

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

ORGANIZATIONAL MAINTENANCE MANUAL

LATHE, ENGINE, BENCH MOUNTED,
SOLID BED TYPE, 10-INCH SWING,
NO. 2 MORSE TAPER CENTER, 1-3/8
SPINDLE HOLE, 110-VOLTS, 60-CYCLE,
SINGLE PHASE 3/4-HORSEPOWER,
W/ARMY DWG NO. 7550151 BENCH
(SHELDON MACHINE CO. INC., MODEL XL)
(3416-517-0955)

HEADQUARTERS, DEPARTMENT OF THE ARMY
2 JULY 1965

AGO 5176A

This copy is a reprint which includes pages
from Change 1.

By Order of the Secretary of the Army:

Official:

J. C. LAMBERT,
Major General, United States Army,
The Adjutant General.

HAROLD K. JOHNSON,
General, United States Army,
Chief of Staff.

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 2 July 1965

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Units org under fol TOE:
 9-500 (IA) (2)
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NG: State AG (3).

USAR: Same as active Army except allowance is one copy to each unit.

For explanation of abbreviations used, see AR 320-50.

TAGO 5175A-Aug

Change

No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C., 10 July 1973

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TM 9-3416-223-12, 2 July 1965, is changed as follows:

Page 21. Add the following:

Report of Equipment Publications Improvements

The reporting of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications) and forwarded direct to Commander, US Army Weapons Command, ATTN: AMSWE-MAS-SP, Rock Island, IL 61201.

Components of the End Item

Parts included with the end item and considered as components of the end item configuration are listed in the following table:

Table 1. Components of the End Item

<i>Components</i>	<i>Part No.</i>	<i>(FSCM)</i>	<i>Qty</i>
CENTER LATHE:	295	(41672)	2
CENTER LATHE:	A2071	(54522)	1
CHUCK, COLLET:	91C3	(75078)	1
CHUCK, DRILL:	34-3406	(75078)	1
CHUCK, LATHE:	84D1-3	(54522)	1
CHUCK, LATHE:	63D1-3	(54522)	1
COLLET SET:	J900-8	(75078)	1
COLLET MACHINE:	J910	(75078)	1
COLLET MACHINE:	J911	(75078)	1
COLLET MACHINE:	J912	(75078)	1
COLLET MACHINE:	J913	(75078)	1
COLLET MACHINE:	J914	(75078)	1
COLLET MACHINE:	J915	(75078)	1
COLLET MACHINE:	J916	(75078)	1
COLLET MACHINE:	J917	(75078)	1
DOG LATHE:	2H	(03914)	1
DOG LATHE:	3H	(03914)	1
DOG LATHE:	4H	(03914)	1
DOG LATHE:	501	(54522)	1
DOG LATHE:	6H	(03914)	1
DOG LATHE:	11	(03914)	1
FACE PLATE:	L1657D1-3	(54522)	1
FACE PLATE:	LTKT182	(54522)	1
GEAR SET:	L1671XL	(54522)	1
HOLDER, LATHE TOOL:	8	(54522)	1
HOLDER, LATHE TOOL:	30L	(54522)	1
HOLDER, LATHE TOOL:	30R	(03914)	1
HOLDER, LATHE TOOL:	20	(54522)	1
HOLDER, LATHE TOOL: LH OFFSET	00H581	(81348)	1
HOLDER, LATHE TOOL: RH OFFSET	00H581	(81348)	1
HOLDER, LATHE TOOL: STR	00H581	(81348)	1
KNURLING TOOL:	0K	(54522)	1
KNURLING TOOL:	3K0	(54522)	1
REST FOLLOWER:	ASL1684	(54522)	1
REST STEADY:	ASL575-1	(54522)	1
SLEEVE SPINDLE:	KB465	(54522)	1
STOP CARRIAGE:	ASL1825-1	(54522)	1
WRENCH, SPANNER:	A209L	(54522)	1
WRENCH, TAILSTOCK:	K509-1	(54522)	1
WRENCH, TOOL POST:	S2115	(54522)	1

Page 22. Appendix I is superseded as follows:

**APPENDIX I
BASIC ISSUE ITEMS LIST
AND
ITEMS TROOP INSTALLED OR AUTHORIZED LIST**

The basic issue items and items troop installed or authorized lists are not applicable.

By Order of the Secretary of the Army:

Official:

VERNE L. BOWERS
Major General, United States Army
The Adjutant General

CREIGHTON W. ABRAMS
General, United States Army
Chief of Staff

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Ft Holabird (2)
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LEAD (2)
Gen Dep (2)
USAREUR(1)
USMA (1)
USATSCH (1)

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NG: State AG (3)

USAR: None

For explanation of abbreviations used, see AR 310-50.

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INSTRUCTIONS FOR UNCRATING AND SETTING UP A SHELDON LATHE

All Sheldon Lathes come completely assembled, tightened up, and ready to be placed on the floor, oiled, and put to work. They come crated with bench legs, floor legs or pedestal base, and motor drives (if any) attached, with all machined and hand scraped parts protected with rust preventative, un-machined parts painted, the entire lathe wrapped in a water and grease-proof cover, and strongly braced and crated. In each crate is a box of "Standard Equipment."

When uncrating, first remove inside cross braces, then remove bottom outside cross braces, loosen upright boards completely around the base, and lift the crate off the lathe. Great care should be taken in loosening crate, as a slip of the hammer or bar can do serious damage to the lathe.

With lathe uncrated, next open your box of "Standard Equipment" and check items included against the "Standard Equipment" listed on packing list. After all parts are accounted for, crating materials may be removed, and you are ready to move your lathe into working position.

In selecting the proper location for your lathe, remember (1) That operation is from the apron side of lathe; allow at least 40" to 48" operator clearance in front of the lathe. (2) That the best working light should shine over the operator's shoulders and should be ample. (3) That lathe must be on a solid (concrete if possible) foundation. If on wood floor, flooring should be braced, if necessary to prevent sagging or settling because the lathe must be set solidly, squarely, and rigidly, and must be level if it is to work accurately. (4) That allowance should be made back end and overhead for later addition of taper attachments, overhead motor drive, or other accessories. End clearance of the headstock should be provided, where possible, if bar stock is to be fed through the spindle. Where the placing of more than one lathe is contemplated, arrangement in oblique rows will save much floor space, as long bar stock for each machine can be fed from stock rests placed behind the adjacent lathe. (5) Bench lathes should be mounted on a heavy rigid and level bench which should be about 28" high.

Before permanently anchoring the lathe to the floor or bench, be sure that the bed is absolutely level. Remember, no lathe can do accurate work unless it is solidly anchored and level both along and across the bed. Shim up any low points in floor or bench using sheet steel or other non-compressible material. After tightening anchor bolts check again for level. Use a precision level.

BOLTING DOWN AND LEVELING YOUR LATHE

PROCEDURE FOR BOLTING DOWN LATHE

If your floor is concrete, anchor bolts are recommendedif on wood, lag screws. Anchor bolts or lag screws are not supplied with the lathe.

Since the anchor bolts and lag screws must be accurately located in the floor, pre-drilling is not recommended. Neither dimensional drawings nor templates give the accurate center distances required between bolt holes. These can only be obtained by setting the lathe in its exact location and spotting the center of the bolt holes in the floor.

CONCRETE FLOORS

Place the lathe in the location desired, selecting a smooth surface where there are no signs of the concrete floor sagging. Mark the holes to be drilled for the headstock pedestal leg first. Move the lathe aside. Since a 1/2" anchor should be used, drill the holes approximately 7/8" x 1-1/2" deep. Drive in the anchors, and replace the lathe. Partially screw in the hold down bolts in order to hold the lathe in place while marking the holes to be drilled for the tailstock pedestal.

Again, lift or move the lathe aside and drill the tailstock holes. When these anchors are in place, the lathe can be lifted back into position. Partially screw in all of the hold down bolts. The lathe is now ready for leveling.

WOODEN FLOORS

On wooden floors it is desirable to bolt steel plates to the floor at the approximate location of the six hold down and leveling screw bosses on the pedestal legs. The steel plates should be at least 6" square and 1/4" thick. They will provide a good firm support on which to level the lathe and will also tend to eliminate some of the vibration inherent in wooden floors.

Spot the hold down holes in the same way suggested for concrete floors. Drill deep enough to accommodate 1/2" x 6" lag screws. Spot the lathe in place and partially tighten down on the lag screws. The lathe is now ready for leveling.

LEVELING THE LATHE

To accurately level your lathe, a precision machinist's level must be used. In the construction of your lathe, the alignment tolerances were held to tenths of thousandths of an inch. It is important that you hold these same tolerances in leveling. A carpenter's level or a combination square level will not give you the accuracy required. A precision ground bulb level graduated in .0005" per foot is recommended.

(Mark one end of the level with a piece of chalk so that the level always points in the same direction when you are taking your readings.)

Back-off all of the leveling screws to be sure that both pedestal legs are setting solidly on the floor.

Now place the level across both V-ways at the headstock end of the bed. The tops of the V-ways are precision ground to facilitate leveling, and additional parallel blocks are not required. Adjust the two outside leveling screws in the headstock pedestal to obtain a "zero" reading on the level.

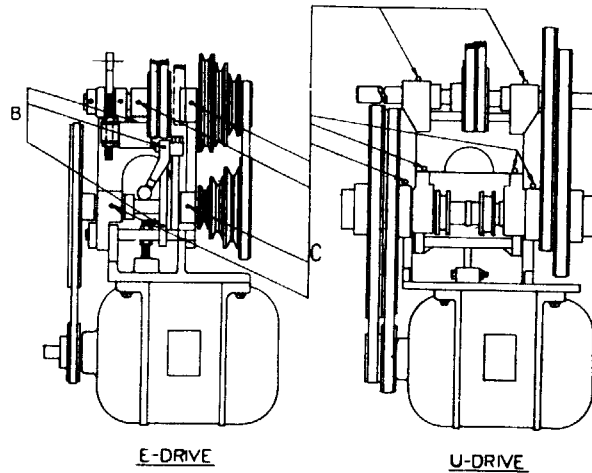
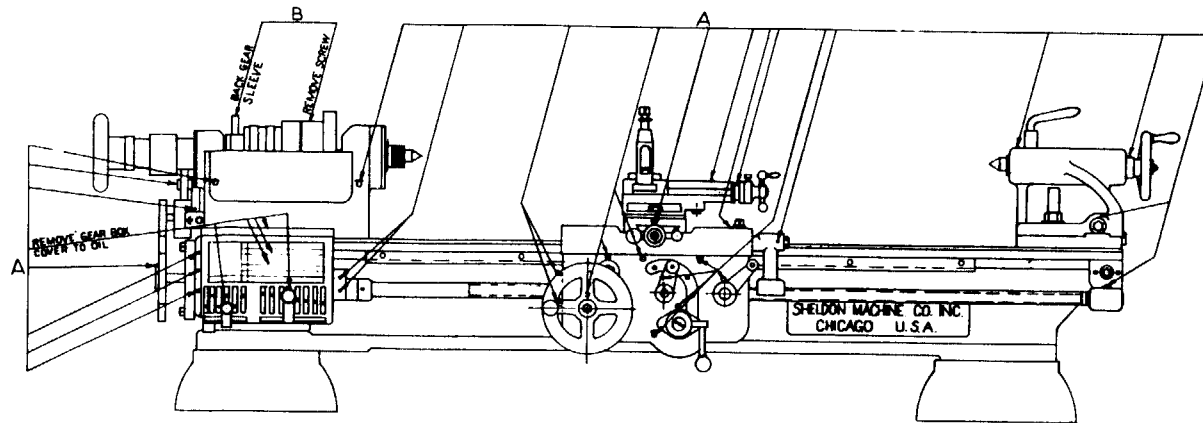
Move the level to the tailstock end of the bed, adjusting the two outside leveling screws in the tailstock pedestal to obtain the same reading as on the headstock end.

It will be necessary to repeat this procedure several times, making necessary minor adjustments. You will find that adjustments at one end of the lathe will affect the level of the other. When both ends of the lathe bed are level, turn down the two center leveling screws until they rest under a slight tension on the floor. This tension should not be sufficient to change the level reading.

Although the lathe should now be accurately leveled, it is important to recheck the level both along the flat way and across the bed. Very few, if any, minor adjustments should have to be made.

FUTURE LEVELING

The level of your lathe should be checked at least once a month. You will probably find it desirable to check the lathe level as part of each new job set-up.



LUBRICATION INSTRUCTIONS

- A - OIL DAILY
- B - OIL EVERY 200 HOURS
- C - GREASE EVERY 200 HOURS

CLEAN AND OIL FREQUENTLY:
 COMPOUND, CROSS FEED AND LEAD SCREWS,
 SWIVEL WAYS, AND DOVE TAILS.

FOR A/B - USE HIGH QUALITY GENERAL PURPOSE
 MACHINE OIL (S.A.E. 20) SUCH AS
 GARGOYLE VACTRA OIL, HEAVY
 MEDIUM

FOR C - USE HIGH QUALITY GENERAL PURPOSE
 ANTI-FRICTION BEARING GREASE,
 SUCH AS GARGOYLE GREASE BRB NO.1

USE THE ABOVE SOCONY-VACUUM PRODUCTS OR EQUIVALENT

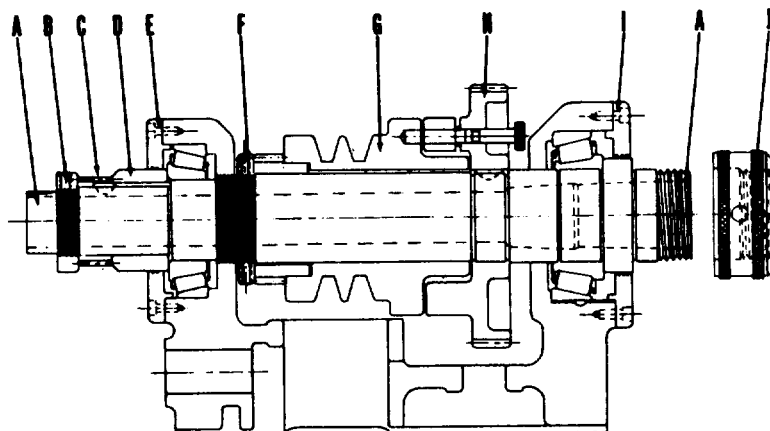
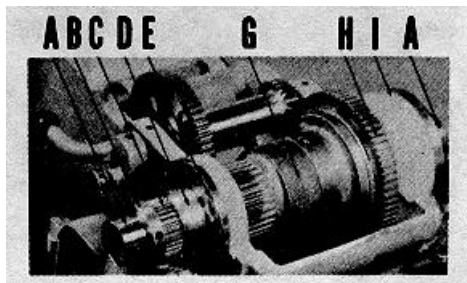
OUTLINE FOR REPLACEMENT OF V-BELTS

Motor drive to countershaft:

Release belt tension by rotating tension nut provided and simply slip belt off over left end of pulley.

Lower Countershaft to Upper Countershaft:

Release belt tension by raising cam lever control and rotate belt off last right step of pulley.



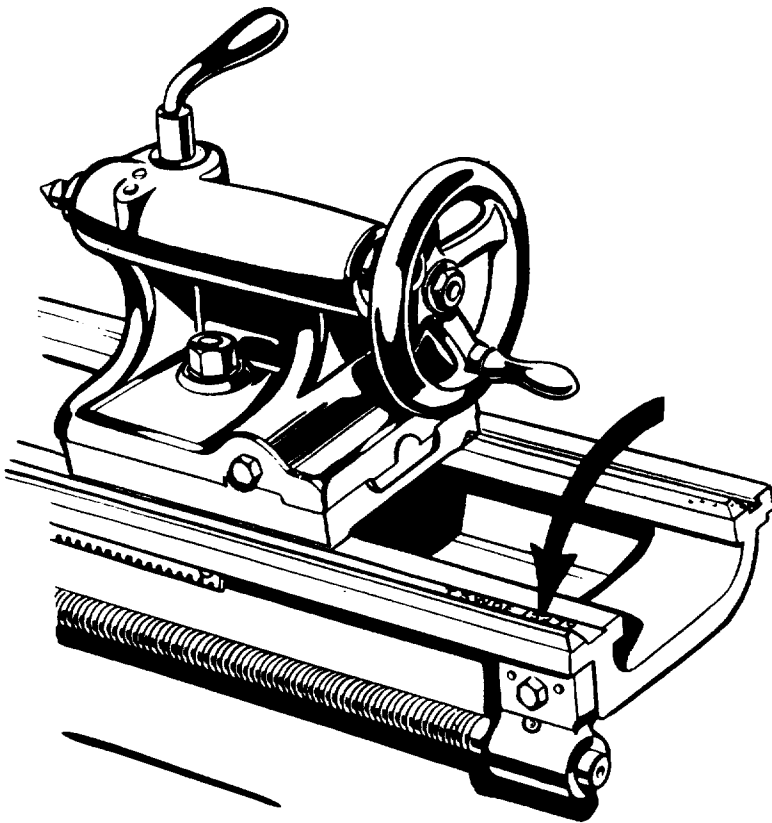
- A - Spindle
- B - Thrust Nut
- C - Feed Gear
- D - Spacer Collar
- E - Rear Bearing Cap
- F - Threaded Keeper Collar
- G - Double Groove Sheave
- H - Large Face Gear
- I - Front Bearing Cap
- J - Nose Cap
(Thread Protector)

Spindle Belts:

1. (a) Release belt tension by adjusting nuts of support located in front upper left hand corner of underneath drive cabinet.
(b) Release set screws in countershaft collars and pulleys - slide countershaft to extreme right and remove belts.
2. Remove socket head screws from end caps and remove caps.
3. Remove set screw in thrust nut left end of spindle (taking care not to overlook the brass pad, which bears against threaded portion of spindle.) Remove thrust nut.
4. Slide keyed gear and keyed collar off rear of spindle. **IMPORTANT: REMOVE HI-PRO KEY.**
5. Remove three set screws from narrow width threaded keeper collar which is located next to gear within the bowl of headstock. (Again, do not overlook brass pad beneath set screws.) Unscrew keeper collar maximum amount away from headstock sheave. The pulley assembly is not keyed to spindle.
6. Place two blocks of wood, one on either side of spindle between the large face gear and headstock casting. (Wood will act as a pad to protect face gear and lockpin from damage as spindle is pressed from headstock in the direction of the tailstock.) Replace thrust nut on spindle to protect threads - then hold a piece of tubing (with large enough hole to clear end of spindle) against thrust nut to act as pad when driving spindle toward tailstock.
7. Drive spindle towards tailstock. (Two press fits act as resistance; one the large face gear, the other, the rear bearing inner ring.)
8. As spindle is driven toward tailstock, unscrew keeper collar, progressively, until free from threaded portion of spindle.
9. Lift pulley assembly out of headstock bowl, replace old "V" belts with pair of new "V" belts.

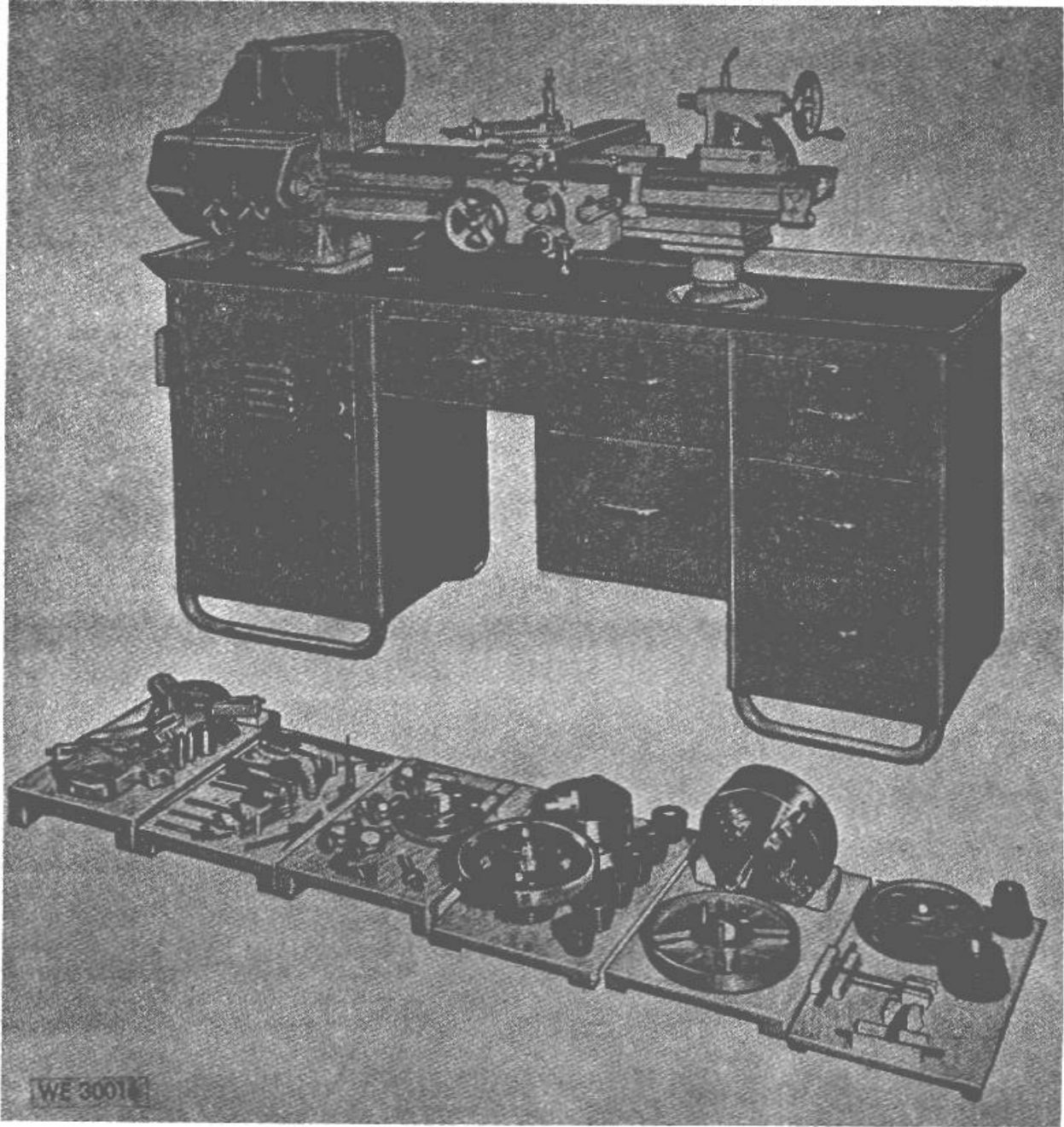
OUTLINE FOR REPLACEMENT OF V-BELTS (Cont'd)

10. Clean all assemblies.
CAUTION: Inner race of front bearing should be seated against shoulder on spindle to insure that no dirt or grit will interfere with proper seating of bearing when headstock is reassembled.
11. Reassemble spindle assembly from front to rear.
 - (a) Place spindle nose cap on spindle to protect nose threads.
 - (b) Line up keyway of large face gear with key in spindle. By bucking up against the large face gear and tapping against the spindle nose cap, the gear may be worked into place. The large gear will seat on the spindle shoulder.
 - (c) Spindle pulley should be butted against large face gear lightly, allowing approximately .005" clearance, and secured in place by keeper collar with set screws bearing on the small brass pads.
 - (d) The rear bearing may now be lightly tapped into place, or drawn into place by use of the thrust nut and spacers.
 - (e) Replace HI-PRO key, collar, keyed gear, and thrust nut.
 - (f) Replace front and rear bearing caps. ("S" witness mark goes on bottom.)
 - (g) Adjust thrust nut to eliminate end play. (Secure with set screws and brass pads.)
12. Connect belts to pulley on underneath drive countershaft, tightening set screws and making sure that belt is in alignment.
13. Adjust belt tension.
14. Lubricate spindle bearings before operating. Use S.A.E. No. 10 lubricating oil.

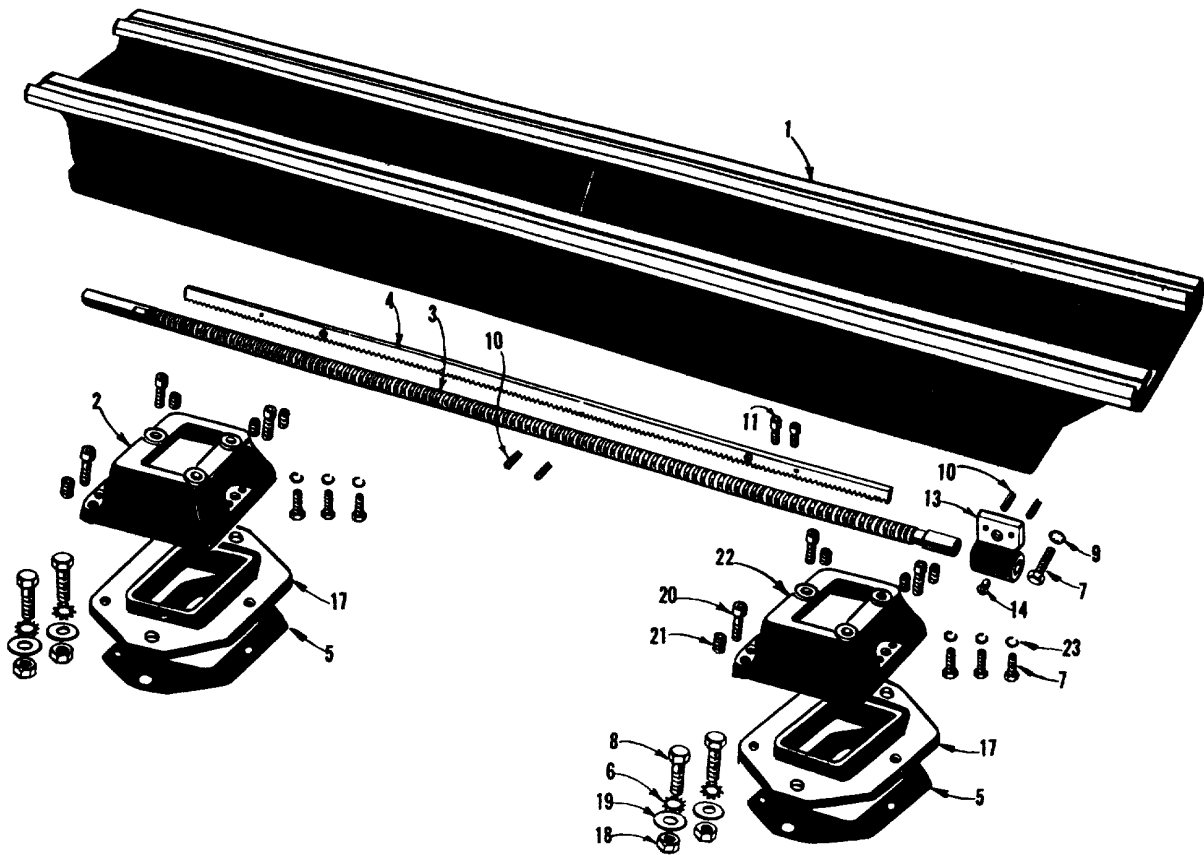


IMPORTANT NOTE FOR ORDERING PARTS

When ordering replacement parts, and in all correspondence pertaining to a lathe, reference should always be made to the serial number, which is found on the front flatway of the bed at the tail-stock end.

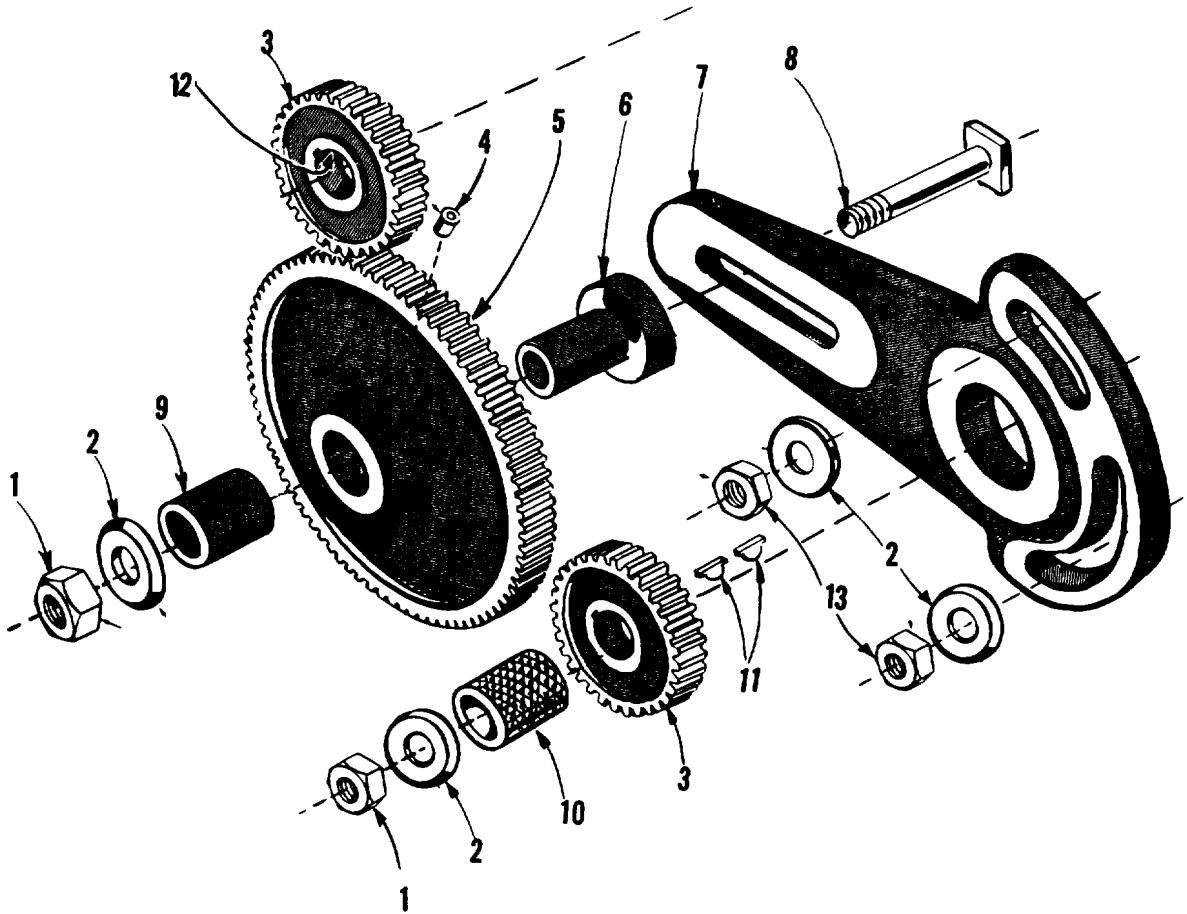


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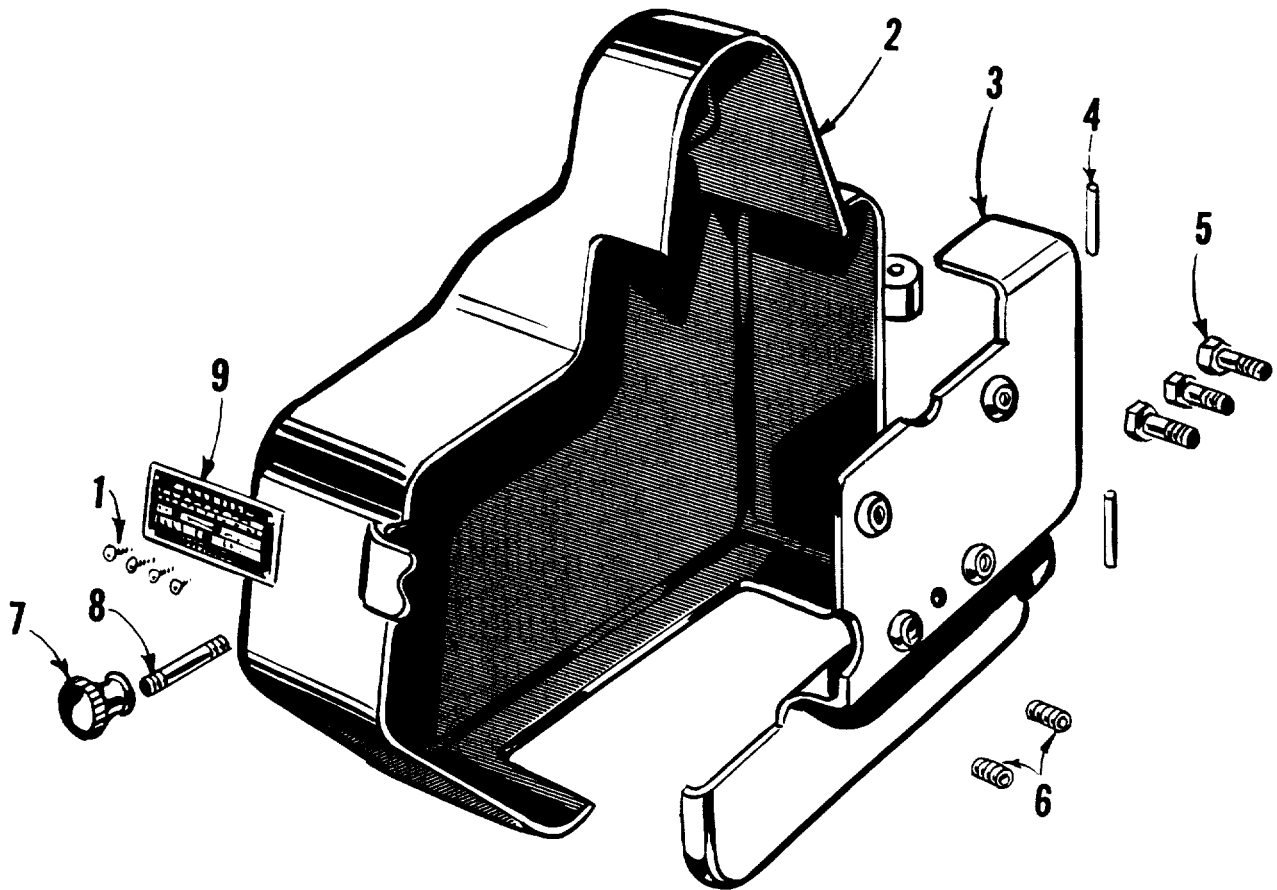
BED UNIT

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Quantity</u>
1	L-144	Bed 46" long	1
1	L-145	Bed 56" long	1
1	L-143	Bed 38" long	1
2	L-1788	Top Bench Leg	1
3	L-422X-1	Lead Screw 3/4" Dia.(for 46" bed)	1
3	K-874X	Lead Screw 3/4" Dia.(for 56" bed)	1
3	L-424X	Lead Screw 3/4" Dia.(for 38" bed)	1
4	K-147X-1	Rack (for 46" bed)	1
4	K-1115-1	Rack (for 56" bed)	1
4	C-124-1	Rack (for 38" bed)	1
5	L-965X-G	Gasket for Bench Leg	2
6	A-203	Lockwasher	4
7	A-323	Hex Head Cap Screw 3/8-16 x 1-1/4 lg	7
8	A-331	Hex Head Cap Screw 3/8-16 x 1-3/4 lg	4
9	A-202	Shake-proof Washer	1
10	AA-857	Spring Pin	4
11	A-327	Socket Head Cap Screw 1/4-20 x 3/4	2
13	L-943	Leadscrew End Bearing	1
14	A-1000	Gits Oil Hole Cover	1
17	L-1790	Bottom for Bench Leg	2
18	A-102	Hex Nut	4
19	A-201	Steel dasher 3/8	4
20	A-407	Socket Head Cap Screw 5/16-18 x 7/8	6
21	AA-622	Socket Set Screw 3/8-16 x 3/4	8
22	L-1789	Right Lag Top	1
23	A-226	Lockwasher	6



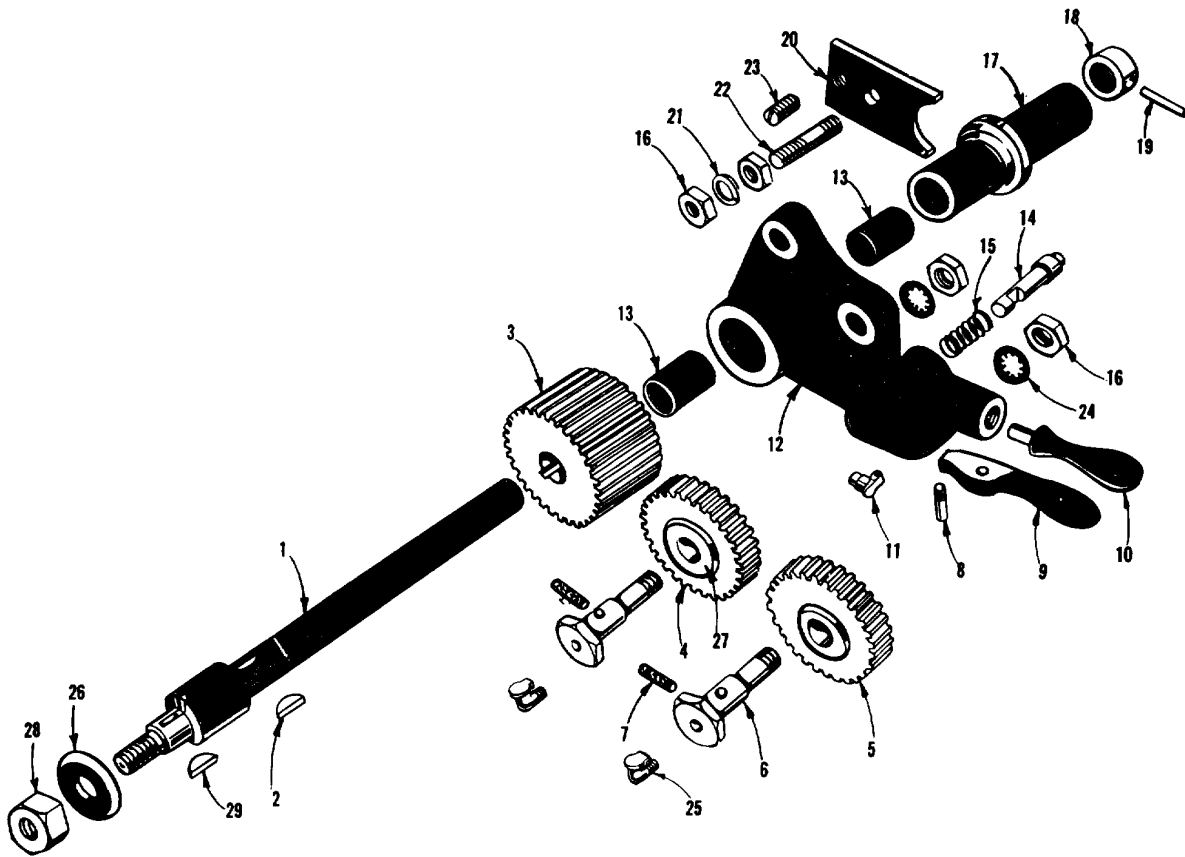
END GEARING ASSEMBLY

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Quantity</u>
1	A-102	Hex Nut 3/8-16	2
2	K-93	Washer	4
3	L-1664F	44 Tooth Formica Gear	2
4	A-1003	Gits Oil Cover	1
5	L-1603	80 Tooth Intermediate Gear	1
6	L-1604	Steel Bushing	1
7	L-1602	End Gear Lever Quadrant	1
8	L-167	Square Head Bolt	1
9	A-1379	Oilite Bearing	1
10	K-446	Knurled Spacer Bushing	1
11	A-902	Hi-Pro Key	2
12	L-1664-F1	Bushing	2
13	A-100	Hex Jam Nut	2



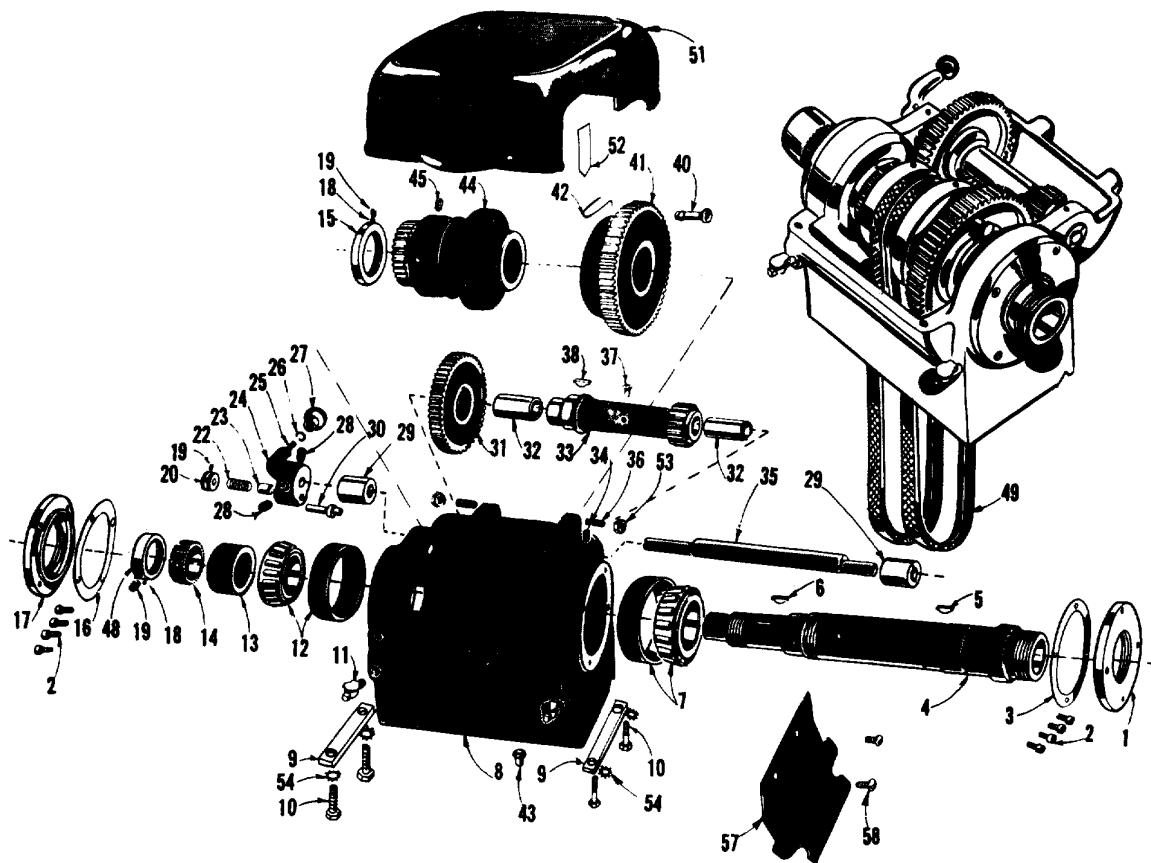
END GEAR GUARD ASSEMBLY

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Quantity</u>
1	A-852	Round Head Drive Stud	4
2	L-1662	End Gear Guard Hinged Cover	1
3	L-1661	End Gear Guard Bracket	1
4	A-889	Groove Pin	2
5	A-303	Hex Head Cap Screw 1/4-20 x 3/4	3
6	A-656	Socket Set Screw	2
7	A-142	Knurled Brass Nut	1
8	L-1634	Stud	1
9	S-1163	Leveling Chart	1



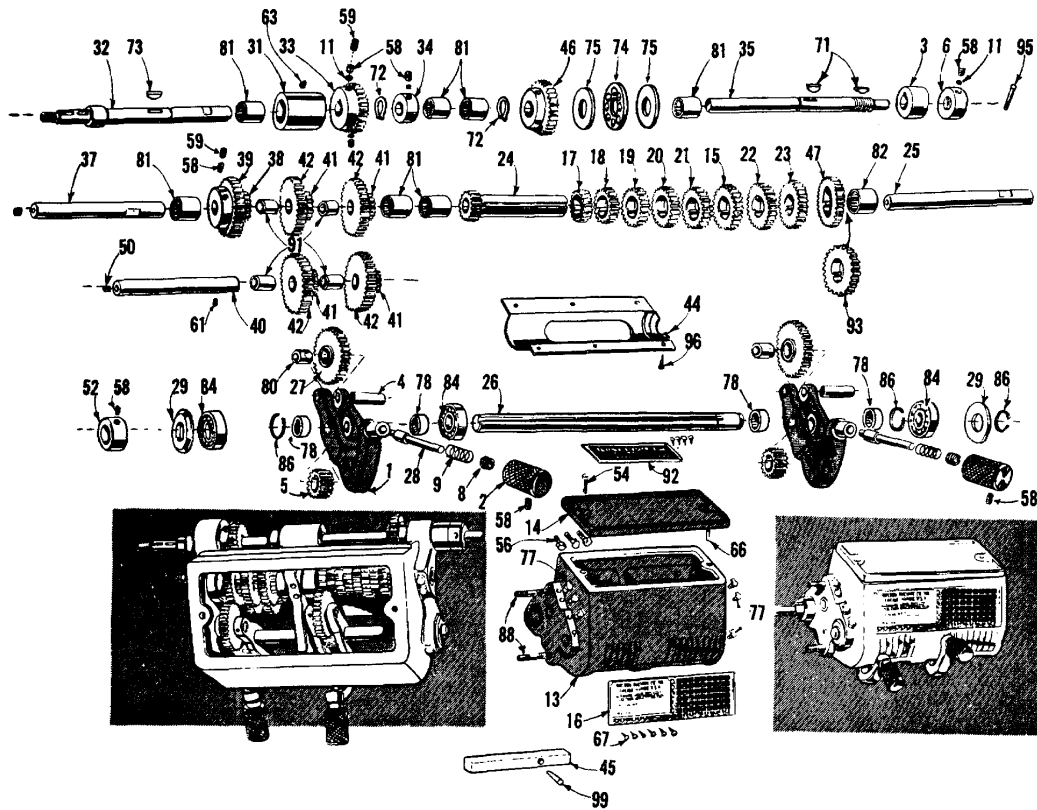
REVERSE PLATE ASSEMBLY

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Quantity</u>
1	L-1669	Reverse Plate Shaft	1
2	A-902	Hi-Pro Key	1
3	L-1667	32 Tooth Steel Gear	1
4	L-1666-F	30 Tooth Formica Gear with Bushing	1
5	L-1665	28 Tooth Gear	1
6	L-1779	Stud	2
7	S-1140	Wick	2
8	L-206	Lever Screw	1
9	L-76	Lever	1
10	L-827	Machine Handle	1
11	A-1001	Gits Oil Hole Cover	1
12	S-1442	Reverse Plate	1
13	A-1398	Bushing	2
14	L-82	Pull Pin	1
15	L-83	Spring	1
16	A-100	Jam Nut	4
17	S-73	Reverse Plate Bushing	1
18	K-51	Collar	1
19	AA-853	Spring Pin	1
20	S-31	Tension Plate	1
21	A-203	Lockwasher	1
22	S-702	Stud	1
23	A-609	Set Screw 3/8-16 x 3/4	1
24	A-202	Shake-proof Lockwasher	2
25	A-1040	Gits Elbow Oil Cup	2
26	K-93	Washer	1
27	L-1666-F1	Bushing	1
28	A-102	Hex Nut	1
29	A-900	Key	1



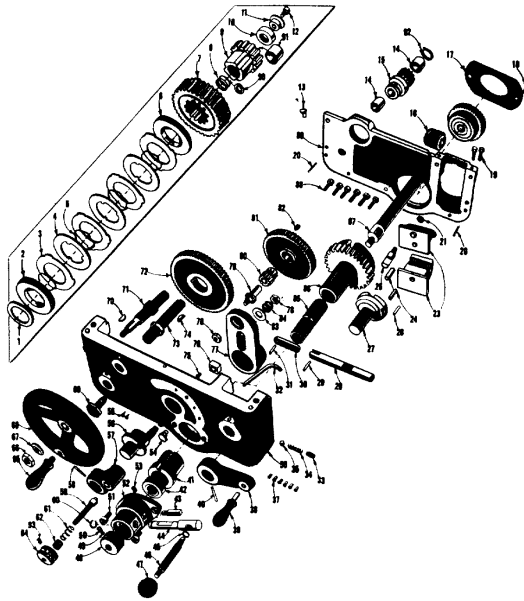
HEADSTOCK ASSEMBLY

Ref. No.	Part No.	Description	Quantity	Ref. No.	Part No.	Description	Quantity
1	L-1654	Front Bearing Cap	1	26	A-226	Shakeproof Lockwasher	1
2	A-395	Cap Screw	4	27	AA-1932	Plastic Ball	1
3	L-1655	Front Bearing Cap Gasket	1	28	A-607	Socket Set Screw	2
4	XL-1670-1	Threaded Spindle	1	29	K-66	Eccentric Bushing	1
4	L-1761-1	LOO Spindle	1	30	K-1125	Quadrant Lever Plunger	1
5	A-903	Hi-Pro Key	1	31	L-1405	Large Back Gear 64-Tooth	1
6	A-902	Hi-Pro Key	1	32	AA-1312	Bearing	2
7	A-1186	Tapered Bearing Front	1	33	L-1406X	Back Gear Pinion Sleeve 26-Tooth	1
8	L-1650-1	Headstock (Main Casting)	1	34	A-670	Socket Set Screw	2
9	L-70	Headstock Clamp	2	35	L-64	Eccentric Shaft	1
10	L-1850	Screw	2	36	A-675	Socket Set Screw	2
11	A-1010	Gits Elbow Oil Cup	2	37	A-1003	Oil Cup	1
12	A-1168	Tapered Bearing Rear	1	38	A-905	Hi-Pro Key	1
13	L-1408-50	Take Up Collar	1	40	L-38	Face Gear Plunger	1
14	L-1663	Spindle Feed Gear 32-Tooth	1	41	L-37-50X	Face Gear	1
15	XL-1412-50	Nut For Spindle Pulley	1	42	L-40	Spring For Plunger	1
16	L-1402-1	Bearing Cap Gasket Rear	1	43	T-1417	Locating Pin	1
17	XL-1402-50	Rear Bearing Cap	1	44	L-1652	V-Belt Pulley	1
18	L-776	Plug For Lock Screw	4	45	A-602	Socket Set Screw	1
19	A-601	Socket Set Screw	4	48	XL-1562	Spindle Thrust Nut	1
20	K-543	Plunger Knob	1	49		V-Belt	2
22	K-546	Plunger Spring	1	51	L-1420A	Headstock Cover	1
23	K-98	Bushing (Knurled)	1	52	S-1916	Oil Decal	1
24	M-69	Back Gear Handle	1	53	A-105	Hex Nut	2
25	S-1139	Stud	1	54	A-212	Shakeproof Lockwasher	2
				57	L-1814-1	Chip Guard	1
				58	AA-341	Slotted Pan Head Screw	2



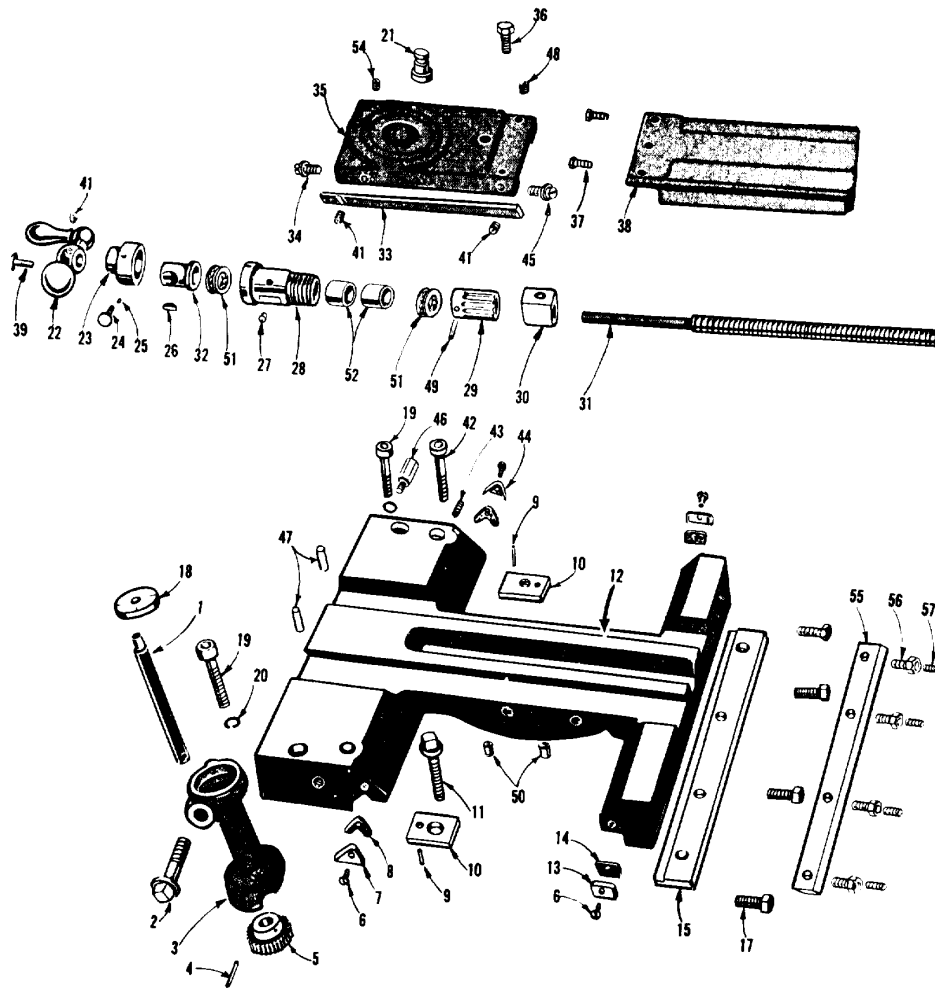
GEAR BOX ASSEMBLY

Ref. No.	Part No.	Description	Quantity	Ref. No.	Part No.	Description	Quantity
1	C-402	Tumbler	2	41	L-1632	16 Tooth Compound Gear	4
2	C-418	Pull Pin Knob	2	42	L-1633	32 Tooth Compound Gear	4
3	C-420	Adjusting Collar	1	44	L-1854	Back Cover	1
4	L-1759	Tumbler Intermediate Shaft	2	45	L-1637	Spacer Block	1
5	C-430-A	Tumbler Gear 16 Tooth	2	46	L-1815-2	28 Tooth Input Gear	1
6	C-434	Collar Lock Nut	1	47	L-2069	30 Tooth Cluster Gear	1
8	L-1796	Tumbler Handle Bushing	2	50	L-1760	Plug for Gear Shaft	1
9	K-546	Plunger Spring	2	52	U-140	Collar	1
11	L-776	Brass Plug	3	56	A-300	Fill, Hd, Screw 5/16-18 x 5/8	1
13	L-1600-2	Gear Box (Main Casting)	1	56	A-441	Hex head Cap Screw	3
14	L-1601	Cover	1	58	A-601	Socket Set Screw 1/4-20 x 1/4	8
15	L-1606-1	26 Tooth Cluster Gear	1	59	A-623	Socket Set Screw 1/4-20 3/16	3
16	L-1607-1	Thread Cutting Chart	1	61	A-611	Socket Set Screw 1/4-20 x 1/2	1
17	L-1608-1	18 Tooth Cluster rear	1	63	A-656	Socket Set Screw 5/16-18 x 3/8	1
18	L-1609-1	20 Tooth Cluster Gear	1	66	A-850	Groove Pin	1
19	L-1610-1	22 Tooth Cluster Gear	1	67	A-852	Round Head Drive Stud	10
20	L-1611-1	23 Tooth Cluster Gear	1	71	A-902	Hi-Pro Key	2
21	L-1617-1	24 Tooth Cluster Gear	1	72	A-1215	Snap Ring	2
22	L-1613-1	27 Tooth Cluster Gear	1	73	A-906	Hi-Pro Key	1
23	L-1614-1	28 Tooth Cluster Gear	1	74	L-1906	Steel Ball Retainer	1
24	L-1615-1	Cluster Sleeve Gear 16 Tooth	1	75	A-1198	Thrust Washer	2
25	L-1616	Cluster Gear Shaft	1	77	A-1008	Gits Oil Hole Cover	5
26	L-1617.1	Tumbler Shaft	1	78	L-1797	Bearing	4
27	TC-433	32 Tooth Tumbler Gear	2	80	A-1188	Torrington Needle Bearing	2
28	L-1619-1	Tumbler Pull Pin	2	e l	A-1189	Torrington Needle Bearing	7
29	L-1620	Washer	2	82	A-1190	Torrington Needle Bearing	1
31	L-1622	Bushing for End Lever Bearing	1	84	A-1192	New Departure Ballbearing	3
32	L-1623-1	Input Shaft	1	86	A-1216	Snap Ring	3
33	L-1624	28 Tooth Input Gear	1	88	A-1250	Stud	2
34	L-1625	Collar for Input Shaft	1	91	A-1398	Oilite Baring	4
35	L-1626-1	Drive Shaft for Lad Sore	1	92	L-1757	Instruction Plate	1
37	L-1628	Intermediate Shaft	1	93	L-2070	32 Tooth Cluster Gear	1
38	L-1629	Intermediate Shaft Pinion 16 T	1	95	A-801	Taper Pin	1
39	L-1630	Interm, Shaft Pinion Gear 32 T	1	96	A-872	Round Head Drive Stud	6
40	L-1631	Lower Gear Shaft	1	99	A-805	Taper Pin	1



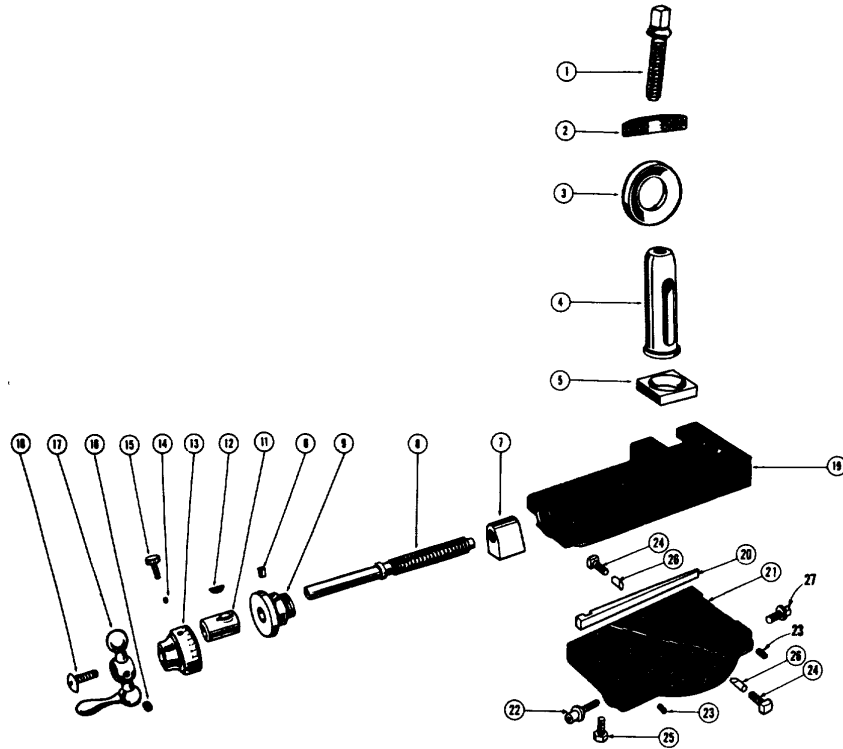
APRON ASSEMBLY

Ref. No.	Part No.	Description	Quantity	Ref. No.	Part No.	Description	Quantity
1	L-1773	Washer	1	48	10776	Screw	1
2	A-2066	Locking Plate	1	49	L-776	Brass Plug	1
3	A-2063	Outer Disc	4	50	A-605	Socket Set Screw	1
4	A-2064	Inner Disc	3	51	A-395	Socket Hd. Cap Screw	2
5	A-2065	Separator Spring	4	52	L-2023	Cap for Clutch	1
6	A-2066	Locking Plate	1	53	AA-614	Socket Set Screw	1
7	L-2026	Worm Gear 40 Tooth	1	54	A-1012	Gits Oil Cup	1
8	10739	Spring	1	55	A-858	Drive Stud	2
9	L-2025	Clutch Spline	1	56	K-551	Eccentric Stud	1
10	A-1108	Thrust Ballbearing	1	57	K-548	Quadrant Lever	1
11	L-2035	Shoulder Cap	1	58	AA-850	Spring Pin	1
12	AA-379	Cap Screw	1	59	K-1125	Quadrant Lever Plunger	1
13	A-1040	Gits Oil Cup	2	60	A-1218	Retaining Ring	2
14	AA-1327	Rearing	2	61	K-546	Spring	1
15	K-532-3	Rack Pinion 14 Tooth	1	62	K-98	Bushing	1
16	K-1682	Worm	1	63	A-601	Socket Set Screw	2
17	L-2030	Retaining Plate	1	64	K-543	Plunger Knob	1
18	A-362	Flat Hd. Mach. Screw	2	65	K-24	Machine Handle	1
19	A-319	Hex. Head Cap Screw	2	66	A-135	Acorn Nut	1
20	A-880	Dowel Pin	2	67	K-93	Washer	1
21	A-101	Hex Nut	1	68	E-197	Handwheel	1
23	M539x	Half Nut	1	69	LK-522	Stud Screw	1
24	K-554	Pin for Half Nut	2	70	A-900	Key	1
25	K-538	Counter Lock Stud	1	71	K-542	Handwheel Shaft	1
26	A-880	Dowel Pin	1	72	K-23X	Rack Pinion Gear 68 Tooth	1
27	K-536-7	Half Nut Can	1	73	K-1005-1	Rack Pinion Stud	1
28	K-534	Safety Latch	1	74	A-901	Key	1
29	L-1767	Pin	1	75	A-1012	Oil Cup	1
30	K-535	Quadrant Link	1	76	K-549	Guide Block	1
31	A-880	Dowel Pin	1	77	K-552X	Apron Quadrant	1
32	K-511	Oil Pipe	1	78	A-101	Hex Nut	2
33	A-602	Set Screw	1	79	K-553-1	Quadrant Stud	1
34	K-863	Spring	1	80	K-19-1	Quadrant Pinion	1
35	A-1400	Steel Ball	1	81	K-18-1	Quadrant Gear	1
36	K-555-2	Apron Body	1	82	L-1597-1	Pin	1
37	A-1001	Oil Cup	6	83	K-93	Washer	1
36	L-10	Half Nut Crank	1	84	K-550-1	Spring	1
39	L-827	Machine Handle	1	85	L-2027	Sliding Pushing	1
40	AA-856	Spring Pin	2	86	L-1769	Friction Gear	1
41	L-2024	Friction Bushing	1	87	L-2028-2	Feed Clutch Shaft	1
42	AA-1122	Thrust Ballbearing	1	88	A-303	Hex Head Cap Screw	6
43	L-2032	Stop Pin	1	89	M-194-1	Back Plate	1
44	L-2033	Can for Clutch	1	90	10740	Washer	1
45	A-235	Lockwasher	1	91	AA-1324	Bearing	1
46	10742	Handle for Cam	1	92	A-1216	Snap Ring	1
47	10010	Plastic Ball	1	93	AA-861	Spring Pin	1



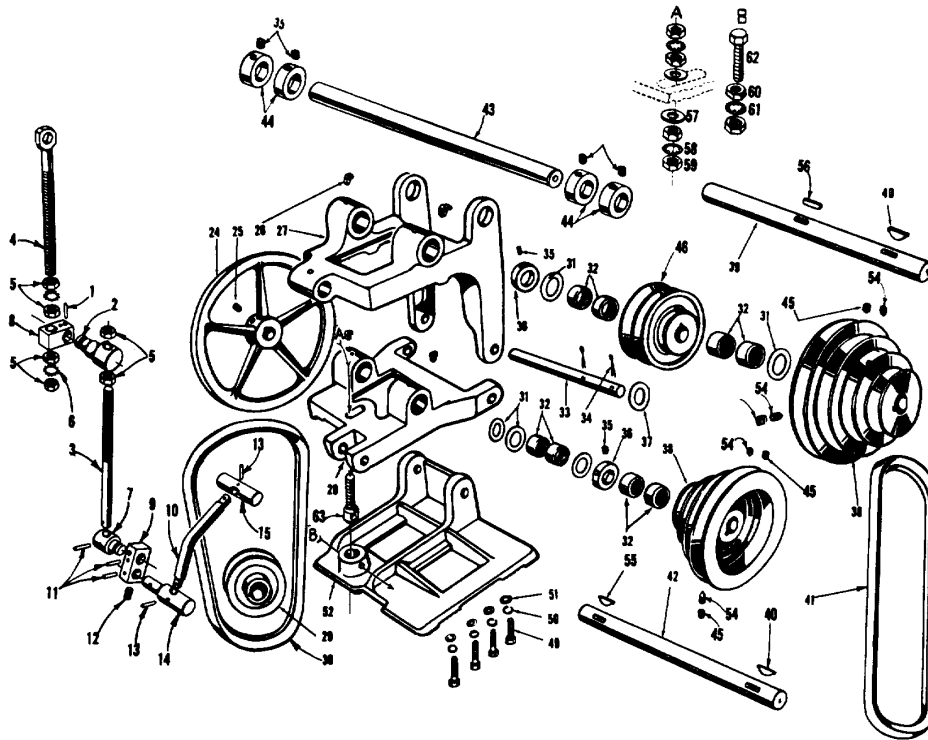
CARRIAGE ASSEMBLY

Ref. No.	Part No.	Description	Quantity	Ref. No.	Part No.	Description	Quantity
1	K-891	Thread Indicator Shaft	1	29	K-124	Crossfeed Pinion	1
2	10931	Binding Screw	1	30	K-128-1	Crossfeed Nut	1
3	K-890	Thread Indicator body	1	31	L-830	Crossfeed Screw	1
4	AA-852	Spring Pin	1	32	L-228	Bushing for Micrometer Collar	1
5	L-192	Worm Wheel	1	33	L-1021X	Gib for Lower Slide	1
6	A-314	Round Head Machine Screw	4	34	LKM-940	Adjusting Gib Screw	1
7	LK-487-2	V-Felt Wiper Retainer	1	35	LT-129-X-1	Lower Slide	1
8	K-1141-1	V-Wiper Felt	2	36	K-1817	Cap Screw for Crossfeed Nut	1
9	A-857	Groove Pin	2	37	AA-371	Thrust Head Machine Screw	2
10	XK-120-1	Binding Block	2	38	L-1598-1	Chip Guard	1
11	L-121	Binding Screw	1	39	L-991	Thrust head Machine Screw	1
12	L-119-1	Carriage (Main Casting)	1	41	AA-614	Socket Set Screw, Dog Point	3
13	LK-489	Flat Wiper Retainer	2	42	A-311	Socket Head Cap Screw	1
14	K-1142	Flat Wiper Felt	2	43	A-611	Socket Set Screw	1
15	L-2125	Rack Clamp	1	44	LK-487-1	V-Wiper Retainer	1
17	A-317	Hex Head Cap Screw	4	45	LKM-940-2	Gib Adjusting Screw	1
18	K-892	Thread Indicator Dial	1	46	L-184	Carriage Stop	1
19	A-487	Cap Screw Socket Head	2	47	L-1920	Dowel Pin	2
20	A-235	Lockwasher	2	48	A-698	Set Screw	1
21	L-227	Snivel Stud	1	49	AA-852	Spring Pin	1
22	K-852	Ball Crank	1	50	A-1003	Oil Hole Cover	2
23	L-1827	Micrometer Collar	1	51	AA-1160	Thrust Ballbearing	2
24	K-458	Micrometer Collar Screw	1	52	A-1371	Bushing	2
25	MIL-L-853	Brass Pig	1	54	A-600	Socket Set Screw	1
26	A-900	Key	1	55	L-2126	Take-up Gib	1
27	A-1004	Oil Cup	1	56	L-636	Lock Not	4
28	L-1829-1	Crossfeed Screw Bushing	1	57	L-635B	Adjusting Screw	4



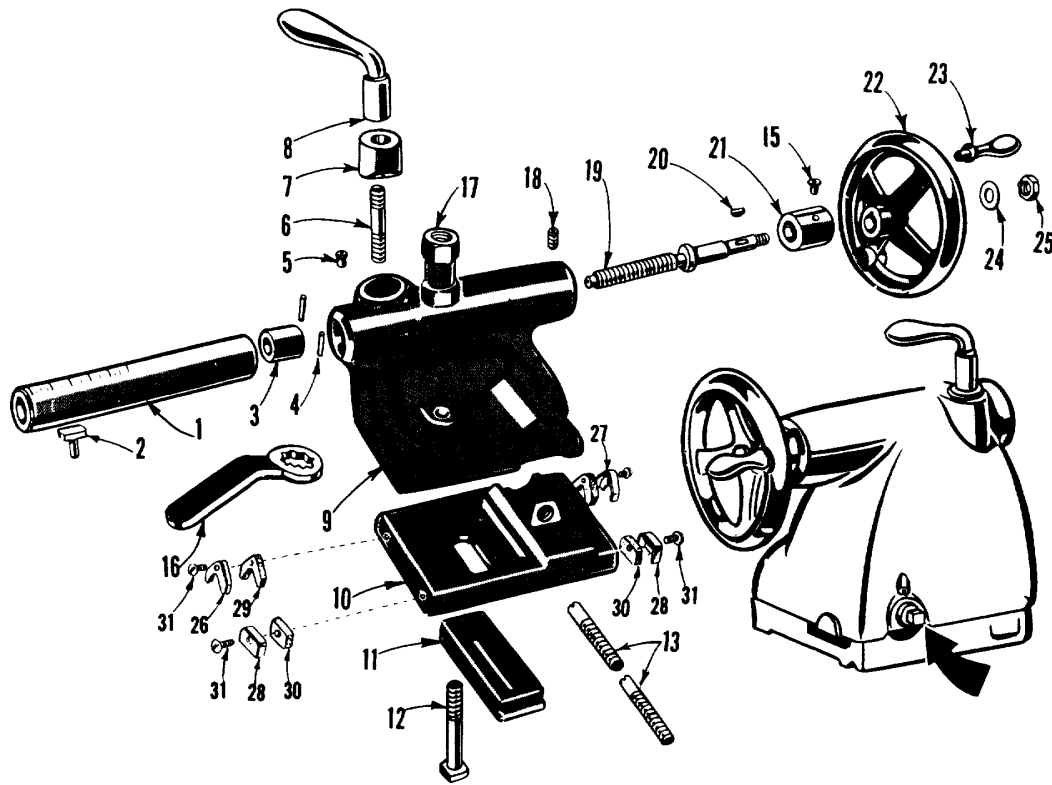
COMPOUND ASSEMBLY

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Quantity</u>
1	K-451	Tool Post Screw)	1
2	L-826	Tool Post Wedge)	1
3	L-244	Tool Post Ring) L-140A Tool Post	1
4	L-140	Tool Post Body) Assembly	1
5	L-141	Anchor Ring)	1
6	A-1004	Oil Cop	1
7	L-134	Compound Nut	1
8	L-831	Compound Screw	1
9	K-833	Compound Screw Bushing	1
11	L-228	Collar Bushing	1
12	A-900	Key	1
13	L-126	Micrometer Collar	1
14	L-853	Brass Plug	1
15	K-458	Thumb Screw	1
16	A-623	Set Screw	1
17	L-836	Ball Crank	1
18	L-991	Truss Head Screw	1
19	L-135	Upper Slide	1
20	L-1020X	Gib (Taper Type)	1
21	L-942X-1	Swivel (Graduated)	1
22	LKM-940	Adjusting Screw for Gib	1
23	AA-614	Set Screw	2
24	L-1119	Swivel Binding Bolt (Sq. Head)	2
25	A-315	Cap Screw	1
26	L-133	Lock Pin for Swivel	2
27	LKM-940-2	Gib Screw	1



"E" TYPE MOTOR DRIVE

Ref. No.	Part No.	Description	Quantity	Ref. No.	Part No.	Description	Quantity
1	AA-857	Spring Pin	1	31	UE-130	Fibre Washer	4
2	E-982-1	Stud for Eccentric Block	1	32	A-1100	Noodle Bearing	8
3	E-980-1	Adjusting Rod	1	33	E-972X	Shaft For Swivel Bast	1
4	UE-988	Support Screw (For Bench Type)	1	34	A-700	Cotter Pin	2
4	UE-1909	Support Screw (For Pedestal Leg)	1	35	A-618	Set Screw	3
5	A-106	Hex Nut	6	36	UE-409	Stop Collar for Shaft	3
6	A-207	Shakeproof Lockwasher	2	37	E-1923	Fibre Washer	2
7	E-2152	Stud for Adjusting Rod	1	38	XE-1025	4-Stop "V"-Belt Sheave (For 8 Spindle Speeds)	2
8	E-983-1	Eccentric	1	38	1551	4-Stop "V"-Belt Sheave (For 16 Spindle Speeds)	2
9	E-2153	Eccentric Arm	1	39	E-974X	Upper Shaft	1
10	E-2155	Shaft for Handle	1	40	A-924	Square Key	2
11	AA-857	Spring Pin	3	41	5L-28	"V" Belt	1
12	A-601	Set Screw	1	42	E-975X	Lower Shaft	1
13	AA-861	Spring Pin	2	43	E-1015	Supporting Shaft (For Steel Bench)	1
14	E-2151	Shaft for Eccentric Arm	1	43	U-1900	Supporting Shaft (For Pedestal Leg)	1
15	E-2154	Lift Handle	1	44	U-139	Collar	4
24	E-1514	Pulley (For 8 Spindle Speeds)	1	45	AA-601	Hollow Set Screw	4
24	1549-1	Pulley 2-Stop (For 16 Spindle Speeds)	1	46	AA-1525	Double "V"-Belt Pulley	1
25	A-600	Set Screw	1	49	A-323	Hex Head Cap Screw	4
26	A-1044	Grease Fitting	4	50	A-203	Lockwasher Split Type	4
27	E-967-1	Main Bracket	1	51	A-209	Plain Washer	4
28	E-968X-1	Lower Cone Bracket	1	52	XE-969	Motor Base	1
29	AA-1512	Motor Pulley 5/8" bore	1	54	A-606	Set Screw	4
29	AA-1513	Motor Pulley 3/4" bore	1	55	A-903	HI-Pro Key	1
29	AA-1514	Motor Pulley 7/8" bore	1	56	A-912	Square Key	1
29	1547	2-Step Motor Pulley 3/4" Bore	1	57	A-208	Plain Washer	2
29	1547-1	2-Step Motor Pulley 7/8" Bore	1	58	A-207	Shakeproof Lockwasher	2
30		"V" Belt	1	59	A-106	Hex Nut	4
				60	A-101	Hex Nut	2
				61	A-200	Shakeproof Lockwasher	1
				62	A-325	Hex Head Cap Screw	1
				63	ELP-987	Support Screw For Motor Base	1

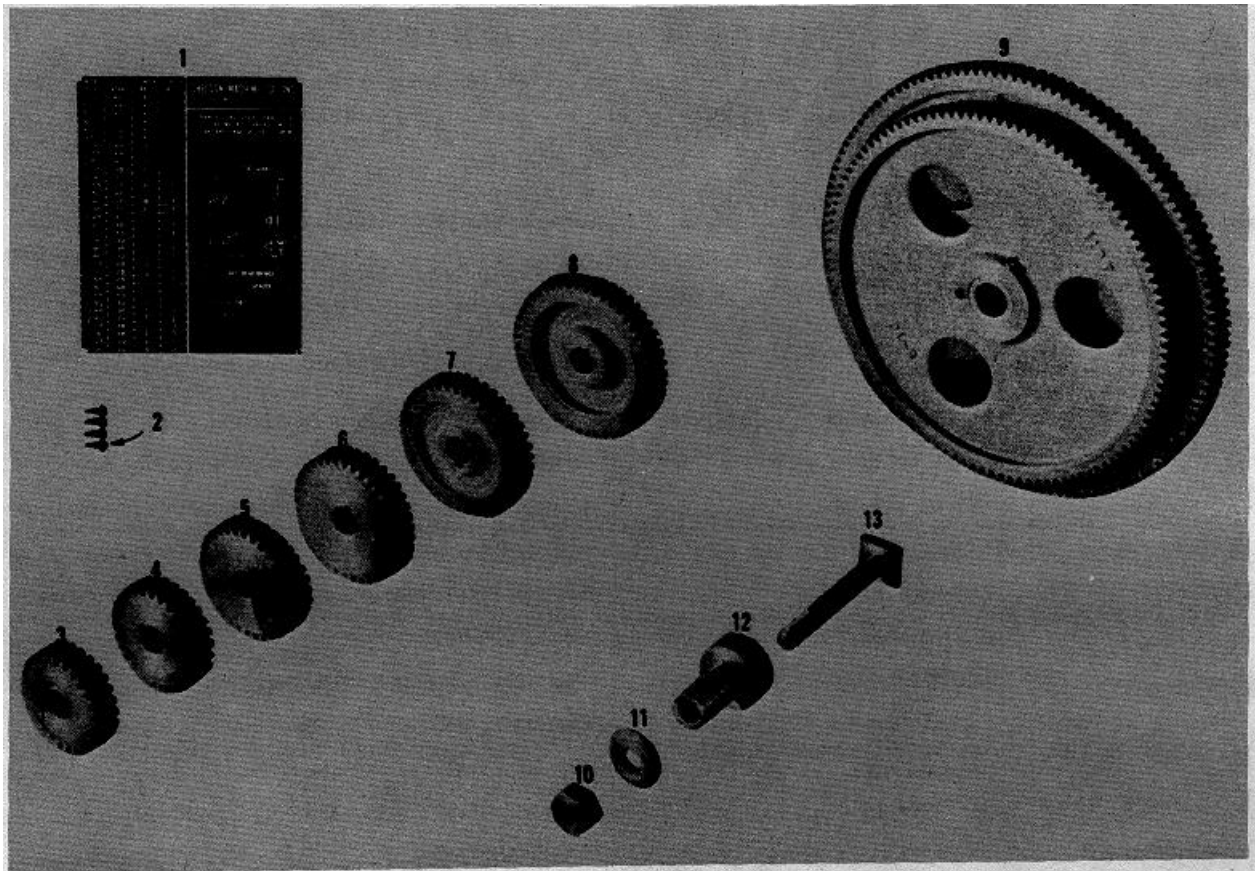


TAILSTOCK ASSEMBLY

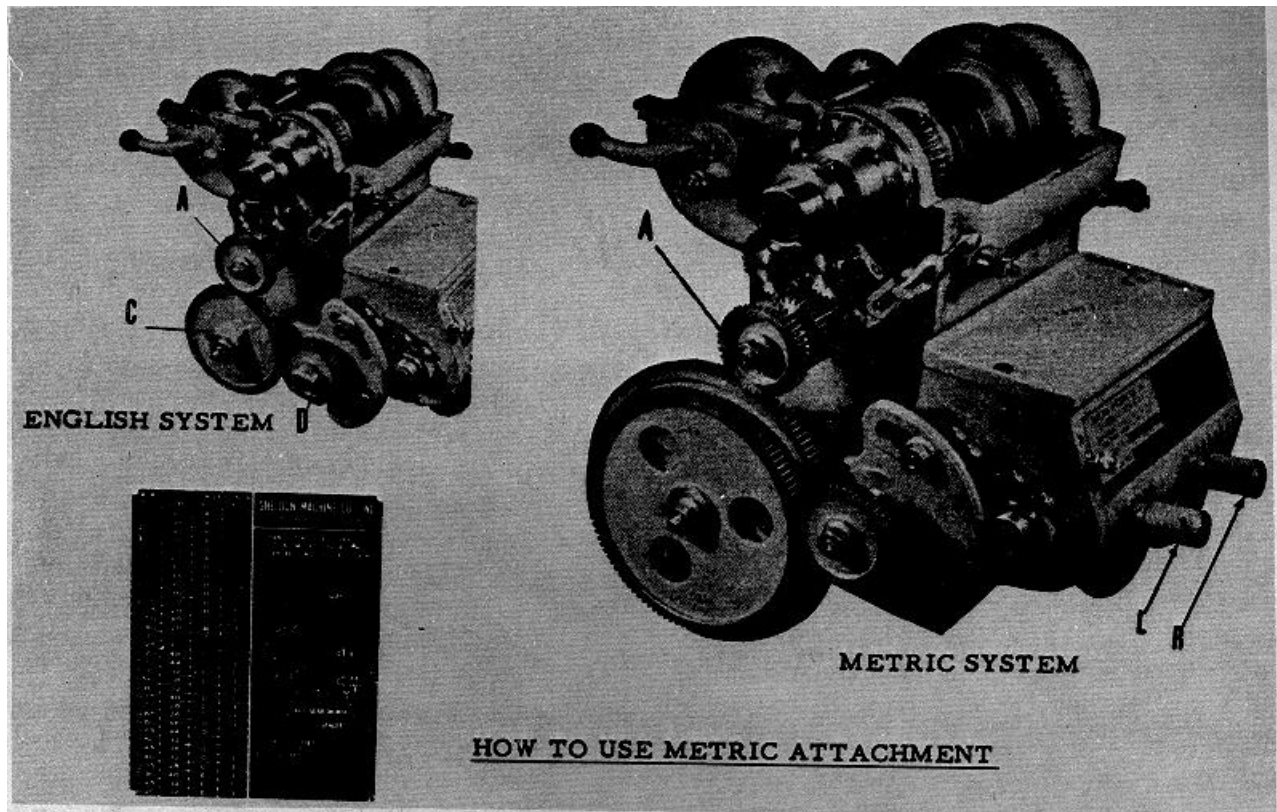
<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Quantity</u>
1	L-75	Tailstock Spindle	1
2	TT-129	Spindle Key	1
3	L-285	Spindle Nut	1
4	A-895	Groove Pin	2
5	A-1003	Oil Hole Cover	1
6	M-2170	Stud	1
7	K-212	Spindle Clamp Bushing	1
8	K-570	Binding Handle	1
9	L-72-1	Tailstock Top	1
10	L-74-2	Tailstock Base	1
11	L-80-1	Tailstock Clamp	1
12	A-320	Machine Bolt sq. Head	1
13	A-666	Adjusting Screw	2
15	A-1004	Oil Hole Cover	1
16	K-509-1	Tailstock Wrench	1
17	L-1907	Clamp Bolt Nit	1
18	A-601	Socket Set Screw	1
19	L-561-A	Screw	1
20	A-900	Key	1
21	L-78	Screw Bushing	1
22	E-197	Tailstock Handwheel	1
23	K-24	Machine Handle	1
24	K-93	Washer	1
25	A-138	Stop Nut	1
26	LK-487-2	V-Wiper Retainer Right	1
27	LK-487-1	V-Wiper Retainer Left	1
28	LK-489	Flat Wiper Retainer	2
29	K-1141-1	V-Wiper	2
30	K-1142	Flat Wiper	2
31	A-314	Round Head Machine Screw	4

"WHAT TO DO" CHECK OFF LIST

TROUBLE	PROBABLE CAUSE	REMEDY
Vibration	V-belts Motor Motor drive plate or hanger bracket loose Machine not solid Level Floor vibration Work out of balance Chuck run-out	Replace old matched belts with new matched V-belts. Call local motor manufacturer representative. Tighten motor bracket and drive plate. See section on level. See section on level. Move lathe to more solid foundation. Counter balance chuck or face plate, reduce speed. Inspect chuck. Call chuck manufacturer representative.
Work Not Turned Straight	Lathe not level Tailstock set over. Long thin work. Small diameter work not stiff enough to support cut.	See section on leveling Realign tailstock. Put on steady rest and follower rest. Support at tailstock end with center or follower rest.
Work out of Round	Loose spindle Flat tailstock center Centers eccentric or not in line. Dog loose in dog plate slot. General Instruction	Take up spindle lock nut. Replace centers. Replace or regrind centers. Wedge arm of dog tight in dog plate. To check work out of round be sure to take several light cuts.
Chatter	Loose spindle carriage gib loose Carriage gib loose Compound gib Lower slide gib Not level Not setting solid Improper ground tool bit Wrong feed Wrong speed Chuck not fitted properly - loose chuck plate.	Check spindle adjustment These gibs should be tight enough to provide an adequate bearing surface, but not so tight that they restrict the free movement of these units. See section on leveling. See section on leveling. Check relationships between tool radius, feed and speed for metal being machined. In some cases it will be necessary to increase feed and decrease speed, to eliminate chatter. Check key slot and length of taper in chuck to see if they are fitted properly. Call local chuck manufacturer.



<u>Ref. No.</u>	<u>Part No.</u>	<u>METRIC ATTACHMENT</u> <u>Description</u>	<u>Quantity</u>
1	L-1671	Metric Chart	1
2	A-852	Drive Stud, Round Head	4
3	L-1687	Gear 26 Tooth	1
4	L-1688	Gear 28 Tooth	1
5	L-1689	Gear 32 Tooth	1
6	L-1690	Gear 36 Tooth	1
7	L-1691	Gear 40 Tooth	1
8	L-1692	Gear 48 Tooth	1
9	L1694A	Compound Metric Gear Assembly Consisting of	1
		Quantity Part No. Description	
		1 L1694 Gear 127 Tooth	
		1 L1693 Gear 110 Tooth	
		1 A-1379 Bushing	
		1 A-881 Dovel Pin	
		1 A-1004 Oil Cover 3/16" Drive	
10	A-102	Nut, Full 3/8-16	1
11	K-93	Washer, Hardened	1
12	L-1604	Bushing	1
13	L-167	Square Head Bolt	1



It's easy to cut metric threads on your new Sheldon lathe. To set-up for metric thread cutting it is necessary to remove some of the standard end gears and replace with special gears furnished with the metric attachment.

By using the metric threading chart above, you will be able to determine which special gear to mount on the reverse plate stud (A), as well as determine relative position of the gear box tumbler levers (L) and (R). The metric illustration above shows set-up for cutting 2.50 m/m pitch thread. A 40 tooth gear has been mounted on the reverse plate stud (A) in place of the 44 tooth gear used in the English system. The left gear box tumbler lever (L) has been engaged in plunger hole marked "B". The right tumbler lever (R) has been engaged in plunger hole "1". The intermediate gear (C) used on the English system has been replaced by mounting a compound gear (127 & 110 tooth) on the intermediate gear shaft (110 tooth gear on outside.) The Knurled spacer bushing (D) on the gear box shaft has been interchanged with the 44 tooth gear mounted on the same shaft - so that the gear is now in line with the 110 tooth gear with which it meshes.

To cut other size metric threads, refer to the metric threading chart, then install the correct gear on the reverse plate stud as well as move the gear box tumbler levers as indicated.

When cutting metric threads, it is not possible to use the thread chasing dial in the conventional manner. Once the half nuts are engaged, they should remain engaged until the thread being cut is completed. The tool is disengaged from the work at the end of the cut, then the motor is reversed, bringing the cutting tool back to the start for the next cut.

APPENDIX I

BASIC ISSUE ITEMS LIST

Section I. INTRODUCTION

1. General

This appendix is a list of basic issue items. It is composed of those items which make up the major end item of equipment and the operator's tools and equipment that are issued with the equipment and are required for stockage.

For a list of repair parts for the equipment see appendix III.

2. Requisitioning a Part to Which FSN Has Not Been Assigned

When requisitioning a C source (local procurement) item identified only by a manufacturer's part number, it is mandatory that the following information be furnished the supply officer:

- a. Manufacturer's code number (5 digit No. preceding the colon in the descriptive colm).
- b. Manufacturer's part number (the No., and sometimes letters, following the colon, (a above)). Dashes, commas, or other marks must be included exactly as listed.
- c. Nomenclature exactly as listed herein, including dimensions if necessary.
- d. Name of manufacturer of end item (from cover of TM or manufacturer's nameplate).
- e. Federal stock number of end item (from TM).
- f. Manufacturer's model number (from TM or name/data plate, preferably name/data plate).
- g. Manufacturer's serial number (from name /data plate).
- h. Any other information such as type, frame number, and electrical characteristics, if applicable.
- i. If DD Form 1348 is used, fill in all blocks except 4, 5, 6, and Remarks field, in accordance with AR 725-50. Complete form as follows:

- (1) In blocks 4, 5, and 6, list manufacturer's code and manufacturer's part number (as listed in description colm).
- (2) In Remarks field, list noun name (repair part), end item application (FSN of end item), manufacturer, model number (end item), serial number (end item), and any other pertinent information such as frame number, type, etc.

3. Explanation of Columns

a. Source, Maintenance, and Recoverability Code (Colm 1).

- (1) *Materiel numerical codes* (colm 1 a). This column is not required.
- (2) *Source* (colm 1 b). This column indicates the selection status and source for the listed item. Source code used in this list is-

<i>Code</i>	<i>Explanation</i>
C	Obtain through local procurement. If not obtainable from local procurement, requisition through normal supply channels with a supporting statement of nonavailability from local procurement.

- (3) *Maintenance level* (colm 1 c). This column indicates the category of maintenance authorized to install the listed item. Maintenance level code used in this list is

<i>Code</i>	<i>Explanation</i>
O/C.....	Operator or crew maintenance

(4) *Recoverability* (colm 1d). This column indicates whether unserviceable items should be returned for recovery or salvage. When no code is indicated, the item will be considered expendable. Recoverability code used in this list is-

<i>Code</i>	<i>Explanation</i>
R	Items which are economically repairable at direct and general support maintenance activities and normally are furnished by supply on an exchange basis.

b. *Federal Stock Number* (colm 2). Self explanatory.

c. *Description* (colm 3). This column indicates the Federal item name (shown in capital letters) and any additional description required for supply operations. The manufacturer's code and part number are also included for reference.

<i>Code</i>	<i>Explanation</i>
41672	Morse Twist Drill & Machine Co.
54522	Sheldon Machine Co., Inc.
75078	Jacobs Mfg. Co.

d. *Unit of Issue* (colm 4), *Quantity Authorized* (colm 5), and *Illustrations* (colm 6). Self explanatory.

4. Abbreviations

<i>Abbreviations</i>	<i>Explanation</i>
c.....	cycle (s)
cap.....	capacity
c/o.....	consist of
deg.....	degree (s)
ea	each
h	high, height
hdls.....	headless
HSS	high speed steel
med	medium
mtl	metal
mtd	mounted
o/a	overall
ph	phase
pt	point
spdl.....	spindle
stght.....	straight
v	volt (s)
w	wide, width
w/.....	with

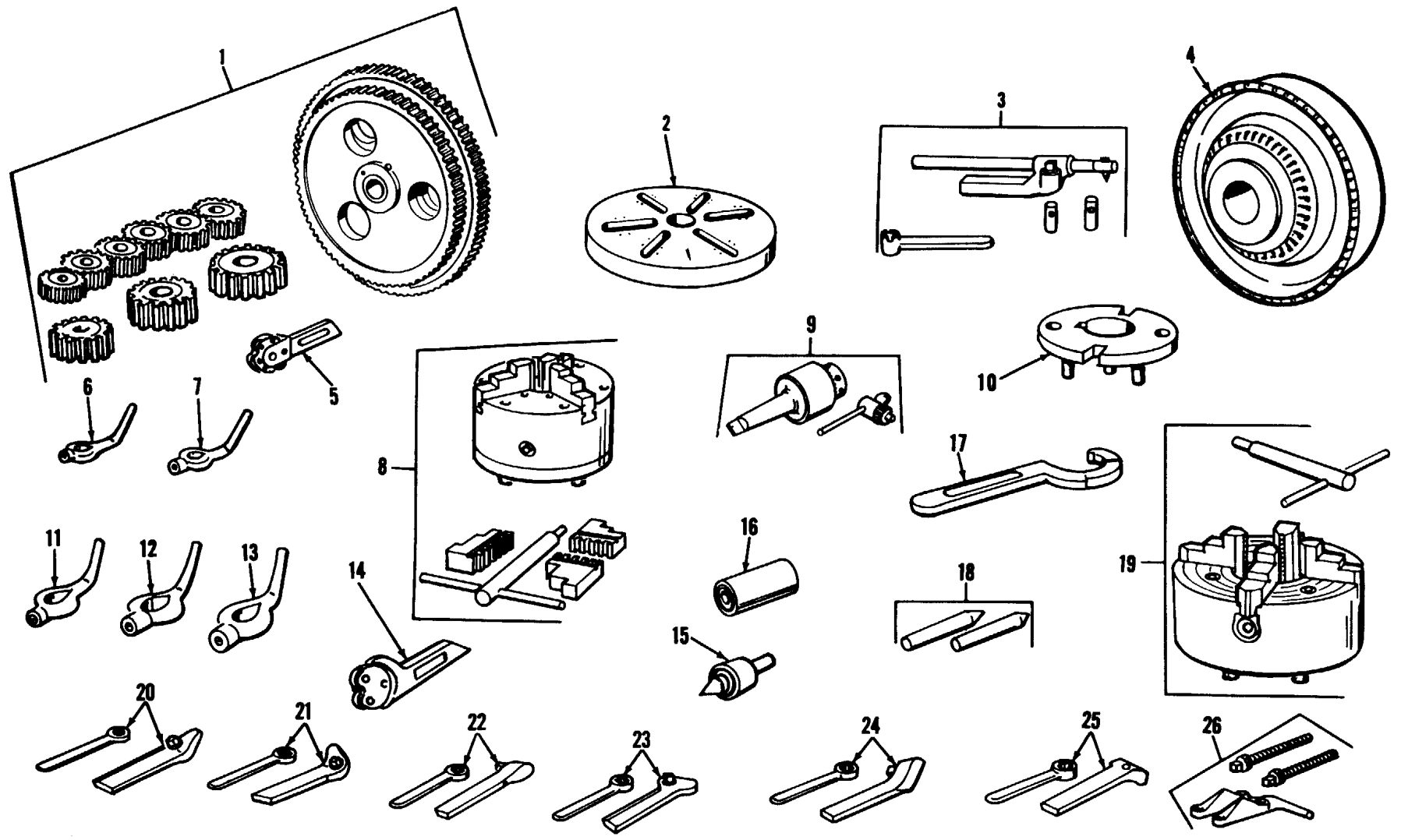
5. Errors, Comments, and/or Suggestions

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Section II. BASIC ISSUE ITEMS

(1) Source, maintenance, and recoverability code				(2) Federal stock No.	(3) Description	(4) Unit of issue	(5) Quantity authorized	(6) Illustration	
(a) Material Code	(b) Source	(c) Main- ten- ance level	(d) Reco- ver- ability					(a) Figure No.	(b) Item No.
			R	3416-517-0955	<p align="center">MAJOR COMBINATION</p> <p>The following item is to be requisitioned for initial use only.</p> <p>LATHE, ENGINE: bench mtd, solid bed type, 10-inch swing, No. 2 Morse tapercenter, 1 3/8 spdl hole, 110-v, 60-c, sgle-ph, 3/4 hp (Sheldon Machine Co. Inc., Model XL) (3416-517-0955).</p> <p align="center">COMPONENTS OF MAJOR COMBINATION</p> <p align="center">None authorized</p> <p align="center">SPARE PARTS</p> <p>BELT, V: drive main bracket shaft (54522:5L-280)</p> <p>BELT, V: drive, motor (54522:4L-370)</p> <p>BELT, V: spindle drive, matched set of 2 (54522:B-47)</p> <p align="center">TOOLS AND EQUIPMENT FOR:</p> <p align="center">LATHE, ENGINE (54522:XL)</p>				
	C	O/C			BELT, V: drive main bracket shaft (54522:5L-280)	ea	1		
	C	O/C			BELT, V: drive, motor (54522:4L-370)	ea	1		
	C	O/C			BELT, V: spindle drive, matched set of 2 (54522:B-47)	set	1		
	C	O/C		3460-223-3768	CENTER, LATHE: dead type, HSS tipped mæ pt hd, No. 2 Morse taper, 4 3/4 lg o/a (41762:295).	ea	2	1	18
	C	O/C			CENTER, LATHE: live, ball bearing (54522:A2071)	ea	1	1	15
	C	O/C	R		CHUCK, COLLET: spdl nose, 1/16 to 1 3/8 cap, for Jacobs Rubberflex collets (75078:91-C-3).	ea	1	1	4
	C	O/C	R	3460-231-2260	CHUCK, DRILL: 3-jaw, 0 to 1/2 cap, No. 2 Morse taper, w/key and arbor (75078:34-3406).	ea	1	1	9
	C	O/C	R		CHUCK LATHE: 4-jaw, independent, 8-in. cap, w/wrench (54522:84-D1-3).	ea	1	1	19
	C	O/C	R		CHUCK, LATHE: 3-jaw, univesal, 6-in. cap, w/internal and external jaws and wrench (54522:63-D1-3).	ea	1	1	18
	C	O/C			COLLET SET: Jacobs Rubberflex, c/o one each of the following 8 collets sizes (75078:J-900-8).	set	1		
		C	O/C	3460-378-3800	COLLET, MACHINE: flexible, rubber bonded jaws, 1/16 to tapered, 1/8 cap (75078:J-910).	ea	1		
		C	O/C	3460-378-3801	COLLET, MACHINE: flexible, rubber bonded jaws, tapered, 1/8 to 1/4 cap (75078:J-911).	ea	1		

C	O/C	.....	3460-378-3802	COLLET, MACHINE: flexible, rubber bonded jaws, tapered, 1/4 to 3/8 cap (75078:J-912).	ea	1		
C	O/C	.....	3460-378-3803	COLLET, MACHINE: flexible, rubber bonded jaws, tapered, 3/8 to 1/2 cap (75078:J-913).	ea	1		
C	O/C	.....	3460378-3804	COLLET, MACHINE: flexible, rubber bonded jaws, tapered, 1/2 to 5/8 cap (75078:J-914).	ea	1		
C	O/C	.....	3460-378-3805	COLLET, MACHINE: flexible, rubber bonded jaws, tapered, 5/8 to 3/4 cap (75078:J-915).	ea	1		
C	O/C	.....	3460-378-3806	COLLET, MACHINE: flexible, rubber bonded jaws, tapered, 3/4 to 7/8 cap (75078:J-916).	ea	1		
C	O/C	.....	3460-378-3807	COLLET, MACHINE: flexible, rubber bonded jaws, tapered, 7/8 to 1 cap (75078:J-917).	ea	1		
C	O/C	.....	3460-243-1955	DOG, LATHE: bent tail, sgle hdls screw, 1/2 cap (54522:201)	ea	1	1	6
C	O/C	.....	3460-243-1956	DOG, LATHE: bent tail, sgle hdls screw, 3/4 cap (54522:301)	ea	1	1	7
C	O/C	.....	3460-243-1957	DOG, LATHE: bent tail, sgle hdls screw, 1 cap (54522:401)	ea	1	1	11
C	O/C	.....	.....	DOG, LATHE: bent tail, 1 1/4 cap (54522:50)	ea	1	1	12
C	O/C	.....	3460-243-1958	DOG, LATHE: bent tail, sgle hdls screw, 1 1/2 cap (54522:601)	ea	1	1	13
C	O/C	.....	3460-187-2216	DOG, LATHE: clamp, bent tail, dble screw (54522:11)	ea	1	1	26
C	O/C	.....	.....	FACE PLATE: large (54522:L-1657-D1)	ea	1	1	2
C	O/C	.....	.....	FACE PLATE: small (54522:LTKT-182)	ea	1	1	10
C	O/C	.....	.....	GEAR SET: metric transposing, English graduations, c/o one compound gear set and 9 change gears (54522:l-1671-XL).	ea	1	1	1
C	O/C	.....	.....	HOLDER, LATHE TOOL: boring bar, c/o holder, boring bar, and 3 end caps for 90, 45, and 30 deg tool angle (54522:8).	ea	1	1	3
C	O/C	.....	.....	HOLDER, LATHE TOOL: cutting off, left-hand offset, 3/8 w, 7/8 h, 3 1/4 lg w/blade and wrench (54522:30L).	ea	1	1	21
C	O/C	.....	3460-234-2331	HOLDER, LATHE TOOL: cutting off, right-hand offset, 3/8 w, 7/8 h, 3 1/4 lg, w/blade and wrench (54522:30R).	ea	1	1	20
C	O/C	.....	.....	HOLDER, LATHE TOOL: cutting off, stght, w/blade and wrench (54522:20)	ea	1	1	23
C	O/C	.....	3460-189-9106	HOLDER, LATHE TOOL: turning, left-hand offset, 3/8 w, 7/8 h, 5 lg, 1/4 sq cutter bit accommodated w/wrench (54522:0-L).	ea	1	1	25
C	O/C	.....	3460-222-4012	HOLDER, LATHE TOOL: turning, right-hand offset, 3/8 w, 7/8 h, 5 lg, 1/4 sq bit accommodated, w/wrench (54522:0-R).	ea	1	1	24
C	O/C	.....	3460-189-9114	HOLDER, LATHE TOOL: stght, 3/8 w, 7/8 h, 5 lg, 1/4 sq bit accommodated, w/wrench (54522:0-S).	ea	1	1	22
C	O/C	.....	.....	KNURLING TOOL: revolving head, w/standard face, diamond knurls (54522:3-K-0).	ea	1	1	14
C	O/C	.....	.....	KNURLING TOOL: w/fine, med, and coarse knurls (54522:0K)	ea	1	1	5
C	O/C	.....	.....	REST, FOLLOWER: adj jaws (54522:ASL-1684)	ea	1		
C	O/C	.....	.....	REST, STEADY: adj jaws (54522:ASL-575-1)	ea	1		
C	O/C	.....	3416-740-6173	SLEEVE, SPINDLE: headstock, No. 5 Morse taper id (54522:465)	ea	1	1	16
C	O/C	.....	3416-785-5119	STOP, CARRIAGE: micrometer, screw adj, 3/4 screw travel (54522:ASL-1825-1).	ea	1		
C	O/C	.....	.....	WRENCH, SPANNER: spindle nose (54522:A-209L)	ea	1	1	17
C	O/C	.....	.....	WRENCH, TAILSTOCK: (54622:K-509-1)	ea	1		
C	O/C	.....	5120-3574418	WRENCH, TOOL POST: (64522:S-2115)	ea	1		



WE 30015

Figure 1. Tools and equipment.

APPENDIX II

MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

1. General

The maintenance allocation chart allocates maintenance operations to the proper category of maintenance. Allocations of maintenance operations is made on the basis of time, tools, and skills normally available to the various categories of maintenance in combat situation and influenced by maintenance policy and sound maintenance practices, as outlined in AR 750-5.

2. Explanation of Format

Purpose and use of the maintenance allocation chart format are as follows:

a. *Column 1, Group Number.* Column 1 lists group numbers, the purpose of which is to identify components, assemblies, subassemblies and modules with the next higher assembly.

b. *Column 2, Functional Group.* Column 2 lists the names of components, assemblies, subassemblies, and modules on which maintenance is authorized.

c. *Column 3, Maintenance Functions.* Column 3 lists the category of maintenance.

d. *Column 4, Tools and Equipment.* This column will be used to specify, by code, those tools and test equipment required to perform the designated function.

e. *Column 5, Remarks.* Self-explanatory.

3. Maintenance Functions

Maintenance functions will be limited to and defined as follows:

INSPECT-	To determine serviceability of an item by comparing its physical, mechanical, and electrical characteristics with established standards.
TEST-	To verify serviceability and to detect electrical or mechanical failure by use of test equipment.
SERVICE-	To clean, to preserve, to charge, and to add fuel, lubricants, cooling agents, and air.
ADJUST-	To rectify to the extent necessary to bring into proper operating range.
ALIGN-	To adjust specified variable elements of an item to bring to optimum performance.
CALIBRATE-	To determine the corrections to be made in the readings of instruments or test equipment used in precise measurement. Consists of the comparison of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared with the certified standard.
INSTALL-	To set up for use in an operational environment such as an emplacement, site, or vehicle.
REPLACE-	To replace unserviceable items with serviceable assemblies, subassemblies, or parts.

- REPAIR- To restore an item to serviceable condition. This includes, but is not limited to, inspection, cleaning, preserving, adjusting, replacing, welding, riveting, and strengthening.
- OVERHAUL- To restore an item to a completely serviceable condition as prescribed by maintenance serviceability standards.
- REBUILD- To restore an item to a completely serviceable condition as prescribed new condition in appearance, performance, and life expectancy. This is accomplished through complete disassembly of the item, inspection of all parts or components, repair or replacement of worn or unserviceable elements (items) using original manufacturing tolerances and specifications, and subsequent reassembly of the item.
- MAINTENANCE LEVEL- The arabic numeral placed in the appropriate column indicates the level responsible for performing that particular maintenance function.

Section II. MAINTENANCE ALLOCATION CHART

(1) G R O U P N U M B E R	(2) Functional Group	(3) Maintenance functions											(4) Tools and equipment	(5) Remarks
		A	B	C	D	E	F	G	H	I	J	K		
		I N S P E C T	T E S T	S E R V I C E	A D J U S T	A L L I G N	C A L I B R A T E	I N S T A L L	R E P L A C E	R E P A I R	O V E R H A U L	R E B U I L D		
1	Lathe, engine	1	----	1	2	3	----	3	----	----	4	5		
2	Headstock.....	1	----	1	2	----	----	----	----	3	4			
3	Tailstock	1	----	1	1	----	----	----	3	3				
4	Carriage	1	----	1	----	----	----	----	----	3				
5	Change gears.....	1	----	1	1	----	----	----	4	4	4			
6	End and metric gears 1.....	1	----	1	----	----	----	1	3					
7	Electric motor.....	1	----	1	----	2	----	----	2	----	3	4		
8	V-belts	1	----	----	1	2	----	----	2					

APPENDIX III

REPAIR PARTS AND SPECIAL TOOL LISTS

Section I. INTRODUCTION

1. General

a. This appendix is a list of repair parts which may be required by the using organization for performing organizational maintenance but are not authorized to be stocked. These items are to be requisitioned as required for immediate use only.

b. For prices of items listed herein, see the appropriate supply catalog management data list (ML).

c. Additional applications of items in this manual are listed in the supply catalog cross reference list (XL).

2. Requisition Notes

See appendix I, paragraph 2.

3. Explanation of Columns

a. *Source, Maintenance, and Recoverability Code* (col 1).

- (1) *Material Numerical Codes* (col 1a). This column is not required.
- (2) *Source* (col 1b). This column indicates the selection status and source for the listed item. Source code used in this list is

<i>Code</i>	<i>Explanation</i>
C	Obtain through local procurement. If not obtainable from local procurement, requisition through normal supply channels with a supporting statement of nonavailability from local procurement.

- (3) *Maintenance level* (col 1c). This column indicates the category of maintenance authorized to install the listed item. Maintenance level code used in this list is-

<i>Code</i>	<i>Explanation</i>
O	Organizational maintenance

- (4) *Recoverability* (col 1d). This column indicates whether unserviceable items should be returned for recovery or

salvage. When no code is indicated, the item will be considered expendable. Recoverability code used in this list is-

<i>Code</i>	<i>Explanation</i>
R	Items which are economically repairable at direct and general support maintenance activities and normally are furnished by supply on an exchange basis.

b. *Federal Stock Number* (col 2). Self-explanatory.

c. *Description* (col 3). This column indicates the Federal item name (shown in capital letters) and any additional description required for supply operations. The manufacturer's code and part number is also included for reference.

<i>Code</i>	<i>Explanation</i>
54522 ...	Sheldon Machine Co., Inc.

d. *Unit of Issue* (col 4), *Quantity Incorporated in Unit* (col 5), and *Illustration* (col 6). Self-explanatory.

e. *15-Day Maintenance Allowance* (col 6). Repair part which may be required for performing authorized maintenance, but are not authorized for stockage in the prescribed load, are indicated by an asterisk (*). These items are to be requisitioned, as required, for immediate use only.

4. Special Information

Basic issue items are listed in appendix I of this manual.

5. Abbreviations

<i>Abbreviations</i>	<i>Explanation</i>
c.....	cycle (s)
ph	phase
v	volt (s)
w/.....	with

6. Errors, Comments, and/or Suggestions

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Section II. REPAIR PARTS AND SPECIAL TOOLS

(1) Source, maintenance, and recoverability code.				(2) Federal Stock No.	(3) Description	(4) Unit of issue	(5) Quantity authorized	(6) Quantity issued with equipment	(7) Illustrations	
(a) Material	(b) Source	(c) Maintenance	(d) Recoverability						Fig.	Item
	C	O			REPAIR PARTS FOR LATHE, ENGINE: (54522:XL) BELT, V: drive, main bracket shaft (4522: 5L-280)	ea	1	*		
	C	O			BELT, V: drive, motor (54522:4L-370)	ea	1	*		
	C	O			BELT, V: spindle drive, matched set of 2 (54522: B-47) .	set	1	*		
	C	O	R		MOTOR, ELECTRICAL: 3/4 hp, 110-v, 60-c, sgle-ph, w/pulley (54622:174GE).	ea	1	*		

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The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
 1 decimeter = 10 centimeters = 3.94 inches
 1 meter = 10 decimeters = 39.37 inches
 1 dekameter = 10 meters = 32.8 feet
 1 hectometer = 10 dekameters = 328.08 feet
 1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
 1 decigram = 10 centigrams = 1.54 grains
 1 gram = 10 decigrams = .035 ounce
 1 decagram = 10 grams = .35 ounce
 1 hectogram = 10 decagrams = 3.52 ounces
 1 kilogram = 10 hectograms = 2.2 pounds
 1 quintal = 100 kilograms = 220.46 pounds
 1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce
 1 deciliter = 10 centiliters = 3.38 fl. ounces
 1 liter = 10 deciliters = 33.81 fl. ounces
 1 dekaliter = 10 liters = 2.64 gallons
 1 hectoliter = 10 dekaliters = 26.42 gallons
 1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
 1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
 1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
 1 sq. dekameter (are) = 100 sq. meters = 1,076.4sq. feet
 1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
 1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
 1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
 1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

<i>To change</i>	<i>To</i>	<i>Multiply by</i>	<i>To change</i>	<i>To</i>	<i>Multiply by</i>
inches	centimeters	2.540	ounce-inches	Newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29.573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	Newton-meters	1.356	metric tons	short tons	1.102
pound-inches	Newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C
----	---------------------------	-------------------------------	------------------------	----

