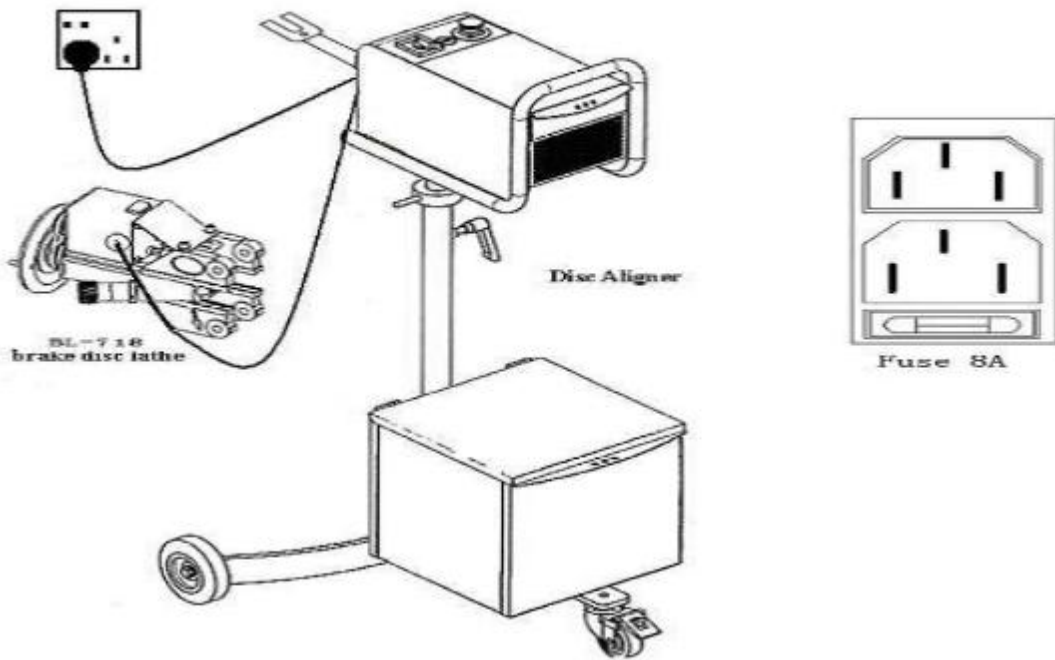


Disc Aligner DM-100

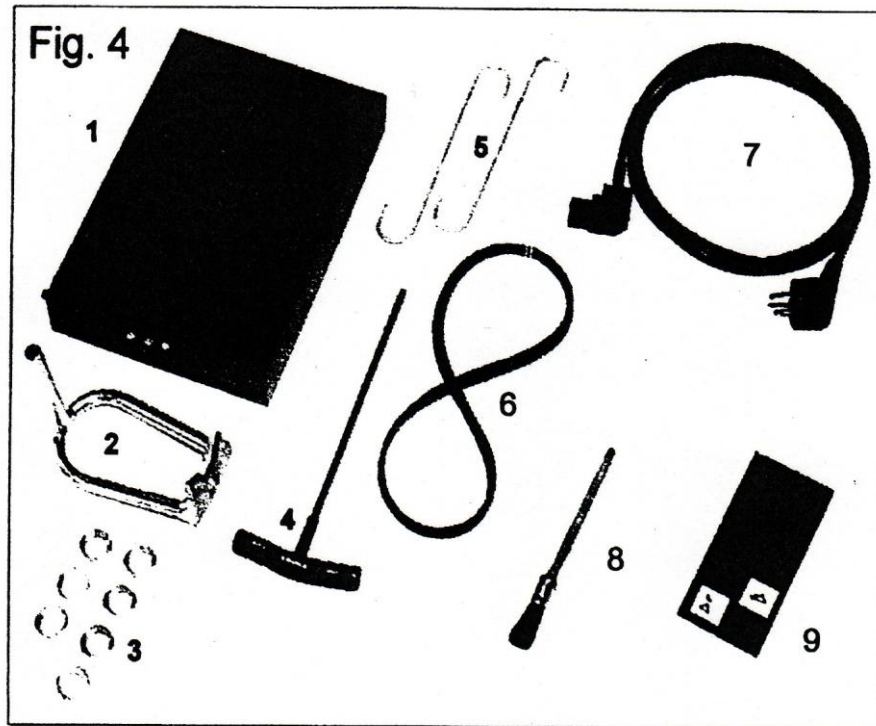
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Summary



Summary

1. Drawer
2. Drive adapter
3. Conical Ring
4. Hex T-spanner
5. S-hook
6. Silencer band
7. Cable
8. Brush
9. Tool bits



Safety regulations

- 1、 Follow the standard safety regulations for working with electrical equipment and the regulations provided in this manual. Store this manual carefully with the equipment.
- 2、 The brake disc lathe may only be operated by persons who have both read this manual and are authorized to carry out maintenance on the brakes of a vehicle. Be aware of what you are working with: use your common sense.
- 3、 Do not use the equipment if you are either tired or ill.
- 4、 Always use the BL-718 brake disc lathe in combination with the DM-100 drive unit.
- 5、 Only use the BL-718 brake disc lathe and DM-100 drive unit as stipulated in this manual.
- 6、 Do not overload the brake disc lathe.

Follow the electrical specifications as stated on the information plates on both devices.

- 7、 Keep the workplace tidy. A disorderly working environment can lead to accidents.
- 8、 If the equipment is not being used, it should be packed away out of children's reach.
- 9、 Children must be kept clear of the equipment when it is being used.

- 10、 **NO-one else should be allowed to come into contact with the equipment or cables; keep them clear of the working area.**
- 11、 **Do not use the equipment in an environment where**
 - there is a danger of explosion
 - it is very humid or wet.
- 12、 **Do not leave the electrical equipment out in the rain.**
- 13、 **Always follow the safety regulations and the (dis)assembly instructions provided by the car manufacturer when(dis)assembling vehicle parts.**
- 14、 **0.5m working area is required both next to the DM-100 drive unit and behind the BL-718 break disc lathe**
- 15、 **Do not come too close to the moving parts.**
- 16、 **Do not wear baggy clothing or jewelry. These could get caught up in the moving parts.**
- 17、 **Long hair should be kept in place with hairnet.**
- 18、 **The BL-718 drive unit must be equipped with a safety guard, as specified in this manual.**
- 19、 **Make sure that the surface of the working area is level.**
- 20、 **Do not move the equipment while it is running.**
- 21、 **Never remove the plug from the wall socket by pulling the cable.**
- 22、 **While turning on the lathe, there is a danger that hot chips of metal may either fall or shoot off.**
- 23、 **The accompanying risk of fire ,injury of burns can be prevented by taking the following safety precautions:**
 - a. **wear safety goggles;**
 - b. **wear protective clothing;**
 - c. **wear particular gloves;**
 - d. **wear a dust mask;**
 - e. **check that a fire extinguisher is present.**

- 24、 If possible, always use the rubber ring on the outer ridge of the brake disc. This will limit the level of vibration and/or noise.
- 25、 In the interests of personal safety, only use the accessories and/or attachments specified either in the manual.
- 26、 Supplier cannot be held liable for customized attachments or modifications to the equipment.
- 27、 Check damaged.
- 28、 Parts. Prior to using the equipment, damaged safety guards of other parts should be checked in order to ascertain that they still function properly.
- 29、 Check the alignment of the moving parts and their connections, possible part faults, the set-up and indeed any other conditions that might have an influence on the operation of the equipment.
- 30、 If not otherwise indicated in the manual, damaged safety guards or other parts must be repaired or replaced by a recognized technician.
- 31、 Defective switches should be replaced by a recognized technician.
- 32、 Do not use the equipment if the on-off switch is defective.
- 33、 In the interests of effectiveness and safety, keep the equipment sharp and clean.
- 34、 Handgrips should be kept dry, clean and free of oil and grease.
- 35、 Only maintain the as described in this manual
- 36、 General repairs, repairs to damaged parts, as well as any other of maintenance or preventative maintenance should only be carried out by a recognized technician.
- 37、 (possessing thorough electrical and mechanical knowledge and experience)。
- 38、 Repairs and maintenance may only be carried out on the equipment if it has been switched off and if the plug has been removed from the mains.
- 39、 Always use original parts in carrying out repairs or maintenance.

Installation

Fig. 8

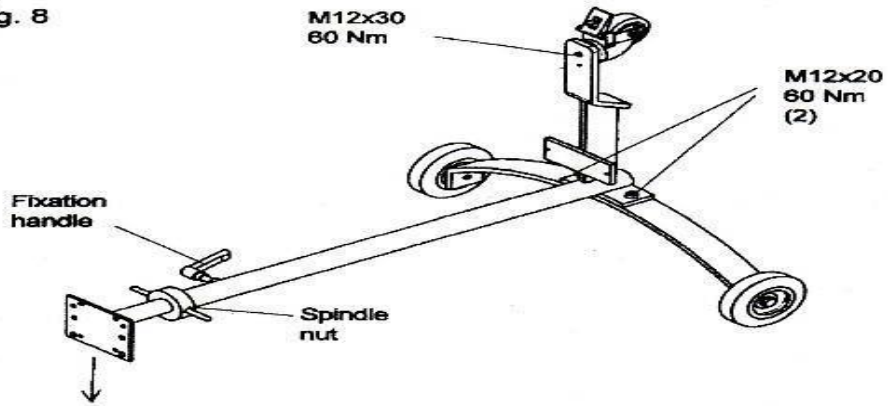
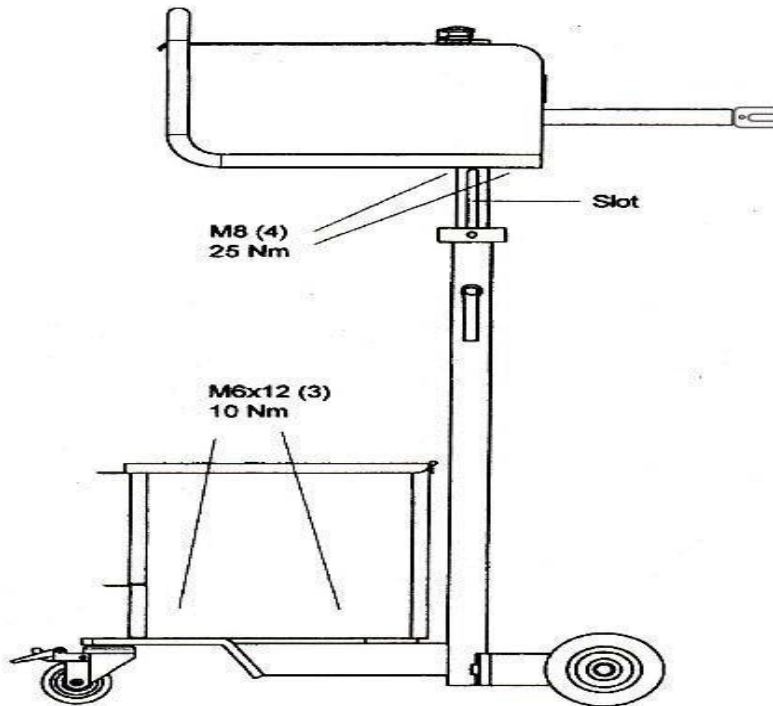


Fig. 9

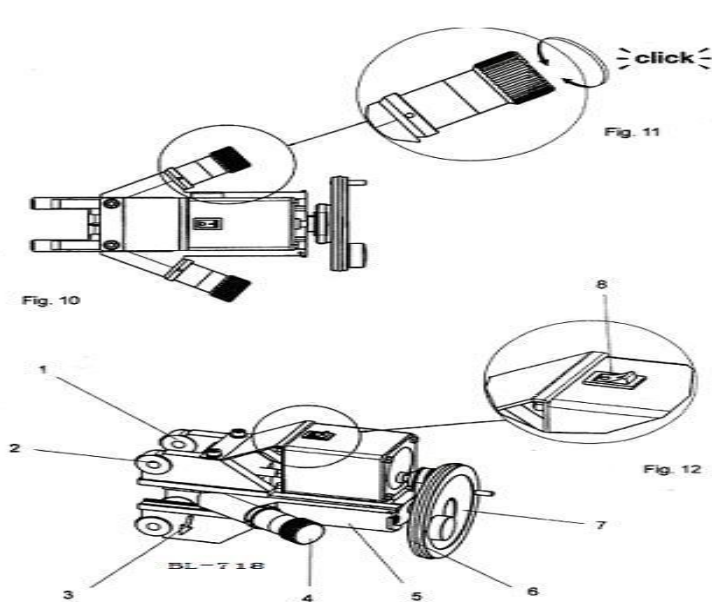


Installation instructions

- 1- Bolt front of standard on rear of stand fig.8.
- 2- Two hex head bolts $M2 \times 20$, torque 60Nm.
- 3- Remove caster wheel from rear stand.
- 4- Mount caster wheel under rear of stand, fig.8.
- 5- One bolt $M12 \times 30$ with washer, torque 60 Nm

- 6- Rotate the spindle until the groove is pointed towards the threaded hole for the fixing handle.
- 7- Mount the fixing handle in the threaded hole
- 8- Put the stand on its wheels.
- 9- Remove BL-718, shaped foam , bottom plate and drawer from the metal box.
- 10- Bolt the metal box on the stand, fig.9.
- 11- Three bolts M6×12with washer M6. Torque 10 Nm.
- 12- Place drawer, bottom plate and shaped foam in the metal box.
- 13- Put BL-718 in the box.
- 14- Place drive adapter in the box.
- 15- If present: put the mounting adapters in the box.
- 16- Loosen the fixing handle half a turn.
- 17- DM-100 only: Rotate the spindle nut until the spindle plate is at least 50mm above the spindle nut.
- 18- Tighten the fixing handle slightly.
- 19- Mount the complete motor and bracket assembly on the spindle plate, fig.9.
- 20- Four nuts M8with washers. Torque 25Nm.
- 21- Put the rubber mat on the motor cover.
- 22- Mount the safety guard on the drive yoke.
- 23- Store all other parts in the drawers.

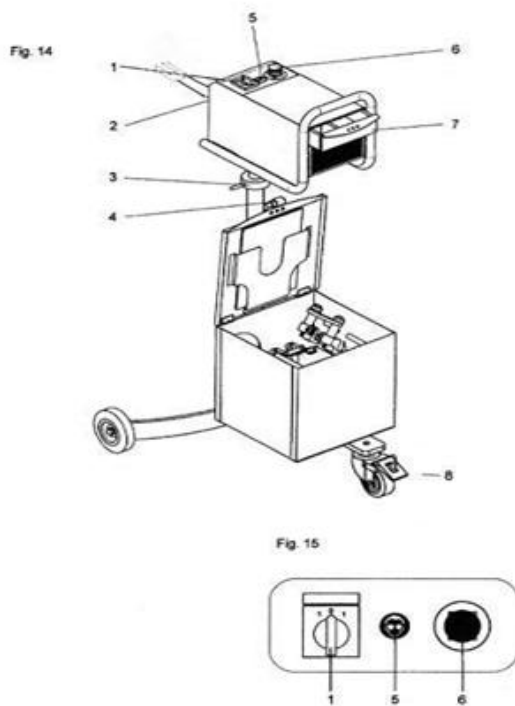
Controls Disc Lathe BL-718



Controls Disc Lathe BL-718, (fig.10-13)

- 1- Mounting ear with thread.
- 2- Mounting ear without thread.
- 3- Direction indicator arrow.
- 4- Adjustment knob cutting depth.
- 5- Slide.
- 6- Lock knob.
- 7- Hand wheel.
- 8- Auto feed, automatic feed of the slides.

Controls Drive Unit DM-100

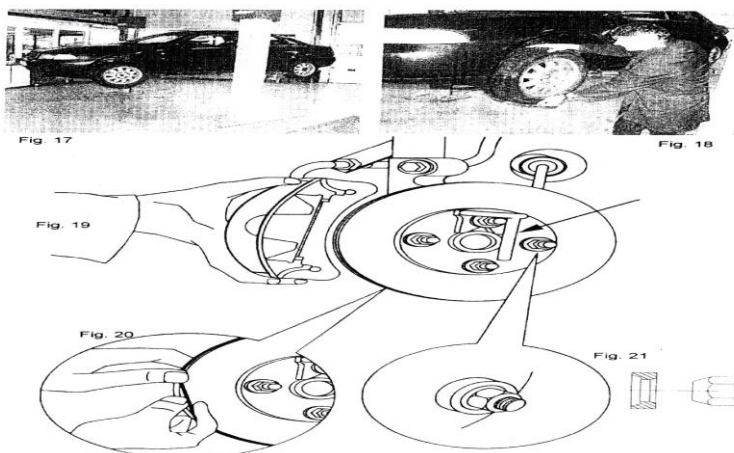


Controls Driver Unit DM-100, fig.14.

- 1- **DM-100: Motor switch: direction switch, one speed version,fig.15.**
- 2- **Mains inlet**
- 3- **Spindle nut for height adjustment.**
- 4- **Locking height adjustment.**
- 5- **Safety glasses/eye-protection obligatory.**
- 6- **Emergency switch.**
- 7- **/8-Drawer.**
- 9- **Locking caster wheel.**

▲In case of emergency switch off the BL-718 DM-100 unit with the emergency switch. The emergency switch is reset by rotating the knurled ring under the button clockwise. In a safe situation the DM-100 can be reset by turning the motor switch to position 0.

Preparation



Preparation

- 1- **Put the car in a ramp. Put transmission in neutral.**
- 2- **Jack up the car to the correct working level, wheel is free off the ramp,fig.17.**

- 3- Check wheel bearing play on both sides, fig.18.**
- 4- If necessary, adjust wheel bearing tolerance as described by the workshop manual.**
- 5-Prevent dirt particles between disc and hub by securing the brake disc on the hub, immediately after removing the wheel. Use a brake pedal depressor to lock the brake disc, fig.56, page 41. Note that not all brake discs are fixed on the hub with a screw or nut**
- 6-Remove the wheel and secure the brake disc with the wheel nuts or bolts and conical rings,fig.21**
- 7-Remove the wheel on the other side too,and secure that brake disc with two wheel nuts or bolts and conical rings.**
- 8- Check the thickness of the brake disc, to ensure that the disc will not be below minimum thickness.**
- 9- Refer to the workshop manual for the minimum brake disc thickness.**
- 10- If the brake disc is below minimum thickness, it must be replaced. Machining of the discs is not permitted in such cases.**
- 11- If the brake disc is thicker than the discard size, determine the maximum amount that could be machined off, for each side of the brake disc.**
- 12- Mount the drive adapter on one of the wheel nuts or bolts, fig.21.**
- 13- The V-shape of the drive adapter must seat firmly on the edge of the hub.**
- 14- Tighten the wheel nuts or bolts evenly to 50Nm.**
- 15- Remove the complete brake caliper and hang it on the S-hook.**
- 16- Check the brake line and brake caliper are not touching the shaft or rotating parts.**
- 17- Remove rust and dirt from mounting surface of the caliper mounting lugs. These caliper mounting lugs must be clean because it is the reference surface for aligning the brake surface to be machined.**
- 18- Fit the rubber silencer band on the outer edge of the brake disc to minimize vibration and/or noise, fig.20.**
- 19- Connect the cable to the DM-100 and to the mains supply.**
- 20- Connect the cable between DM-100 and BL-718.**
- 21- Turn the motor switch to position 0,unlock the emergency switch.**
- 22- Move the sides and bit holders of the BL-718 in the most rear position.**

23- In this position the tool bits cannot be damaged by touching the brake disc.

Fitting the mounting adapter USM

- 1- See fig.22 and 23 of the brake caliper ears.**
- 2- Use the “threaded mounting adapter” if the brake caliper ears are un-threaded, see fig.24.**
- 3- Use the “un-threaded mounting adapter “ if the brake caliper ears are threaded, see fig.25.**
- 4- Do not use air tools when mounting or removing the mounting adapter and/or BL-718.**
- 5- First tighten all bolts by hand, then tighten with correct torque.**

Mounting “threaded mounting adapter” USM

- 1- Mount the USM mounting adapter with the M10bolts supplied onto the brake caliper ears.**
 - a- The bow should be directed towards the axle, fig.24.**
 - b- Ensure that bolts of correct length are selected, the bolts must not touch the brake disc when fully inserted.**
 - c- If necessary, washer can be used to achieve the correct bolt length.**
 - d- Ensure that the hex head bolts of the side piece are loose.**
- 2- After positioning the side piece in the center of the hub, tighten the M10 bolts of the USM mounting adapter hand tight, fig.27.**

Mounting “un-threaded mounting adapter “ USM.

- 1- Measure the diameter of the original brake caliper bolt.**
- 2- Determine the use of the inserts in the mounting adapter according the diameter, fig.26;**

M8: put inserts \varnothing 8,5 in the brackets of the mounting adapter.

M9-M10: put inserts \varnothing 10,5 in the brackets of the mounting adapter.

M12-M14: do not use inserts.

>M14: Ask your dealer for the necessary options.

- 3- Mount the USM mounting adapter with the caliper bolts on the caliper ears with thread, fig.25.
 - a- The bow should be directed towards the axle.
 - b- Ensure that bolts of correct length are selected, the bolts must not touch the brake disc when fully inserted.
 - c- If necessary, the spacer tubes provided can be used to achieve the correct bolt length.
 - d- Ensure that the hex head bolts of the side piece are loose.

- 4 - After positioning the side piece in the center of the hub, tighten the M10 bolts of the USM mounting adapter hand tight, fig.27.

Fitting the mounting adapter USM

Fig. 22

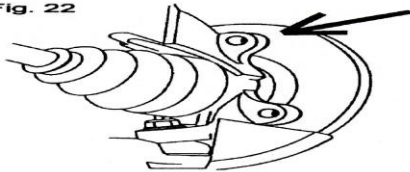


Fig. 23

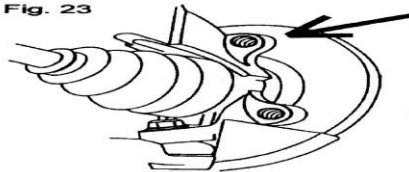


Fig. 24

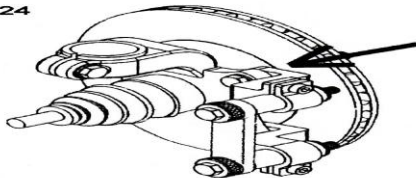


Fig. 25

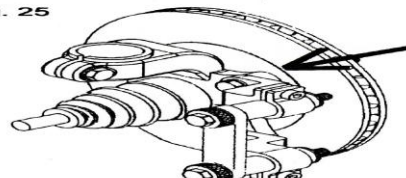


Fig. 26

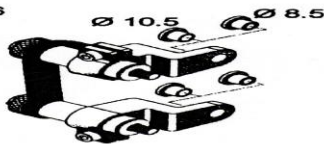


Fig. 27

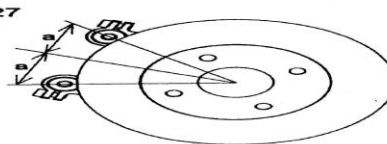


Fig. 28



Fitting the BL-718 on the USM

- 1- Bring the BL-718 into correct position, fig.29-30.
- 2- If necessary turn the BL-718 upside down, fig.31.

- 3- Mount the BL-718 on the slide piece by using the hand knobs.
- 4- Slide the BL-718 to the middle of the brake disc, until the centerline of the BL-718 is in line with the centerline of the brake disc. Fig32and 33. Slide on the center line or max. 2mm to the inside of the car.
- 5- Ensure that the BL-718 does not contact the brake disc.
- 6- Tighten one of the hex bolts with the hex head T-spanner. Now the slide piece is fixed in the mounting bracket.
- 7- Tighten all bolts with the prescribed torque , in the prescribed order;
 - a- M10 mounting bolts on the caliper ears: torque 50Nm(mounting adapter)
 - b- Original brake caliper bolts (if larger or the same as M10)torque:50Nm.

Brake caliper bolts M8: torque: 25Nm

Brake caliper bolts M9:torque: 30Nm(blue mounting adapter)
 - c- Hand knob; tighten with 50Nm.
 - d- Hex head bolts of mounting adapter: torque: 25Nm.
- 8- Check if the brake disc is free to rotate, with no parts dragging or blocking.

Fitting the Disc Lathe BL-718 on the USM

Fig. 29

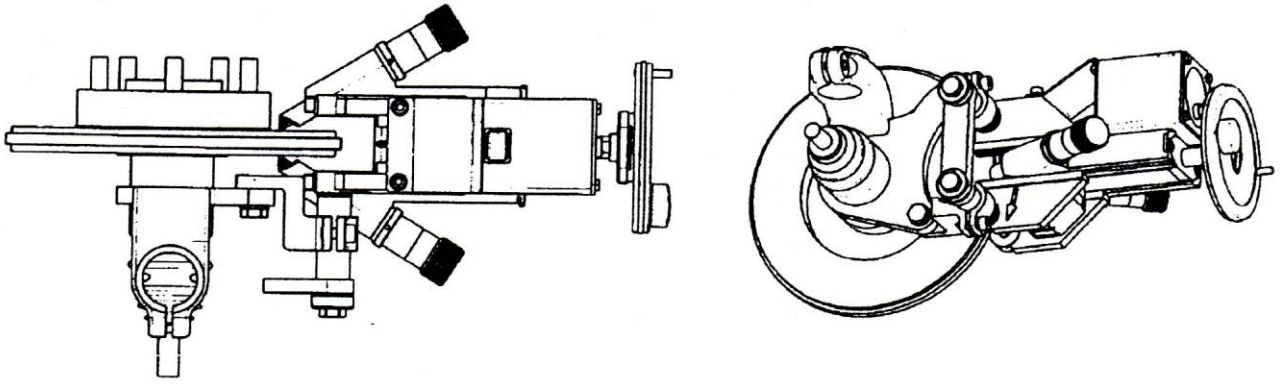


Fig. 30

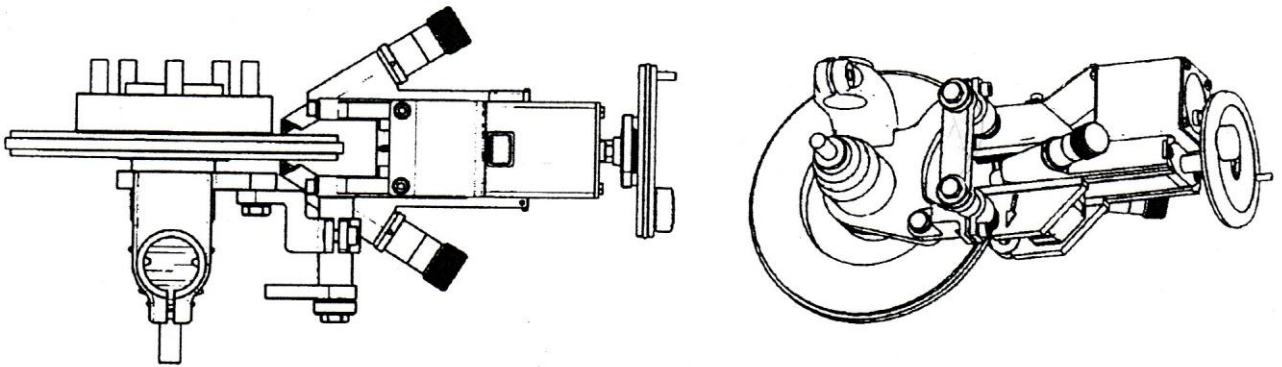


Fig. 31

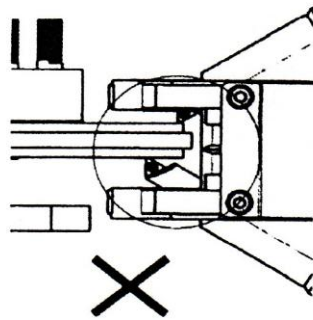
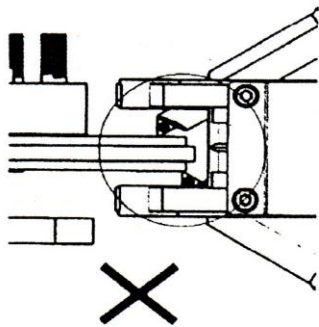
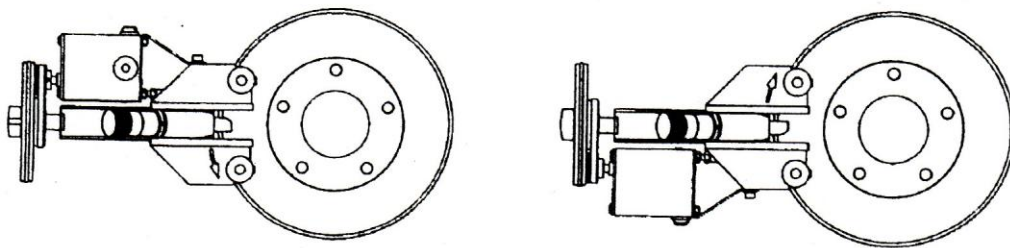


Fig. 32

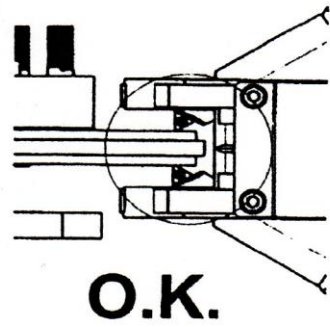


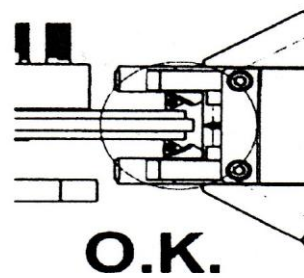
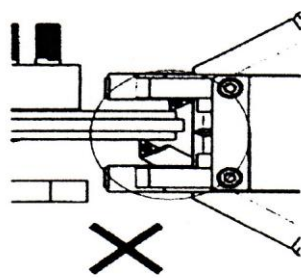
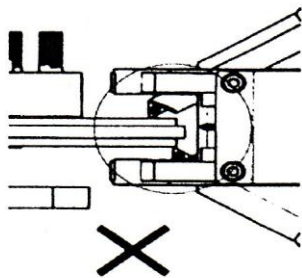
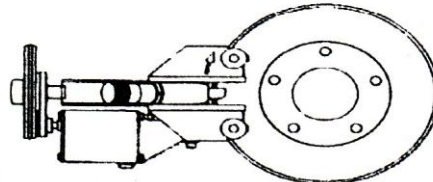
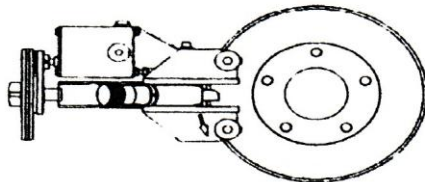
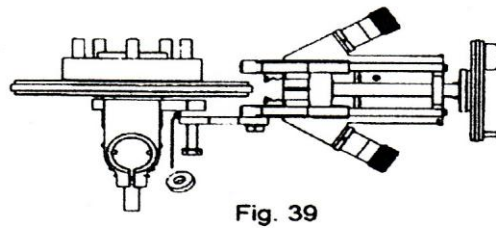
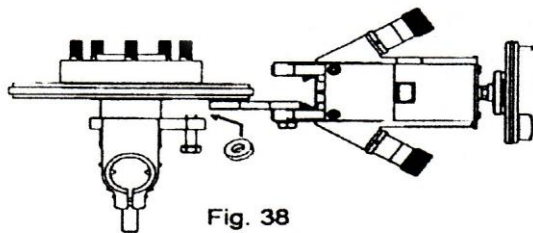
Fig. 33

Fitting the BL-718 with Universal Plates

BL-718

- 1- Bring the BL-718 into correct position, fig, 38-39.**
 - a- The distance between outer ridge of the brake disc and the BL-718 must be large enough to insert the rubber silencer.**
 - b- The distance between outer ridge of the brake disc and the BL-718 must be as short as possible.**
- 2- If necessary turn the BL-718 180 degrees, with the power feed underneath , fig 40.**
- 3- Position the BL-718 in the middle of the brake disc .**
- 4- If necessary, fill the space between universal plates and caliper ears with shims as shown on page 33 and 34 to achieve that the BL-718 is in line with the centerline of the brake disc.**
- 5- Mounting 42 is correct. Avoid mounting fig.41**
- 6- Mount the BL-718 in the center line or maximal 2mm to the inside of the car.**
- 7- Ensure that the BL-718 does not contact the brake disc.**
- 8- Tighten all bolts with the prescribed torque;**
 - a- M10 mounting bolts: torque 50Nm.**
 - b- Original brake caliper bolts(if larger or the same as M10)torque: 50Nm.Brake caliper bolts M9 to torque: 30Nm. Brake caliper bolts M8: torque 25Nm.**
- 9- Check if the brake disc is free to rotate, with no parts dragging or blocking.**
- 10- Ensure that bolts of correct length are selected, the bolts must not touch the brake disc when fully inserted . If necessary, washers can be used to achieve the correct bolt length.**

Fitting the BL-718 with Universal Plates

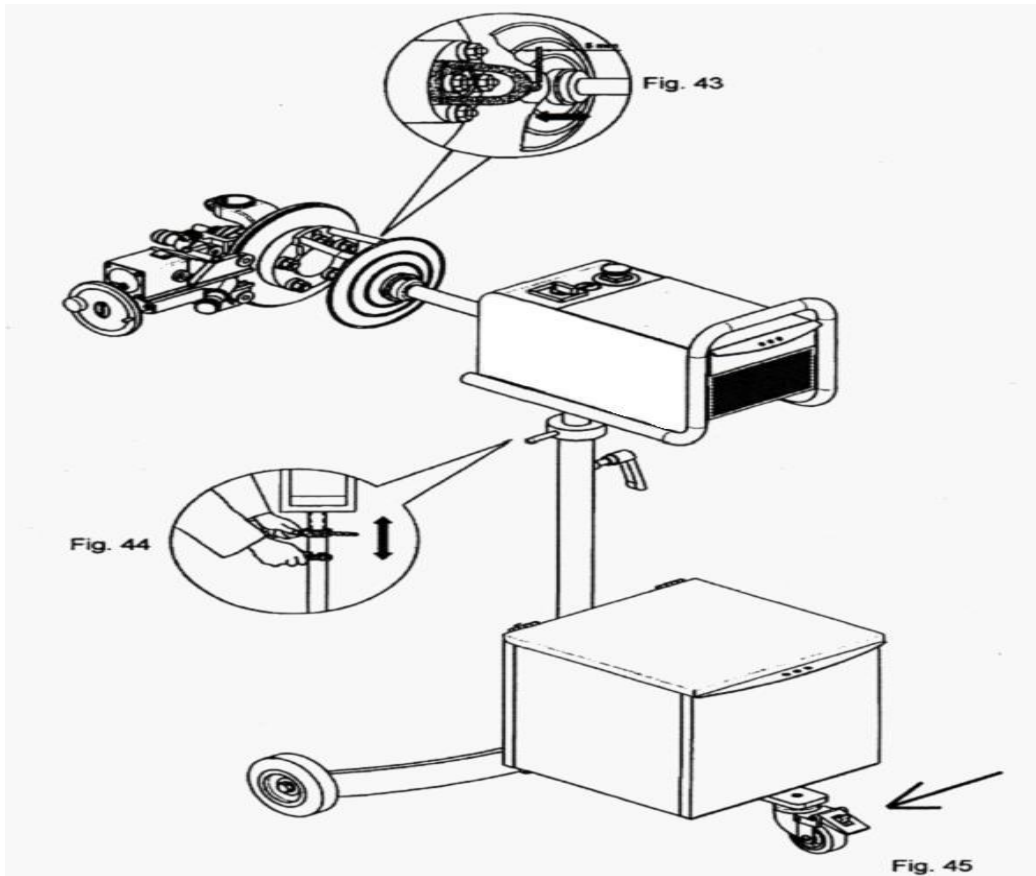


Positioning DM-100

- 1- Turn drive adapter horizontal.
- 2- Place DM-100 in line with the hub.
- 3- Loosen the locking handle half a turn, fig.44.
- 4- Adjust DM-100 to correct height with spindle nut.
- 5- Slide the drive yoke on the drive adapter, leaving a 5mm space, fig.43. Drive yoke must point to centre of the hub.
- 6- Lock the caster wheel of the stand, fig.45.
- 7- Check that the brake disc is free to rotate, with no parts dragging or blocking.
- 8- Note that the brake disc and the drive shaft on other side of the car may start turning as well,

when the drive unit is started.

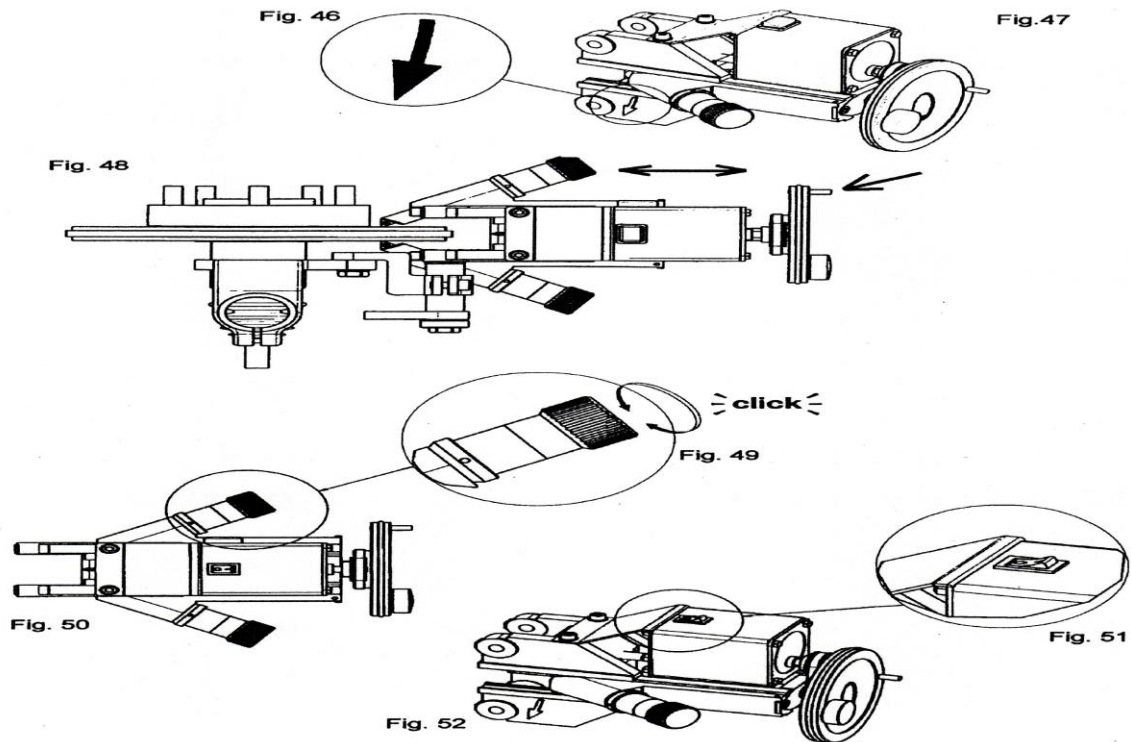
Positioning Drive Unit DM-100:



Machining

- 1- Determine the correct rotation direction of the drive unit DM-100 arrow on the BL-718, fig46.
- 2- DM-100 on 4W cars: choose position '1' of the motor switch ,in the correct direction. fig. 15-16, page 15.
- 3- DM-100 other cars: choose position '2' of the motor switch, in the correct rotation direction.
- 4- Keep the locking handle of the drive unit loose half a turn to reduce vibration of the drive unit .
- 5- Fine-adjust the height of the drive unit to reduce vibration. Fig.44.Page 35.
- 6- If there are a large ridges on the brake surface, remove this without exceeding the max. cutting depth.

- 7- Operate the slide of the BL-718 the tool bits are at the middle of the brake surface .
- 8- Turn the adjustment knobs carefully clockwise until the sound of the tool bit touching the brake disc.
- 9- Move the slides carefully to the hub of the brake disc ,fig.48
- 10- The adjustment knob may be tuned in by a maximum of 16 clicks, when using the positive angle tool it.
- 11- The adjustment knob may be tuned in by a maximum of 4 clicks, when using the straight tool bit.
- 12- 1 click equals 0.05mm. fig 49
- 13- Set the adjustment knobs(clockwise)on the selected value(minimal0.05mm, maximal0.8mm)
- 14- Start the auto feed with the switch and by locking the knob in fig 51-52
- 15- After machining, stop the auto feed of the BL-718 using the button a second time .
- 16- Then stop the drive unit DM-100
- 17- Check if the in-and outside of the brake surface are machined completely.
- 18- Repeat the machine if necessary
- 19- Check that the brake disc is not thinner than prescribed replacement size indicated in the workshop manual. If this is in the case, the brake disc must be replaced.



Follow-up

- 1- Rotate the vernier knobs counterclockwise until the tool bit holders are in the most rear position.
- 2- Move the slides in the most rear position.
- 3- Disconnect the cables.
- 4- Remove the BL-718.
- 5- Remove the mounting adapter, loosen the bolts in reverse order.
- 6- Remove the rubber silencer from the brake disc, fig.32
- 7- Remove the drive adapter from the hub.
- 8- Note that brake disc must stay fixed on the hub with at least two wheel nuts or-bolts.
- 9- Repeat the total procedure on the brake disc at the other side of the car. See page 18.
- 10- Always machine both brake discs on the same axle at the same time, to prevent unbalanced brake efficiency.

- 11- Cleaning the surrounding area of the brake disc and make sure there are no metal chips on the ABS components.
- 12- Make the brake pad surfaces parallel and flat. Replace the brake pads when necessary.
- 13- Install the brake pads and brake caliper according workshop manual.
- 14- In some cases locking or replacing of the caliper bolts is prescribed.
- 15- Take the prescribed torque for the caliper bolts into account.
- 16- Pump the brake pedal a few times in order to settle the brake pads and to fix the brake disc on the hub.
- 17- Place a brake pedal depressor to lock the brake disc, fig.33
- 18- Remove the wheel nuts-bolts and the conical rings.
- 19- Install the wheel according instructions in workshop manual.
- 20- Observe the recommended torque for the wheel nuts/bolts.
- 21- Check the brake fluid level.

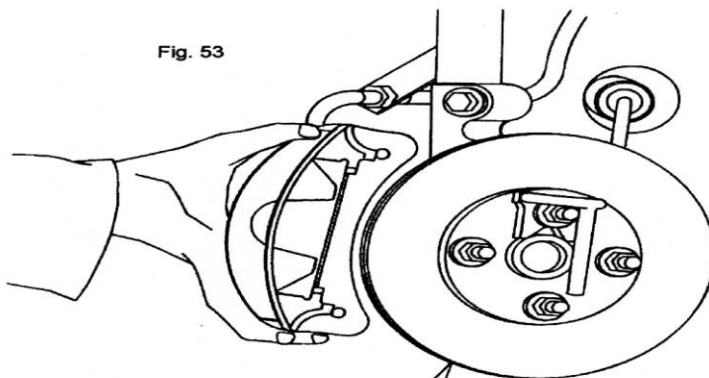


Fig. 53

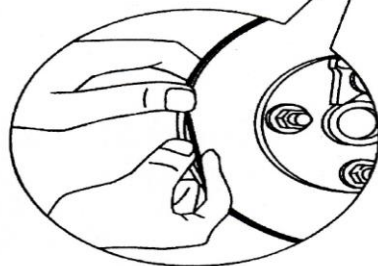


Fig. 54

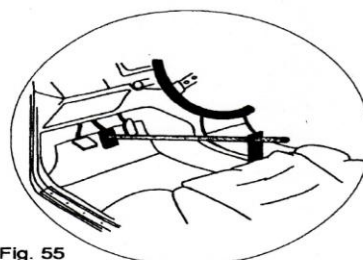


Fig. 55

Maintenance

Before carrying out maintenance activities, read the safety regulations contained in this manual.

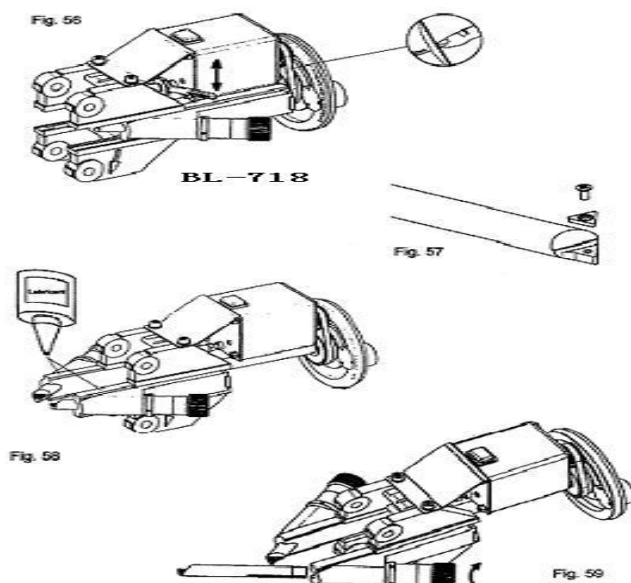
- A- Check that the bits are sharp and not damaged (prior to each use).
Turn and replace the bits frequently (at least after every 10 cars).
Clean the mounting surface of the bit thoroughly with a brush
When turning or replacing the bit.

- B- Cleaning of the slides(after every 10 cars).
Clean the guides between the block and the slide with a brush, then apply a small amount of Disc Lathe Oil.

- C- Cleaning of the bit holder (after every 50 cars).
Turn the adjustment knob anti-clockwise until the tool bit holder is completely out of the slide
Clean the bit holder and grease lightly. When fitting the bit holder point the slot to the outside of the BL-718

- D- Cables (every week). Check cable and extension cables for damage, replace damaged cables immediately.

- E- Adjustment of the toothed belt (once every two years). With the slides in the slides in the back-most position, turn the adjusting nut until there is a small degree of tension in the toothed belt.



Trouble shooting

TROUBLE	CAUSE	SOLUTION
Rough finish Or herringbone effect	Vibration	Check rubber-ring/check BL-718 mounting/Use conical rings/Mount the BL-718 as short as possible near the hub
	Wheel bearing play Cutting depth too great Faulty bit plate Bit plate loose Incorrect turning direction	Adjust/replace Maximum of 0.2mm Turn of replace Tighten s
Drive unit unsteady	Vernier knob Lock nut loose	See the direction of the arrow on the BL-718 Adjust vernier knob (see maintenance)
	Not aligned with drive adapter Drive-adapter not centering	Align Reassemble and center

Tips

While assembling the BL-718, ensure that the spacing between the caliper ears and the universal plate is even both above and below.

- Wheel nuts or bolts should always be tightened evenly.

- Turn or change the bit plates on time .

- Prior to machine, check that the bit plates will be able to machine the entire surface of the brake disc. A special brochure has been compiled on various of the BL-718, which is available from your supplier.

Guarantee

A full year's guarantee is given by the supplier on all parts with the exception of the bit plates. The guarantee does not apply in cases where it has been established that the equipment has been operated incompetently.

Parts can be ordered from your supplier. When ordering parts, make sure of order numbers on the parts list that has been included at the back of this manual.

Place the manual with the list of parts in the storage compartment of the BL-718

Technical specifications

BL-718

Maximum brake disc thickness	40mm
Vernier knob accuracy	≤0.002-0.005mm
Feed rate	8.5mm/min
Electrical specifications	DC12V/1.5A
Net weight	7kg

DM-100

Working height min/max	1/1.25m
Drive speed	98rpm
Electrical specifications	220v/50Hz 110V/60Hz
Weight	50kg
Ambient temperature range	-25to50° c
Turning accuracy:	≤0.002-0.005mm
Brake disc runout	≤0.00-0.005mm
Brake disc thickness variation	0.005-0.01mm
Brake disc surface roughness	Ra 1.5-2.0µm

Noise level: 74B(A), excluding the space correction factor of 4db(A)