

	Wheel	Quick	Slow
Condition			
Grinding resistance		small	Great
Heat produced		much	Less
Surface finish		fine	Rough
Wheel worn-out		small	Great
Safety		bad	better

Material	Peripheral Speed
Steel	20-30m/sec
Cast Iron	20-18m/sec
Tungsten Carbide	8-18m/sec
Zinc alloy & Light Metal	25-30m/sec

The symbol of bonda listed below:

V: Vitrified
S: Silicate
B: Resinoid
R: Rubber
E: Shellac

COOLING THE WORKPIECE DURING GRINDING

Advantages of wet grinding, for most of the workpiece.

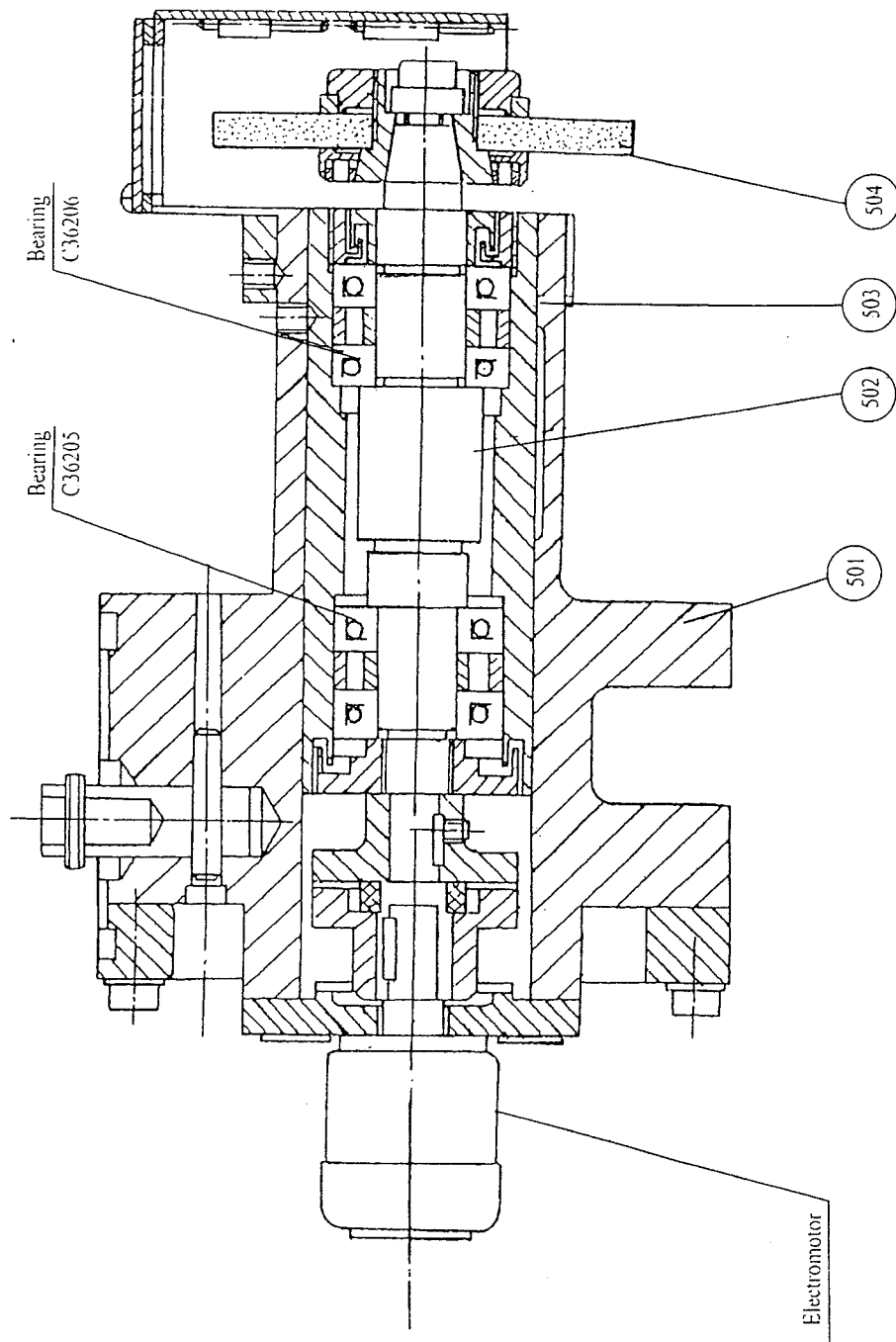
1. Reduce the possibility of distortion of the workpiece caused by heating.
2. Reduce the danger of burning.
3. Prevent wheel from clogging.
4. Shorter grinding times.
5. Longer the wheel life.
6. Protect the operator, machine and circumstances from grinding dust.
7. Clear transparent coolant is recommended to replace a milky one, because:
 - 7.1 The workpiece surface can easily be watched when it is begin ground.
 - 7.2 The grinding wheel can keep more of a bite and sharper, than the milky one.
8. The coolant should have an oil base. The mixing ratio should preferably be about oil: water=1:60-80. If less than 1:50 the excessive heat will make the workpiece distorted.
9. The coolant will gradually loose its effectiveness. Some will be lost as spray, some evaporates during grinding, and become thin. If it must be renewed or correct the mixing ratio by adding new oil.
10. The coolant delivered by a water pump to the wheel through a nozzle, is to prevent the wheel from clogging.
11. If beautiful surface finish is prefer, the automatic paper strip filter is recommended to be used to instead of the simple coolant system.

PERFECT SURFACE FINISH

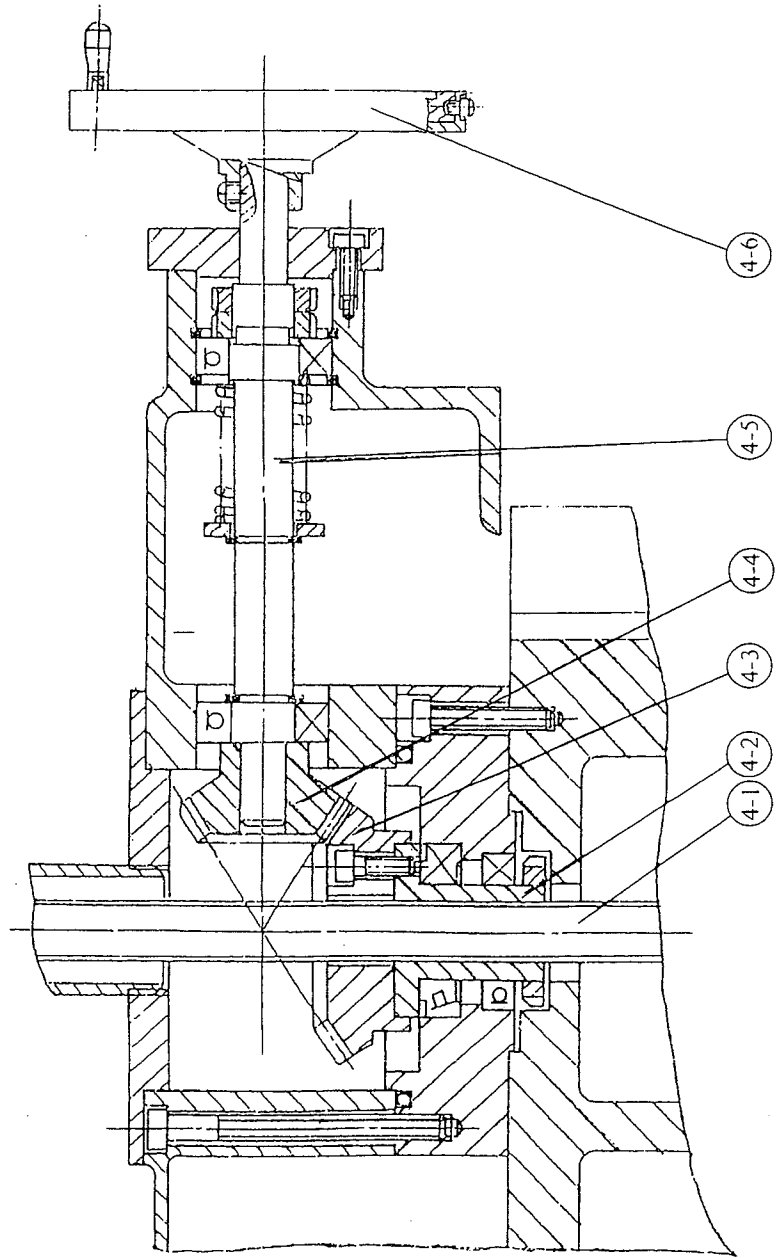
If there exist any one of the following items, the perfect surface

finish can not be obtained.

1. Wheel is too hard, or wheel is not correctly chosen.
2. Workpiece is not fixed well.
3. If it is dirty between the spindle taper and flange(adaptor) bore, it makes the wheel vibrate.
4. If you use an unqualified flange, such as poor concentricity and poor squareness.
5. Wheel and flange are not fixed well and slip, somewhat.
6. Use unbalanced wheel or the wheel is not balanced well.
7. Wheel be not well dressed.
8. The coupling between motor and spindle become loosen broken.
9. There is defective bearing in the spindle to motor.
10. Coolant mixing is improper, with too much oil. The correct ratio of oil: water=1:60-80.
11. The coolant is dirty. For getting a good surface finish the automatic paper strip filter attachment is recommended.



Col Umn And Spindle Fig.15



Elevating Mechanism Fig. 16

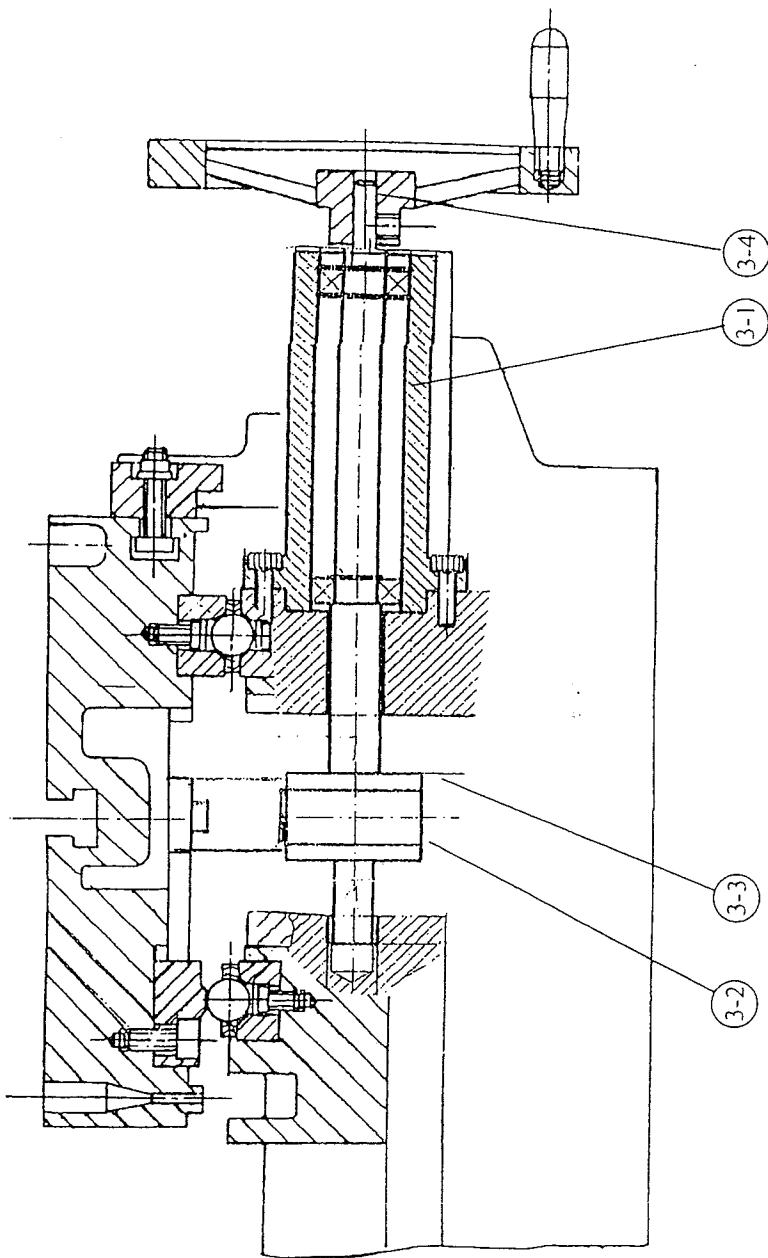
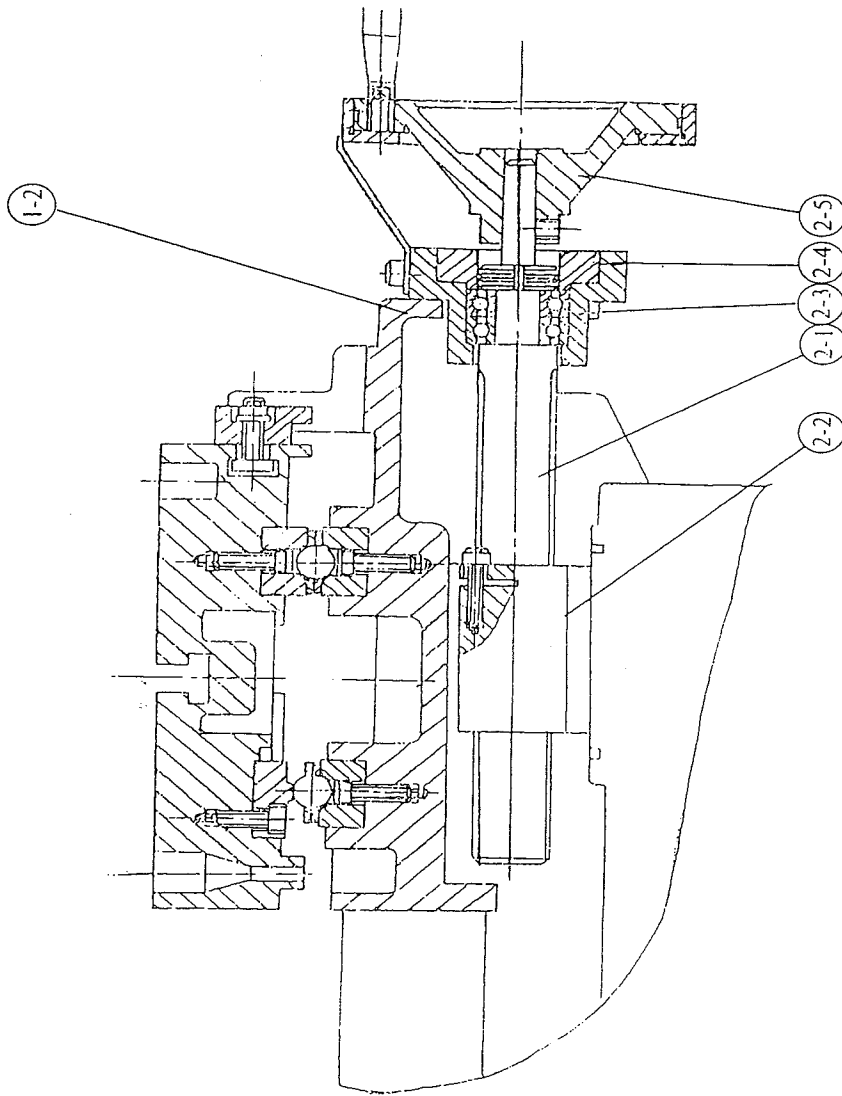


Table Traverse Mechanism
Fig.17



Cross feed mechanism Fig.18

MAGNETIC CHUCK

To ensure maximum precision, when grinding with a magnetic chuck, the following process must be taken. Take care of grinding the magnetic chuck, otherwise the machine table will be distorted. This will happen if the magnetic chuck, clamped to the table, does not have a flat contact surface.

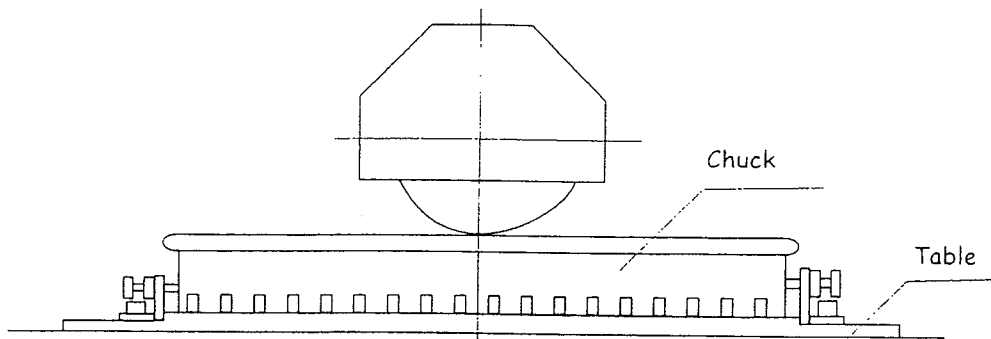


Fig. 19

1. The underside of the magnetic chuck must first be ground with great care to ensure this is flat sides, they are used to prevent chuck from moving only, in this way, chuck must not be switched on, wet grinding with max. Coolant volume and minimum wheel in feed is recommended to avoid excessive heating and the consequent surface inaccuracy.
2. Lightly grease the ground surface area of the machine table, and underside of the magnetic chuck, to for keeping it accurate.
3. Clamp the magnetic chuck on the machine table.

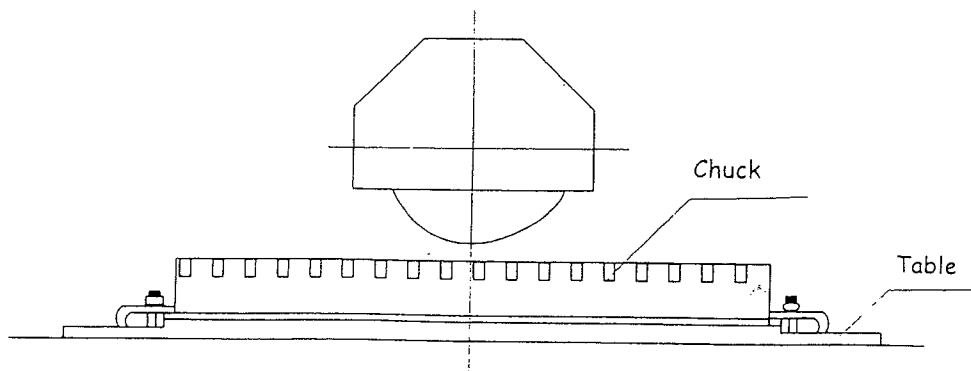


Fig. 20

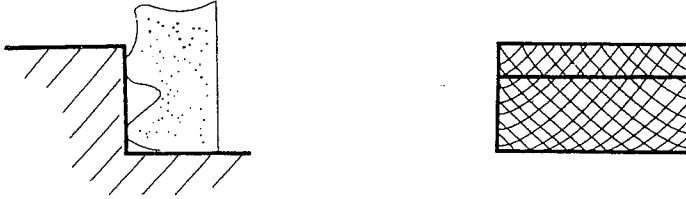
- 3.1 Rough grinding the chuck surface such grinding the underside of the chuck.
- 3.2 Switch on the magnetic chuck and fine grind the surface with 0.005mm wheel infeed.
- 3.3 Spark out grinding the surface with no infeed, 2 to 3 times passes the wheel over the chuck surface.

COMMON CASES IN SIDE GRINDING

1. Wheel and the workpiece have a smaller contact surface, in which case the efficiency is higher, and the surface roughness is better.



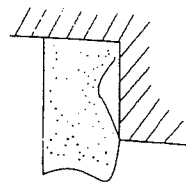
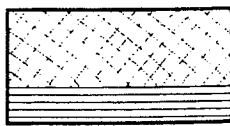
2. The wheel and the workpiece have two contact sections, and the surface of grinding is bad.



3. The wheel do not have the "Relief Angle", thus it contacts the whole face to the workpiece, cause the workpiece surface rough and rugged. Furthermore, it will cause workpiece burned and cracked.



4. The "Relief Angle" of the wheel is lower than the surface of the workpiece, so that the workpiece face becomes two sections, the upper part like those in (3) and the lower in (1).



5. If the spindle does not right angle with the work able, the side faces will be as shown on bellow.



TROUBLE SHOOTING

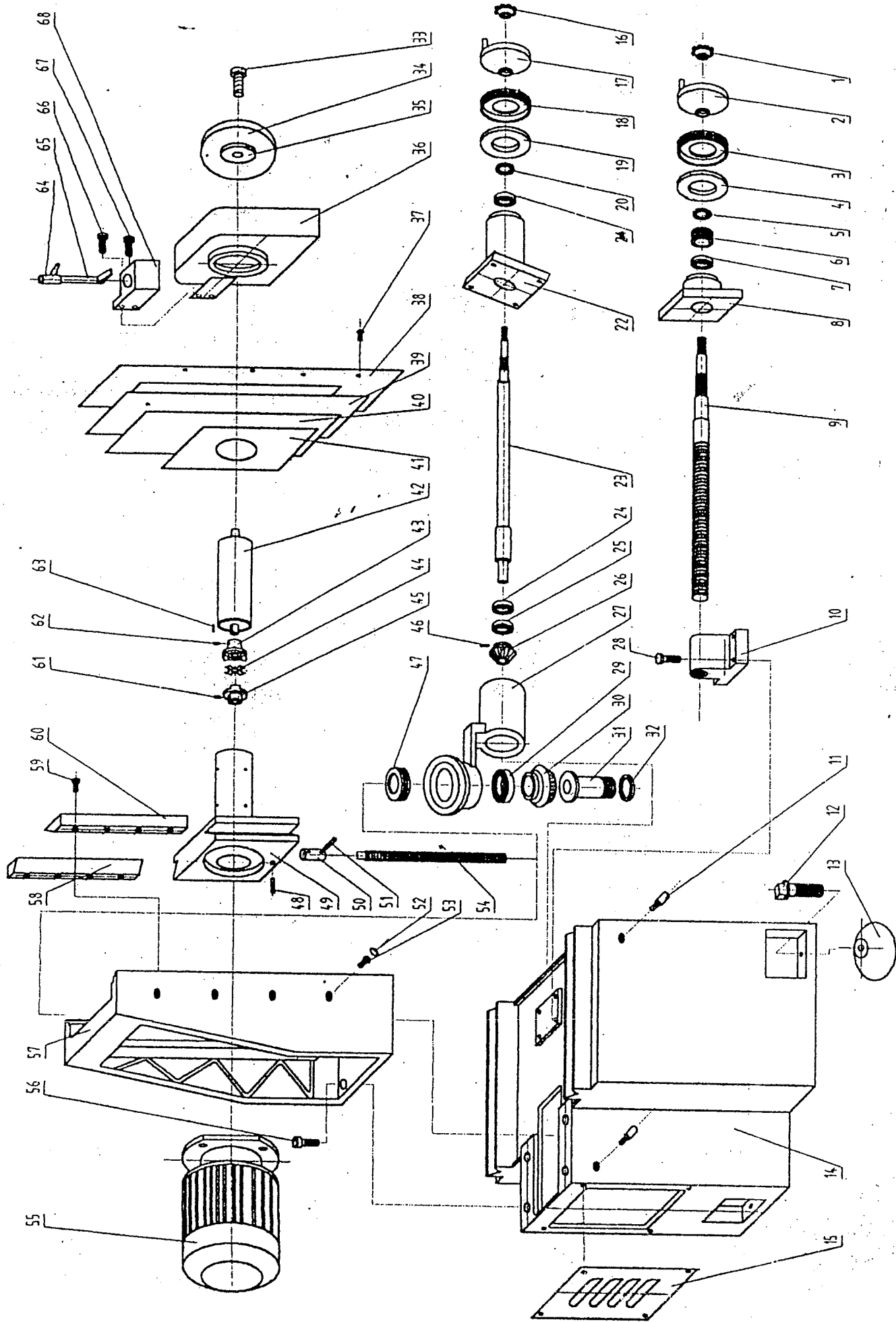
Grinding defects, Causes and Remedy			
NO.	Defects	Causes	Remedy
1		Wheel is unhomogeneous.	If wheel and flange can not be well balance, dress wheel on periphery and both sides and rebalance again, if can't make it balanced, replace a new wheel.
		Use improper wheel.	Select the proper one to suit the workpiece material.
		Wheel is not dressed correctly.	The dressing diamond must be turned an angle or replace new one if it is not contacted wheel with an edge.
			Diamond tool not firmly fixed.
		Too much play on the grinding spindle.	Re-adjust the spindle play by qualified technician.
		Too much play on wheel head guideways	Clean and adjust the gibbs

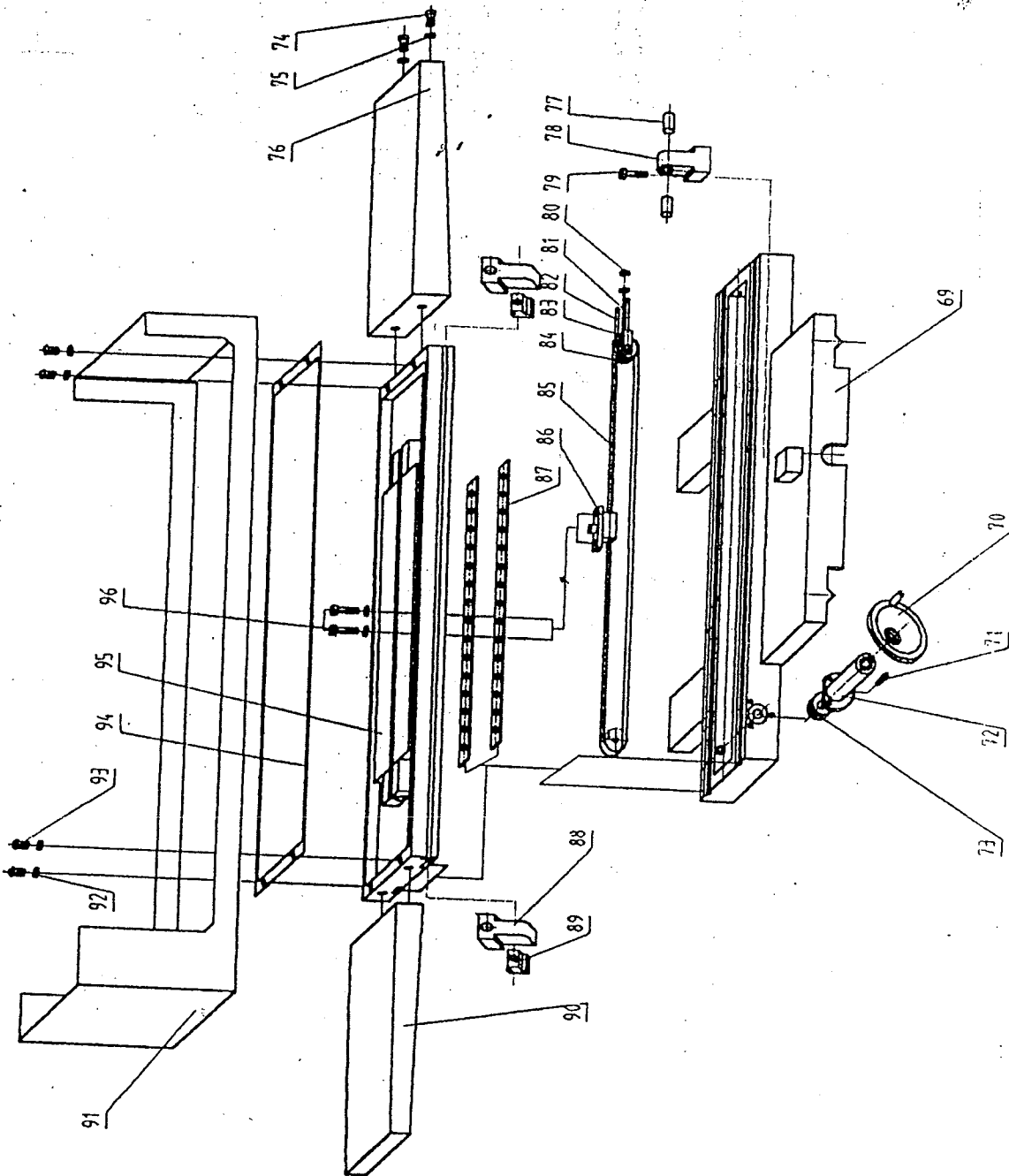
TROUBLE SHOOTING

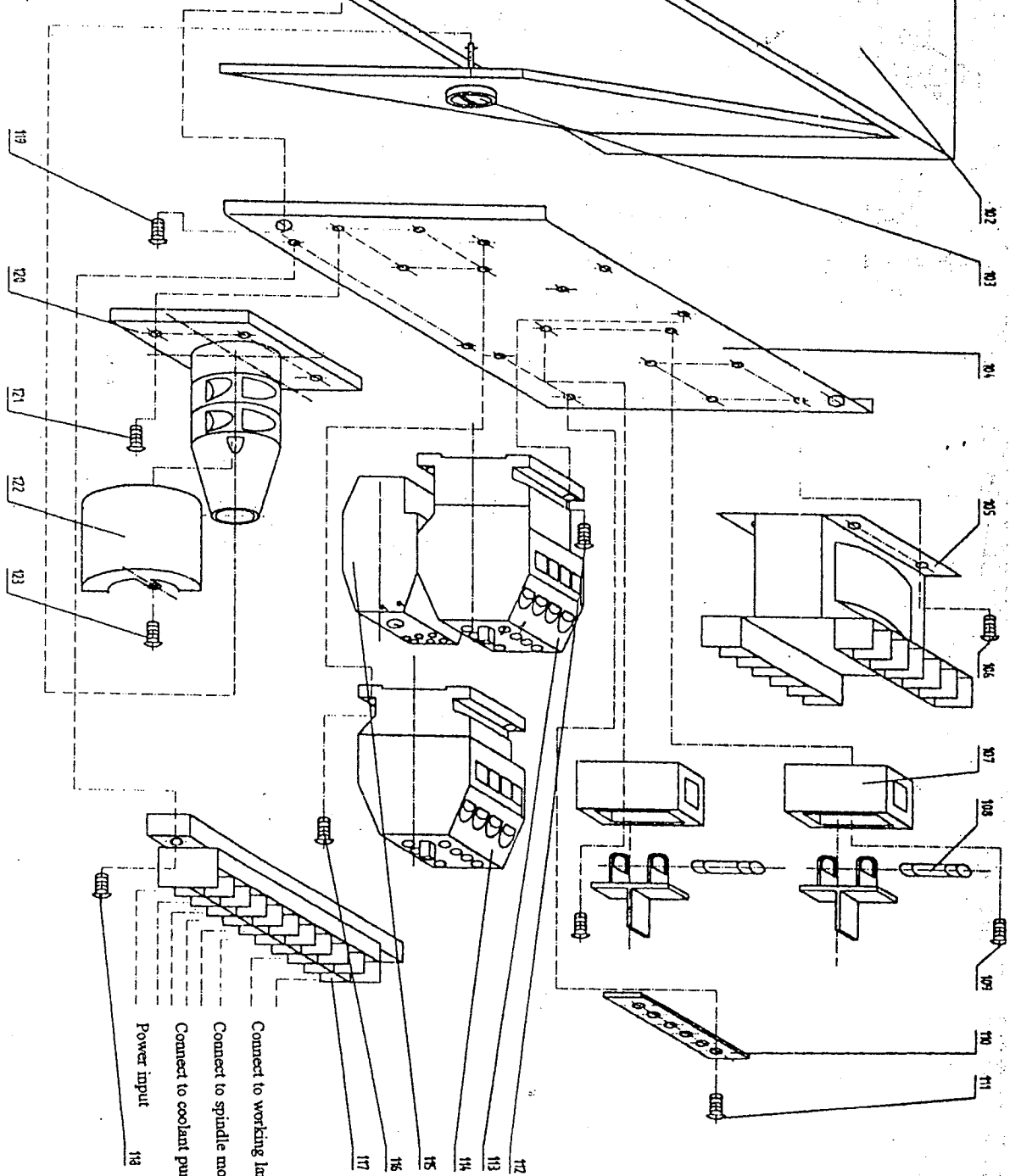
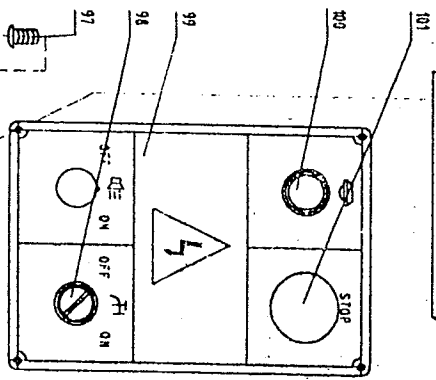
Grinding defects, Causes and Remedy			
NO.	Defects	Causes	Remedy
		Vibrations transferred to machine from outside, such as rough-running machines, travelling cranes of the building and street vehicles.	Improve the foundation, make it vibration free, place machine to another vibration free position.
		Couplings of motor and spindle loosen or rubber broken.	Fix couplings well, or replace new ones.
		Unsteady running of grinding wheel	3 phases voltage of power source are unbalance, please check and balance it or replace new spindle.
		Stock removal too great.	Reduce infeed
			Reduce cross feed
			Use softer or coarser wheel
			Increase table speed.
			Reduce infeed
			Roughen the wheel
			Check diamond of the dresser.

TROUBLE SHOOTING

Grinding defects, Causes and Remedy			
NO.	Defects	Causes	Remedy
2	Flutter Marks Appear in the form of small flat surface distributed over the surface of the workpiece unevenly.	Travelling cranes or hoist of the building Travelling vehicles in the building or street.	Improve the foundation. Change the position. Use anti-vibration plates.
3	Ray pattern parallel lines, hardly perceptible to the naked eye.	Grinding spindle bearings defective. Too much play on wheelhead guideways Wheel badly dressed.	See NO. 1 chatter marks.
4	Commas It appear the form of comma-shaped lines when grinding to get a high finish	Coolant too dirty. Grinding wheel chips off	Clean Coolant, or use automatic paper strip filter. Clean inside of the wheel cover. Choose proper wheel.







Connect to working lamp
 Connect to spindle motor
 Connect to coolant pump motor
 Power input 113

Parts List for G3104

S/N	P/N	Description	S/N	P/N	Description
1	P3104001	Star nut M10x40B	41	P3104041	Small guard
2	P3104002	Handle Ø16x160	42	P3104042	Grinding head
3	P3104003	Dial	43	P3104043	Motor clutch
4	P3104004	Indicate ring	44	P3104044	Cross pad
5	P3104005	Round nut M18x1.5	45	P3104045	Clutch
6	P3104006	Nut M40x1.5	46	P3104046	Pin Ø6x30
7	P3104007	Bearing 6103	47	P3104047	Bearing 180108
8	P3104008	Bearing housing	48	P3104048	Pin Ø6
9	P3104009	Lead screw	49	P3104049	Grinding head body
10	P3104010	Cross screw nut 27-601/1	50	P3104050	Adaptor sleeve
11	P3104011	Lifting bolt	51	P3104051	Pin Ø5
12	P3104012	Floor bolt	52	P3104052	Rubber cover
13	P3104013	Iron pad	53		
14	P3104014	Bed	54	P3104054	Lifting lead screw
15	P3104015	Rear cover	55	P3104055	Motor YS-80-22
16	P3104016	Star nut M10x40B	56	P3104056	Screw M8X30
17	P3104017	Handle Ø14x160	57	P3104057	Column
18	P3104018	Dial	58		
19	P3104019	Indicate ring	59	P3104059	Screw GB70 M12X35
20	P3104020	Round nut M16x1.5	60		
21	P3104021	Bearing 6103	61	P3104061	Screw
22	P3104022	Bearing housing	62	P3104062	Screw GB77 M6X10
23	P3104023	Shaft	63	P3104063	Key 6X20
24	P3104024	Bearing 6204	64	P3104064	Switch 3/8
25	P3104025	Bearing 6204	65	P3104065	Water tube 15WG
26	P3104026	Small gear	66	P3104066	Screw GB70 M6X20
27	P3104027	Gear housing	67	P3104067	Screw GB70 M6X20
28	P3104028	Screw	68	P3104068	Water tube support
29	P3104029	Bearing 8108	69	P3104069	Plate
30	P3104030	Big gear	70	P3104070	Handle wheel
31	P3104031	Lifting nut 12-601/2	71	P3104071	Screw M8X30
32	P3104032	Round nut M39x1.5	72	P3104072	Handle wheel support
33	P3104033	Fixing screw	73	P3104073	Fix wheel
34	P3104034	Grinding wheel 170x13x32	74	P3104074	Screw GB70 M10X10
35	P3104035	Grinding wheel kit	75	P3104075	Spring pad M10
36	P3104036	Grinding wheel guard	76	P3104076	Right plate
37	P3104037	Screw M6x10	77	P3104077	Trip dog
38	P3104038	Large guard	78	P3104078	Block
39	P3104039	Second guard	79	P3104079	Screw GB70 M8X25
40	P3104040	Third guard	80	P3104080	Nut M10

81	P3104081	Screw GB70 M10X80	124	P3104124	Working lamp
82	P3104082	Pin 6X80	125	P3104125	Permanent magnetic chuck
83	P3104083	Pulley support			
84	P3104084	Pulley			
85	P3104085	Timing belt			
86	P3104086	Clamping kit support			
87	P3104087	Steel ball and support			
88	P3104088	Trip dog			
89	P3104089	Block			
90	P3104090	Left plate			
91	P3104091	Water proof guard			
92	P3104092	Spring pad			
93	P3104093	Screw M6X12			
94	P3104094	Pad			
95	P3104095	Table			
96	P3104096	Screw GB70 M8X50			
97	P3104097	Screw M5X8			
98	P3104098	Switch for coolant pump			
99	P3104099	Electrical panel			
100	P3104100	Button for spindle			
101	P3104101	Stop button			
102	P3104102	Electrical cabinet			
103	P3104103	Power switch			
104	P3104104	Mounting plate			
105	P3104105	Transformer			
106	P3104106	Screw M5X10			
107	P3104107	Fuse			
108	P3104108	Fuse core			
109	P3104109	Screw M5X12			
110	P3104110	Ground connection plate			
111	P3104111	Screw M5X10			
112	P3104112	Screw M5X12			
113	P3104113	Contactactor			
114	P3104114	Contactactor			
115	P3104115	Heat relay			
116	P3104116	Screw M5X10			
117	P3104117	Patching panel			
118	P3104118	Screw M5X16			
119	P3104119	Screw M5X10			
120	P3104120	Power switch housing			
121	P3104121	Screw M6X10			
122	P3104122	Power switch protection cover			
123	P3104123	Screw M6X16			

Parts List for G3155

S/N	P/N	Description	S/N	P/N	Description
1	P3155001	Star nut M10x40B	41	P3155041	Small guard
2	P3155002	Handle Ø16x160	42	P3155042	Grinding head
3	P3155003	Dial	43	P3155043	Motor clutch
4	P3155004	Indicate ring	44	P3155044	Cross pad
5	P3155005	Round nut M18x1.5	45	P3155045	Clutch
6	P3155006	Nut M40x1.5	46	P3155046	Pin Ø6x30
7	P3155007	Bearing 6103	47	P3155047	Bearing 180108
8	P3155008	Bearing housing	48	P3155048	Pin Ø6
9	P3155009	Lead screw	49	P3155049	Grinding head body
10	P3155010	Cross screw nut 27-601/1	50	P3155050	Adaptor sleeve
11	P3155011	Lifting bolt	51	P3155051	Pin Ø5
12	P3155012	Floor bolt	52	P3155052	Rubber cover
13	P3155013	Iron pad	53		
14	P3155014	Bed	54	P3155054	Lifting lead screw
15	P3155015	Rear cover	55	P3155055	Motor YS-80-22
16	P3155016	Star nut M10x40B	56	P3155056	Screw M8X30
17	P3155017	Handle Ø14x160	57	P3155057	Column
18	P3155018	Dial	58		
19	P3155019	Indicate ring	59	P3155059	Screw GB70 M12X35
20	P3155020	Round nut M16x1.5	60		
21	P3155021	Bearing 6103	61	P3155061	Screw
22	P3155022	Bearing housing	62	P3155062	Screw GB77 M6X10
23	P3155023	Shaft	63	P3155063	Key 6X20
24	P3155024	Bearing 6204	64	P3155064	Switch 3/8
25	P3155025	Bearing 6204	65	P3155065	Water tube 15WG
26	P3155026	Small gear	66	P3155066	Screw GB70 M6X20
27	P3155027	Gear housing	67	P3155067	Screw GB70 M6X20
28	P3155028	Screw	68	P3155068	Water tube support
29	P3155029	Bearing 8108	69	P3155069	Plate
30	P3155030	Big gear	70	P3155070	Handle wheel
31	P3155031	Lifting nut 12-601/2	71	P3155071	Screw M8X30
32	P3155032	Round nut M39x1.5	72	P3155072	Handle wheel support
33	P3155033	Fixing screw	73	P3155073	Fix wheel
34	P3155034	Grinding wheel 170x13x32	74	P3155074	Screw GB70 M10X10
35	P3155035	Grinding wheel kit	75	P3155075	Spring pad M10
36	P3155036	Grinding wheel guard	76	P3155076	Right plate
37	P3155037	Screw M6x10	77	P3155077	Trip dog
38	P3155038	Large guard	78	P3155078	Block
39	P3155039	Second guard	79	P3155079	Screw GB70 M8X25
40	P3155040	Third guard	80	P3155080	Nut M10

81	P3155081	Screw GB70 M10X80	124	P3155124	Working lamp
82	P3155082	Pin 6X80	125	P3155125	Permanent magnetic chuck
83	P3155083	Pulley support			
84	P3155084	Pulley			
85	P3155085	Timing belt			
86	P3155086	Clamping kit support			
87	P3155087	Steel ball and support			
88	P3155088	Trip dog			
89	P3155089	Block			
90	P3155090	Left plate			
91	P3155091	Water proof guard			
92	P3155092	Spring pad			
93	P3155093	Screw M6X12			
94	P3155094	Pad			
95	P3155095	Table			
96	P3155096	Screw GB70 M8X50			
97	P3155097	Screw M5X8			
98	P3155098	Switch for coolant pump			
99	P3155099	Electrical panel			
100	P3155100	Button for spindle			
101	P3155101	Stop button			
102	P3155102	Electrical cabinet			
103	P3155103	Power switch			
104	P3155104	Mounting plate			
105	P3155105	Transformer			
106	P3155106	Screw M5X10			
107	P3155107	Fuse			
108	P3155108	Fuse core			
109	P3155109	Screw M5X12			
110	P3155110	Ground connection plate			
111	P3155111	Screw M5X10			
112	P3155112	Screw M5X12			
113	P3155113	Contactactor			
114	P3155114	Contactactor			
115	P3155115	Heat relay			
116	P3155116	Screw M5X10			
117	P3155117	Patching panel			
118	P3155118	Screw M5X16			
119	P3155119	Screw M5X10			
120	P3155120	Power switch housing			
121	P3155121	Screw M6X10			
122	P3155122	Power switch protection cover			
123	P3155123	Screw M6X16			

PACKING LIST

Customer:

No:

Date:

Name	Qt	Name	Qt
Horizontal grinder With rectangular table	1	Puller for adaptor	1
		Flange	1
Tool box	1	Wheel	1
Screw-driver 100 × 6	1	Pipe dram	1
Cross screw-drive 100 × 6	1	Wash pipe	1
Open-end wrench 12 × 14 17 × 19 22 × 24	1	Flange wrench	1
	1	Setting plate	3
	1	Anchor bolt(with nut)	3
Inner hexagon spanner 3 4 5 6 8 10 12	1	Wheel dresser	1
	1		
	1		
	1		
	1		
	1		
	1		
Sheath for inner hexagon spanner	1		
Balancing stand	1		
Adjusting screw for balancing stand	1		
Balancing shaft	3		
Customer's check		Packer	

Person in charge:

Check: