

10.1 FAULT FINDING

CAUSE	INACCURATE WORK	REMEDY
1. Lathe not correctly installed causing tapering.		1. Check levelling (Section 2.5)
2. Excessive play in saddle guideways.		2. Adjust gib plates on saddle.
3. Excessive play in cross slide and compound slides.		3. Adjust slips on cross slide (Section 7.2) & on compound slide (Section 8.1).
4. Tailstock spindle out of line with headstock spindle.		4. Check & adjust (Section 4.7)
5. Foreign matter preventing correct location of chucks, faceplates and centres.		5. Remove & clean requisite parts.
6. Centres running out.		6. Check centres for bruising. For built in roller bearing centre follow instructions on tailstock. See Section 4.71.
7. Uneven locking of spindle nose cams.		7. Refer to locking sequence. (Section 4.5).
8. Uneven nipping of chuck jaws.		8. Repair or replace jaws.
9. Incorrect centres in work piece.		9. Centre should be trued up.

INFERIOR FINISH OF WORKPIECE

1. Spindle chatter on parting off		1. See Section 4.4.
2. Belt slip.		2. Adjust belts (Section 12.1)
3. Vibration caused by unbalanced work or intermittent cutting.		3. Counter balance workpiece. It is advisable for this type of work to have the machine bolted to the foundations. (Section 2.1.)
4. Drive to the feed motion is taken through the end change gears, and regular pitch markings occur if gears are too deep in mesh.		4. Check & adjust for correct backlash (Section 6.1)
5. Bent feed shaft or cross slide screw giving regular pitch markings.		5. Remove & straighten.
6. Levelling screws not correctly set & locked.		6. Re-level machine (Section 2.5)
7. Inefficient clamping of work piece.		7. Check clamping on chucks & driving mediums.
8. Insufficiently supported work piece.		8. Use steadies or tailstock support.
9. Dull cutting edge or incorrect cutting and clearance angles.		9. Check tool & regrind accordingly.
10. Tool not set to correct centre height.		10. Re-set correctly. Any packing used should be parallel & flat.
11. Tool inadequately clamped.		11. Re-clamp.
12. Unsuitable feeds & speeds.		12. Try adjacent feeds & speeds.
13. Lack of cutting fluid.		13. Use appropriate cutting fluid.
14. Incorrect oil on bed or cross slide.		14. Use correct oil (Section 3.1).
15. Dirty oil in spindle bearing sump causes roughness in spindle bearings.		15. Change oil & clean magnetic filters (Section 3.11)

10.2 PRACTICAL INFORMATION

Maximum speeds of chucks and faceplates.

STEEL CHUCK	MAXIMUM SPEED	CAST IRON FACEPLATE	MAXIMUM SPEED
12 ins. dia. 3-Jaw	2000 R. P. M.	16 ins. dia.	1000 R. P. M.
14 ins. dia. 4-Jaw	1400 R. P. M.	20 ins. dia.	710 R. P. M.
16 ins. dia. 4-Jaw	1250 R. P. M.	27 ins. dia.	450 R. P. M.
18 ins. dia. 4-Jaw	900 R. P. M.	30 ins. dia.	315 R. P. M.

The above maximum speeds are recommended only in cases where the work being held is comparatively light (up to half the weight of the chuck) and well balanced.

Speeds must be considerably reduced under the following conditions:-

1. Work out of balance.
2. Heavy work (exceeding half the weight of the chuck).
3. Work having large projection from the face of the chuck or faceplate.

SPEED AND FEED COMBINATION

To avoid running the feed gears and feed shaft at excessive speeds, the feeds at the higher speeds must be limited as follows:-

With $\frac{1}{4}$ " Pitch Leadscrew.	For 6 mm. Leadscrew
Up to 224 R. P. M. Max. Feed is .063" (1.6 mm) per rev.	1.8 mm per rev.
At 315 R. P. M. Max. Feed is .045" (1.25 mm) per rev.	1.25 mm per rev.
At 450 R. P. M. Max. Feed is .0315" (0.9 mm) per rev.	0.9 mm per rev.
At 630 R. P. M. Max. Feed is .0224" (0.62 mm) per rev.	0.63 mm per rev.
At 710 R. P. M. Max. Feed is .020" (0.56 mm) per rev.	0.56 mm per rev.
At 900 R. P. M. Max. Feed is .016" (0.45 mm) per rev.	0.45 mm per rev.
At 1000 R. P. M. Max. Feed is .014" (0.4 mm) per rev.	0.4 mm per rev.
At 1250 R. P. M. Max. Feed is .0112" (0.31 mm) per rev.	0.31 mm per rev.
At 1400 R. P. M. Max. Feed is .010" (0.23 mm) per rev.	0.28 mm per rev.
At 2000 R. P. M. Max. Feed is .0071" (0.20 mm) per rev.	0.20 mm per rev.