

## Explaining changewheel sets for Lathes with changewheel driven leadscrews

The following gives the quantity and number of teeth of the changewheels supplied as standard equipment with new lathes.

We also explain which changewheels are fitted as standard and feed rate achieve. The remaining changewheels in each set are supplied loose with the standard equipment for each Lathe.

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### Series 7 Lathes

#### Lathes fitted with 8 tpi Imperial Leadscrews

Current Models:

**Super 7 Sigma, Super 7 Plus**

Non Current models:

**ML7, ML7-R, Super 7, Super 7 Sigma**

The number of changewheels supplied with each machine is 14.

The changewheel train is set to give the finest feed of .0037" per revolution.

The set up is as follows:

Tumbler Reverse Driver – 20T

1st Stud Driven 65T – Driver 25T

2nd Stud Driven 70T – Driver 20T

Leadscrew 75T

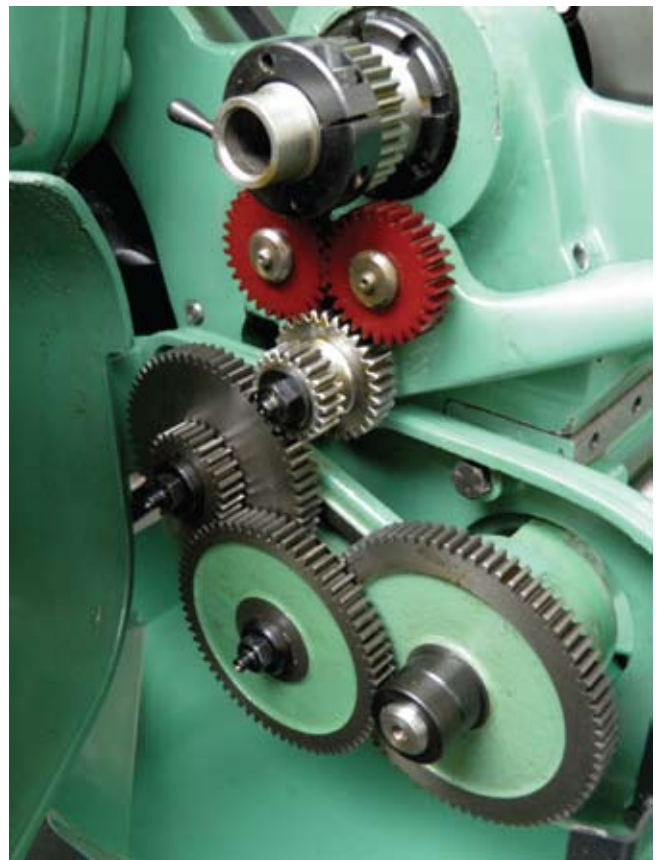
Leaving 8 loose Changewheels:

30T, 35T, 38T, 40T, 45T, 50T, 55T, and 60T (no loose changewheels supplied with the original small bore Super 7 Sigma).

**Note:** When cutting metric threads the Leadscrew half nut/clasp nut must be kept permanently engaged and the Carriage returned to the starting point by reversing the Headstock Spindle.



Myford Super 7 Plus 'Big Bore' Lathe



Myford Super 7 'Standard Bore' Lathe

## Explaining changewheel sets for Lathes with changewheel driven leadscrews

### Super 7 and ML7 Inch Pitches/Metric Pitches – The Charts

#### INCH PITCHES

T.P.I.	Feed per Rev.	Driver	1st Stud		2nd Stud		Lead Screw	Set-up
			Driven	Driver	Driven	Driver		
8	0.1250"	20	Idle 75 Wheel		-	-	20	1
9	0.1111"	40	Idle 60 Wheel		-	-	45	1
10	0.1000"	40	Idle 60 Wheel		-	-	50	1
11	0.0909"	40	Idle 60 Wheel		-	-	55	1
12	0.0833"	40	Idle 50 Wheel		-	-	60	1
14	0.0714"	20	Idle 70 Wheel		-	-	25	1
16	0.0625"	20	Idle 70 Wheel		-	-	40	1
18	0.0556"	20	Idle 70 Wheel		-	-	45	1
19	0.0526"	40	38	20	Idle 55 Wheel		50	2
20	0.0500"	20	Idle 70 Wheel		-	-	50	1
22	0.0455"	20	Idle 70 Wheel		-	-	55	1
24	0.0417"	20	Idle 70 Wheel		-	-	60	1
25	0.0400"	40	50	30	Idle 45 Wheel		75	2
26	0.0385"	20	Idle 70 Wheel		-	-	65	1
28	0.0357"	30	35	20	Idle 50 Wheel		60	2
32	0.0313"	30	40	20	Idle 55 Wheel		60	2
36	0.0278"	30	45	20	Idle 55 Wheel		60	2
40	0.0250"	30	50	20	Idle 55 Wheel		60	2
44	0.0227"	20	55	30	Idle 50 Wheel		60	2
46	0.0217"	20	46 •	30	Idle 45 Wheel		75	2
48	0.0208"	20	60	35	Idle 45 Wheel		70	2
52	0.0192"	20	50	25	Idle 55 Wheel		65	2
54	0.0185"	20	45	20	Idle 55 Wheel		60	2
60	0.0167"	20	50	25	Idle 55 Wheel		75	2
64	0.0156"	35	40	20	60	30	70	3
72	0.0139"	25	50	30	45	20	60	3
80	0.0125"	25	50	35	70	30	75	3
88	0.0114"	30	40	25	55	20	75	3
92	0.0109"	20	46 •	30	50	20	60	3
96	0.0104"	30	40	20	60	25	75	3
104	0.0096"	20	50	30	60	25	65	3
	0.0087"	20	55	30	60	25	65	3
112	0.0089"	25	50	30	60	20	70	3
120	0.0083"	20	50	30	60	25	75	3
	0.0058"	20	55	25	60	20	65	3
	0.0043"	20	60	25	65	20	75	3
	0.0037"	20	65	25	70	20	75	3
	0.0018"	12**	65	20	70	20	75	3

#### LEADSCREW 8 THREADS PER INCH

• Not a standard gear. Available as an extra.

\*\* 12/30T Fine feed Tumbler Sleeve Gear for all 'Standard Bore' Super 7 Lathes are available, Part No A1974A/1

\*\* 12/25T Fine feed Tumbler Sleeve Gear for all ML 7 Lathes are available, Part No A1974/1

\*\* 12/38T Fine feed Tumbler Sleeve Gear for all 'Big Bore' Super 7 Plus Lathes are available, Part No 15327

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### Super 7 and ML7 Inch Pitches/Metric Pitches – The Charts

#### METRIC PITCHES

Feed per Rev. Millimetres	Driver	1st Stud		2nd Stud		Lead Screw	Set-up
		Driven	Driver	Driven	Driver		
0.20	21 •	50	30	60	21 •	70	3
0.25	30	40	21	60	21	70	3
0.30	21	60	45	50	21	70	3
0.35	35	40	21	50	21	70	3
0.40	21	50	21	Idle 60 Wheel		70	2
0.45	45	40	21	50	21	70	3
0.50	21	50	45	40	20	60	3
0.60	21	50	45	40	30	75	3
0.70	21	50	21	Idle 60 Wheel		40	2
0.75	45	40	35	50	21	70	3
0.80	21	50	45	Idle 40 Wheel		75	2
0.90	45	25	21	40	21	70	3
1.00	45	40	21	Idle 50 Wheel		75	2
1.10	45	50	55	40	21	75	3
1.20	45	25	30	50	21	60	3
1.25	45	40	21	Idle 50 Wheel		60	2
1.30	65	25	21	40	21	70	3
1.40	45	25	35	50	21	60	3
1.50	21	50	45	Idle 35 Wheel		40	2
1.60	45	25	21	Idle 55 Wheel		75	2
1.75	45	20	35	50	21	60	3
1.80	30	40	45	25	21	50	3
2.00	60	40	21	Idle 55 Wheel		50	2
2.25	45	40	60	40 •	21	50	3
2.50	45	30	21	Idle 50 Wheel		40	2
2.75	55	20	30	40	21	50	3
3.00	45	25	21	Idle 60 Wheel		40	2
3.50	60	20	35	40	21	40	3

• Not a standard gear. Available as an extra.

The tumbler reverse lever should not be shifted during thread cutting operations, as such movement may alter the position of the headstock spindle relative to the leadscrew, thereby causing split threads.

#### The charts are read as follows:

The thread pitch, or feed, to be set up will be located in the first two columns under the headings T.P.I. and FEED PER REV. In the third column under the heading DRIVER is listed a number of teeth in the Changewheel which should be placed on the tumbler sleeve gear.

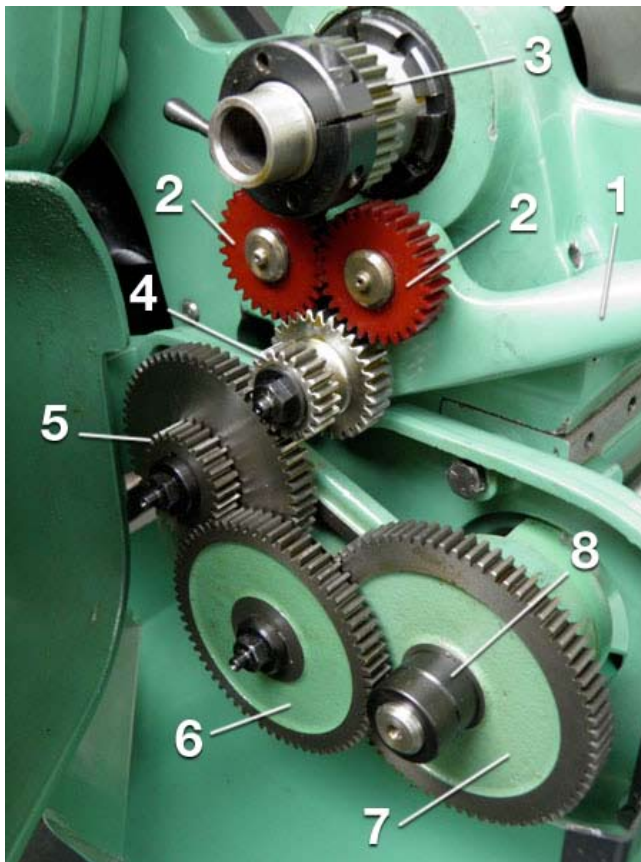
In the fourth and fifth columns under 1st STUD and 2nd STUD are given the gears or pairs of gears which should be placed on the relevant studs.

The sixth column gives the gear to be placed on the LEADSCREW.

The column headed SET-UP refers to one of three set-up arrangements of gears and spacers required. SET-UP diagrams 1,2 & 3 are given below.

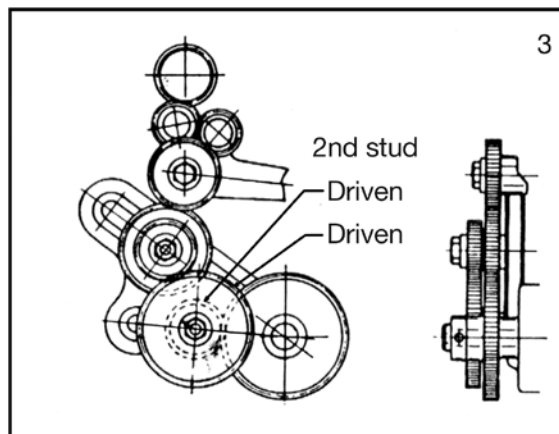
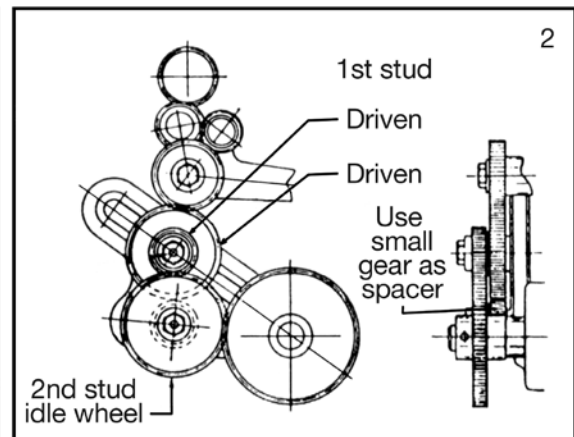
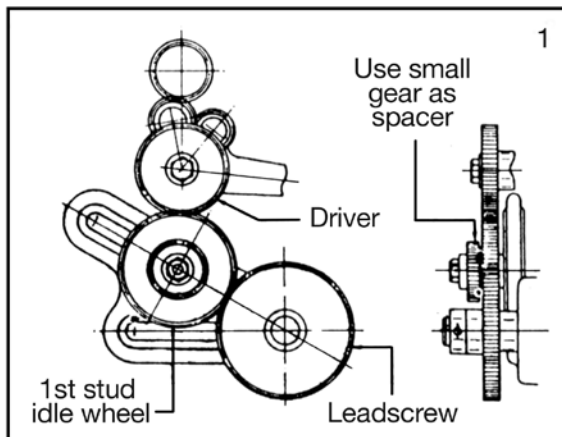
**Note:** When setting up the gear train sufficient backlash between each pair of meshing gears should be allowed. When the Lathe is in operation the play in the gears is automatically taken up according to the direction of travel. The amount of gear clearance does not influence the accuracy of thread cutting. Gear noise can be reduced by the application of grease, preferably Moly grease.

## Explaining changewheel sets for Lathes with changewheel driven leadscrews



Left is shown the Set-Up for the standard bore Super 7 Lathe, variations across the range of Series 7 Lathes are shown in brackets

- 1 – Tumbler Reverse Lever
- 2 – Tumbler Reverse Gears
- 3 – 30T Spindle Gear  
(ML 7 = 25T, Super 7 Plus 'Big Bore' 38T)
- 4 – 30T Tumbler Sleeve Gear  
(ML 7 = 25T, Super 7 Plus 'Big Bore' = 38T)
- 5 – 1st Stud Gears
- 6 – 2nd Stud Gears
- 7 – Leadscrew Gear
- 8 – Spacer



## Series 10 Lathes

### Lathes fitted with 8 tpi Imperial Leadscrews

Other Non Current models:  
**ML10, Speed 10 and Diamond 10**

The number of changewheels supplied with each machine is 15.

The changewheel train is set to give the finest feed of .0037 per revolution Spindle Driver 25T  
1st Stud Driven 65T – Driver 20T  
2nd Stud Driven 70T – Driver 20T  
Leadscrew 75T

Leaving 9 loose Changewheels:  
30T, 32T, 35T, 38T, 40T, 45T, 50T, 55T and 60T  
(no loose changewheels supplied with the Diamond 10)

**Note:** For metric threads with imperial Leadscrews the following extra changewheels are required 1 x 21T, 27T, 33T, 36T, 39T, 42T, 48T, 50T, 80T and 2 x 63T. The complete set of 11 Changewheels can be purchased at a saving under Part No 30/044.



*Myford ML10 changewheel bench Lathe*

### Lathes fitted with 3mm pitch Metric Leadscrews

Other Non Current models:  
**ML10, Speed 10 and Diamond 10**

The number of changewheels supplied with each machine is 13.

The changewheel train is set to give the finest feed of .01mm per revolution.  
Spindle Driver 25T  
1st Stud Driven 60T – Driver 21T  
2nd Stud Driven 70T – Driver 20T  
Leadscrew 75T

Leaving 8 loose Changewheels:  
25T, 30T, 35T, 40T, 45T, 50T, 55T and 65T  
(no loose changewheels supplied with the Diamond 10).

**Note:** 0.1 and 0.15 have been included to serve as fine feeds, but it should be noted that a slightly finer feed 0.092mm can be obtained by substituting the 65T wheel for the 60T under the column headed "A1" against the 0.10mm pitch.

**Note:** If the set of conversion gears No 30/045 for cutting imperial threads or an 80T changewheel is available it is possible to obtain a fine feed of 0.075mm per revolution. The set-up will be as for 0.10mm except that the three driven gears on the first stud, the second stud and the Leadscrew respectively will be 70T, 75T and 80T.

**Imperial Pitches** (3mm Leadscrew) The screw cutting chart also shows a comprehensive range of imperial pitches from 8 - 80 TPI, to cut these threads three additional changewheels are required 1 x 40T, 63T and 80T. The complete set of 3 Changewheels can be purchased at a saving under Part No 30/045.



## ML10, Speed 10 and Diamond 10 Inch Pitches/Metric Pitches – The Charts

For use with Imperial (8 T.P.I.) Leadscrew

### INCH PITCHES

T.P.I.	Feedper Rev.	Driver	1st Stud		2nd Stud		Lead Screw
			Driven	Driver	Driven	Driver	
8	0.125"	25	Idle 55 Wheel		Idle 60 Wheel		25
9	0.1111"	25	45	40	Idle 70 Wheel		25
10	0.100"	25	50	40	Idle 70 Wheel		25
11	0.0909"	25	55	40	Idle 70 Wheel		25
12	0.0833"	25	60	40	Idle 70 Wheel		25
13	0.0769"	25	65	40	Idle 70 Wheel		25
14	0.0714"	25	70	40	Idle 60 Wheel		25
15	0.0667"	25	75	40	Idle 65 Wheel		25
16	0.0625"	25	60	30	Idle 65 Wheel		25
18	0.0556"	25	45	40	Idle 60 Wheel		50
19	0.0526"	25	38	32	Idle 60 Wheel		50
20	0.050"	25	75	60	Idle 45 Wheel		50
22	0.0455"	25	55	40	Idle 60 Wheel		50
24	0.0417"	25	60	40	Idle 55 Wheel		50
26	0.0385"	25	65	40	Idle 55 Wheel		50
28	0.0357"	25	70	40	Idle 55 Wheel		50
30	0.0334"	25	50	40	Idle 45 Wheel		75
32	0.0313"	25	60	30	Idle 55 Wheel		50
36	0.0278"	25	45	30	Idle 50 Wheel		75
40	0.0250"	25	50	30	Idle 55 Wheel		75
	0.0103"	25	65	40	50	20	75
	0.0082"	25	65	35	55	20	75
	0.0064"	25	65	30	60	20	75
	0.0055"	25	65	30	70	20	75
	0.0037"	25	65	20	70	20	75

#### Extra Fine Feed

If the metric conversion set No. 30/044 or an 80 tooth changewheel is available, it is possible to obtain a fine feed of 0.003" per revolution. The set-up will be as for 0.0037" feed except that the three driven gears on the first stud, the second stud and the leadscrew respectively will have 70, 75 and 80 teeth.

**Note:** When cutting other threads and or metric pitches the Leadscrew half nut/clasp nut must be kept permanently engaged and the carriage returned to the starting point by reversing the Headstock Spindle.

## ML10, Speed 10 and Diamond 10 Inch Pitches/Metric Pitches – The Charts

For use with Imperial (8 T.P.I.) Leadscrew

### METRIC PITCHES

Feed per Rev. Millimetres	Driver	1st Stud		2nd Stud		Lead Screw
		Driven	Driver	Driven	Driver	
0.20	25	50	27	60	21	75
0.25	25	50	39	65	21	80
0.30	25	50	36	50	21	80
0.35	25	50	42	50	21	80
0.40	25	50	45	50	21	75
0.45	25	50	42	50	27	80
0.50	25	50	63	60	21	70
0.60	25	50	63	50	21	70
0.70	25	50	63	50	21	60
0.75	25	50	63	40	21	70
0.80	25	50	63	45	27	75
0.90	25	50	63	40	27	75
1.00	25	50	63	50	30	60
1.10	25	50	63	40	33	75
1.20	25	50	63	55	33	50
1.25	25	50	63	40	35	70
1.30	25	50	63	40	39	75
1.40	25	50	63	50	42	60
1.50	25	50	63	40	39	65
1.60	25	50	63	35	42	75
1.75	25	50	63	40	42	60
2.00	25	50	63	Idle 45 Wheel		50
2.25	25	50	63	40	45	50
2.50	25	50	63	Idle 55 Wheel		40
2.75	25	50	63	50	55	40
3.00	25	50	63	50	48	32
3.50	25	50	63	60	63	30

For metric pitches the following extra changewheels are required: one each 21, 27, 33, 36, 39, 42, 48, 50 and 80, and two 63 tooth. (Set of 11, No. 30/044.)

## ML10, Speed 10 and Diamond 10 Inch Pitches/Metric Pitches – The Charts

### For use with Metric (3mm) Leadscrew

#### The charts are read as follows:

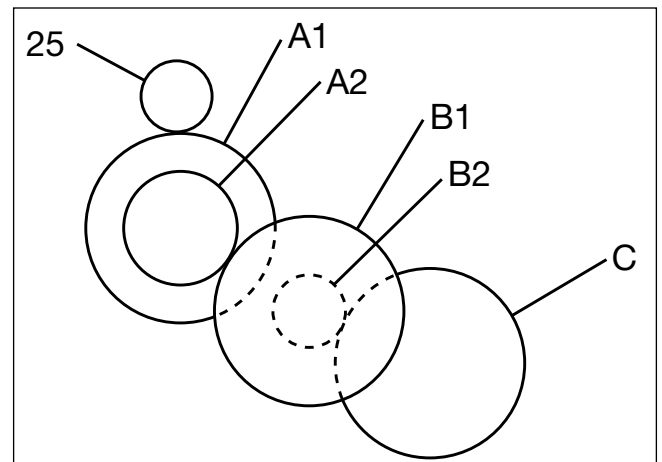
The thread pitch, or feed, to be set-up will be located in the first two columns under the headings T.P.I. and FEED PER REV. In the third column under the heading DRIVER is the 25T gear

In the fourth and fifth columns under 1st STUD and 2nd STUD are given the gears or pairs of gears which should be placed on the relevant studs.

The sixth column gives the gear to be placed on the LEADSCREW.

**Note:** When setting up the gear train sufficient backlash between each pair of meshing gears should be allowed. When the Lathe is in operation the play in the gears is automatically taken up according to the direction of travel. The amount of gear clearance does not influence the accuracy of thread cutting. Gear noise can be reduced by the application of grease, preferably Moly grease.

**Note:** There will be instances where it is mathematically possible to use the metric thread dial indicator, but



so many revolutions of the dial would be required that it would be virtually impossible in practice. In such cases the Leadscrew half nut/clasp nut must be kept permanently engaged and the carriage returned to the starting point by reversing the Headstock spindle.

### INCH PITCHES

n/1"	A1	A2	B1	B2	C
8	40	80	30	40	63
9	45	80	30	40	63
10	50	80	30	40	63
11	55	80	30	40	63
12	45	60	30	40	63
14	45	60	35	40	63
16	30	40	55	63	
18	45	80	30	20	63
20	50	80	30	20	63
22	55	80	30	20	63
24	45	40	50	63	
26	65	80	30	20	63
28	70	80	30	20	63
30	75	80	30	20	63
32	60	40	50	63	
36	45	40	60	40	63
40	50	40	60	40	63
44	55	40	60	40	63
48	45	20	60	63	
56	60	40	70	40	63
60	75	60	45	20	63
64	60	20	65	63	
72	45	25	75	40	63
80	50	40	60	20	63

### METRIC PITCHES

mm	A1	A2	B1	B2	C
0.10	60	21	70	20	75
0.15	60	30	70	21	75
0.20	50	35	70	20	75
0.25	50	35	60	20	70
0.30	50	35	70	30	75
0.35	50	35	60	30	75
0.40	50	40	60	30	75
0.45	50	45	60	30	75
0.50	50	20		65	60
0.60	50	30		45	75
0.70	50	35		45	75
0.75	60	30		55	50
0.80	75	40		60	50
0.90	50	45		35	75
1.00	60	40		45	50
1.25		40		50	60
1.50	60	30		65	25
1.75	60	35		65	25
2.00	60	40		65	25
2.25	60	45		65	25
2.50		50		55	30
2.75	60	55		50	25
3.00	55			60	25
3.50	60	70		50	25