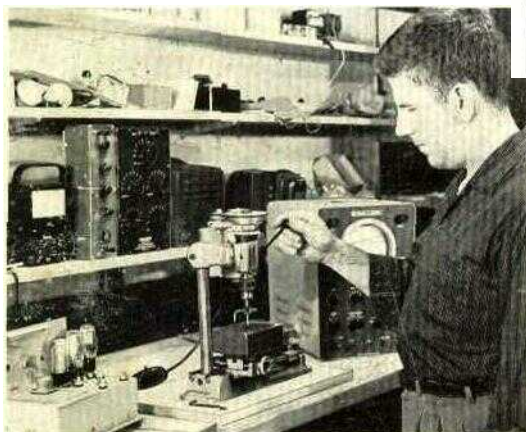


MINIATURE MACHINING TECHNIQUES

a general handbook and operator's manual

1. Unimat versatility	Page 2
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Torn Perzentka of Octura Models, Chicago, uses Jig Saw to cut bulkheads and curved stringers for the prototype of his famous gas powered model R/C hydro plane "White Heat V". The Jig Saw produces a smooth cut in small intricate sections of plywood and hardwood. Parts for motor and steering assembly were turned out on Unimat Lathe.



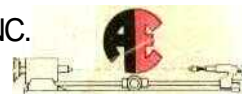
FROM BEGINNER TO EXPERT CRAFTSMAN in METAL • PLASTICS • WOOD

metal turning • drilling • milling • grinding • polishing
• sharpening • sawing • surface grinding • threading •
boring • wood turning • special techniques • jigs and
attachments

Well known author, Brice Ward, who designs electronic projects for national magazines, uses a Unimat to machine printed circuit boards, drill chassis holes, and wind special coils. This multifunctional machine takes up less space than the average oscilloscope, yet provides tool room versatility.

2nd Edition Copyright 1963

AMERICAN-EDELSTAAL, INC.
360 Broadway, New York 13, N. Y.



UNIMAT VERSATILITY

Typical projects show how Unimat performs any one of ten basic machine tool operations. Wherever creative

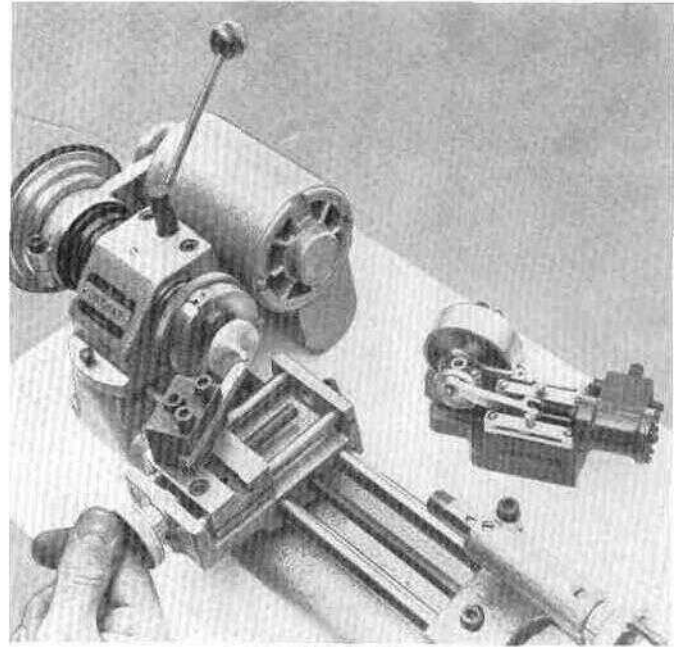
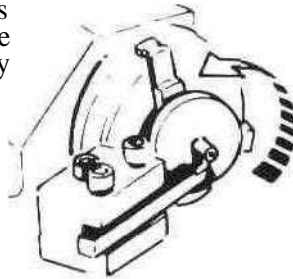
designers, engineers, scientists and hobbyists work with small precise parts, Unimat is in constant use.

1

TURNING

an aluminum wheel casting for a model steam engine

Set up as a metal lathe Unimat turns discs, wheels, and cylindrical shapes up to 3-inch diameter. Headstock Raising Block (DB 1310) increases swing capacity to 4 1/2-inch diameter. Parts can be machined to accuracies of one-half thousandth of an inch with just a little practice. Lathe tools are available singly or in sets. The precision 3-jaw chuck is Accessory Part #1001.

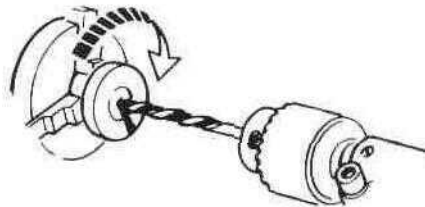
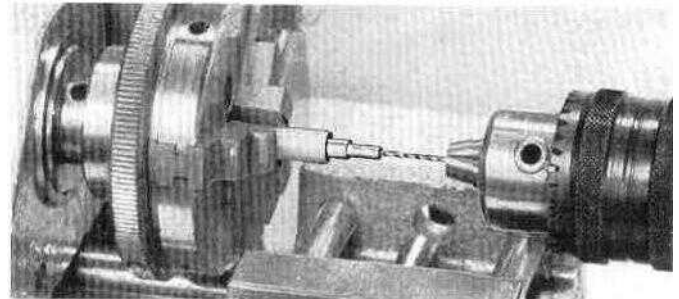


2

DRILLING

drilling a tiny hole in a brass spray nozzle fitting; drill size #70, diameter only .028 inch!

Try this job in an ordinary lathe or drill press and you'll probably break the drill. Precision ball bearing spindle gives you a true hole every time. The drill is shown chucked in the precise Jacobs-type 1/4-inch drill chuck that is part of every DB 200 Unimat. Vertical drilling is also a basic function of Unimat.

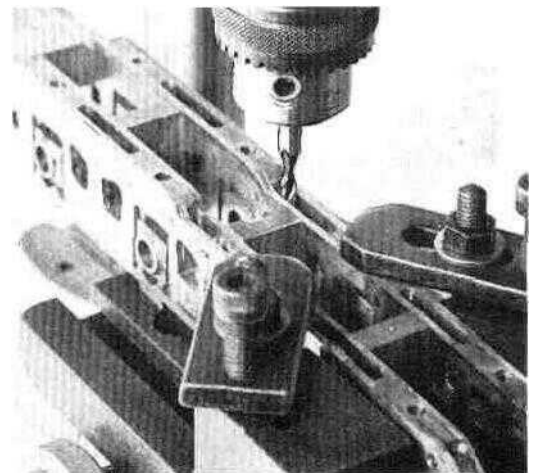
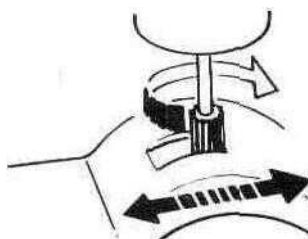


3

MILLING

milling slots in a live-steam model locomotive frame

This setup shows how you can clamp irregularly shaped parts on the Unimat accessory Milling Table (DB 1210). Because the detachable headstock can be set at any angle on the column, you can handle workpieces longer than the Unimat itself. Precise drilling and tapping operations are easy to run on the same setup.

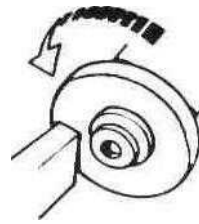


4

SHARPENING HAND GRINDING POLISHING

touching up the edge of a wood veining tool; grinding a model boat prop to shape; buffing silverware

The eleven-step Unimat power drive gives you just the right cutting speed for proper abrasive and polishing action. Try some of these jobs on larger grinders and you may burn a small part. The Grinding Wheel Arbor can be used with the headstock in lathe position provided you protect the bed with cloth. Or, you can rotate the head 90° for handling large pieces easier.

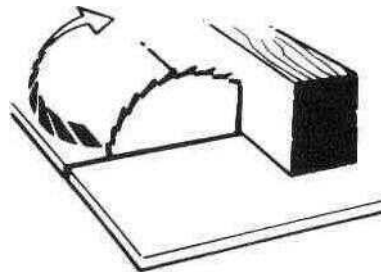


5

SAWING

a camera shop job ... sawing replacement slides for sheet film holders

Try to cut thin brittle bakelite on an ordinary table saw, and blade wobble will give you a rough edge and spoiled work. Unimat spindle bearing precision guarantees true blade action. You can select cutting RPM for best results. The saw table attachment takes only seconds to set up.

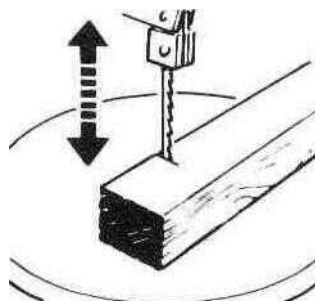


6

JIG SAWING

cutting quarter inch masonite for a tool shelf

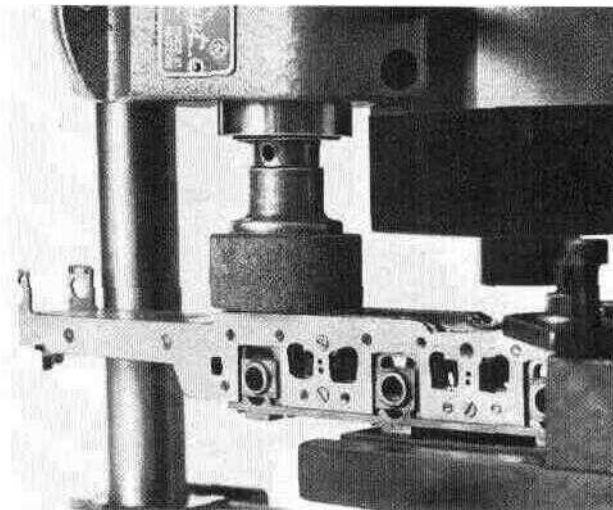
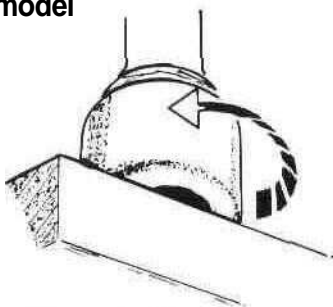
The Jig Saw Attachment has a throat that permits you to saw to the center of a 16-inch circle. For larger work you remove the overhead arm and use a saber blade. Files and abrasive strips also work well on this attachment. With the Unimat eleven speed power drive, you can select the best combination of blade and cutting speed for any material from soft balsa wood to hard materials.



7 SURFACE GRINDING

a precise flat on the surface of a model locomotive frame

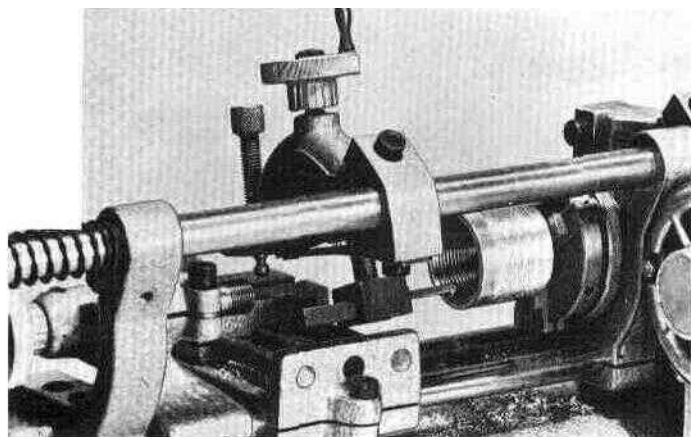
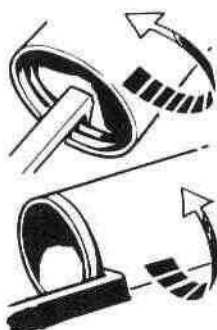
A familiar operation to machinists who make gages and instruments is surface grinding. With Unimat, you can get tool room precision right on the kitchen table with very little fuss. The locomotive part also shown under Milling nears completion with perfectly flat mating surfaces.



8 THREADING

cutting internal and external threads on a 1 1/2 inch aluminum lens barrel

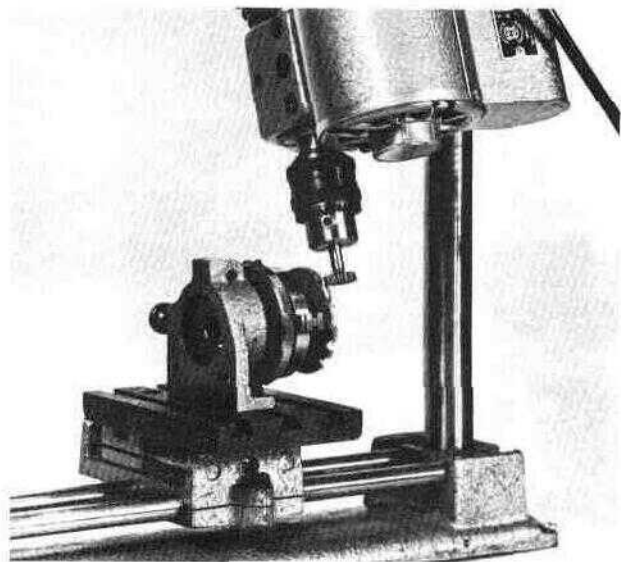
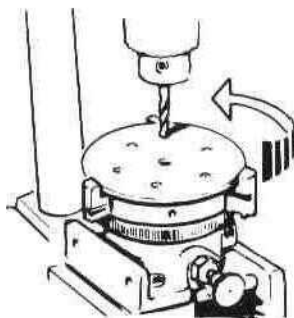
The Unimat with Threading Attachment (DB 1270) is far more accurate than ordinary lathes that use back gears and lead screws to move the thread cutting bit. A master pattern mounts solidly on the spindle behind the chuck and a chaser duplicates the exact thread pattern on the workpiece. Patterns are available from 16 to 56 threads-per-inch and in a complete set of metric sizes.



9 INDEXING

making a gear for a boat steering mechanism

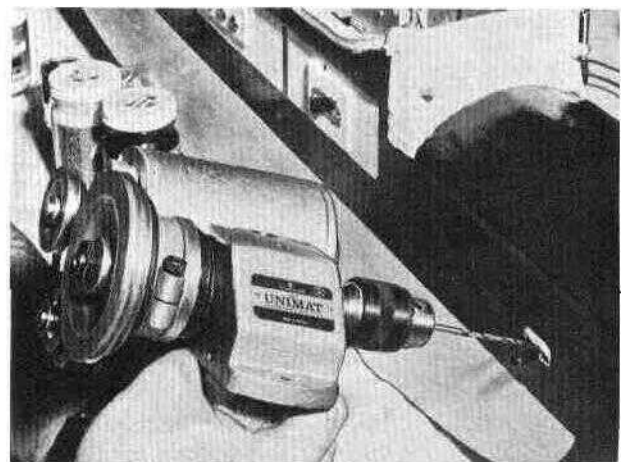
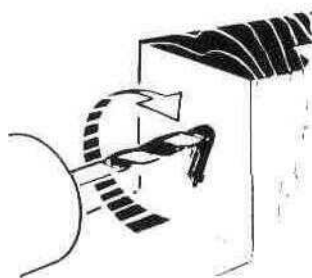
The Indexing and Dividing Attachment divides a circle into 18 integral numbers from 2 to 48 enabling you to cut gears, machine bolt heads, pyramid shapes, truncated cones and practically any polygonal shape. Because Unimat adjusts vertically, horizontally, laterally with a head that swivels in any direction, there is no limit to the shapes you can create in solid metal or any machineable material. Among the most interesting projects possible with this setup are mathematical models, and three dimensional models of molecules and crystal-line structures.



10 HAND DRILL

a 3/16-inch hole through wood and metal on a model plane fuselage

Whenever it's necessary to take the tool to the job, just loosen one nut, slip the headstock off the drill press column and you've got an 11-speed tool with the sensitive feel of a dental drill right in your hand. And yet it will push a 1/4-inch drill through steel. You can also use the portable hand drill with buffs, grinding wheels, abrasive wheels, and sanding discs.



HERE IS YOUR BASIC UNIMAT

Before you start to use your Unimat be sure to read the following instructions carefully.

The basic Unimat Model DB 200 is shipped in a wood storage chest, which in turn is protected by a cardboard shipping box. As you open the storage chest check each item on the packing list.

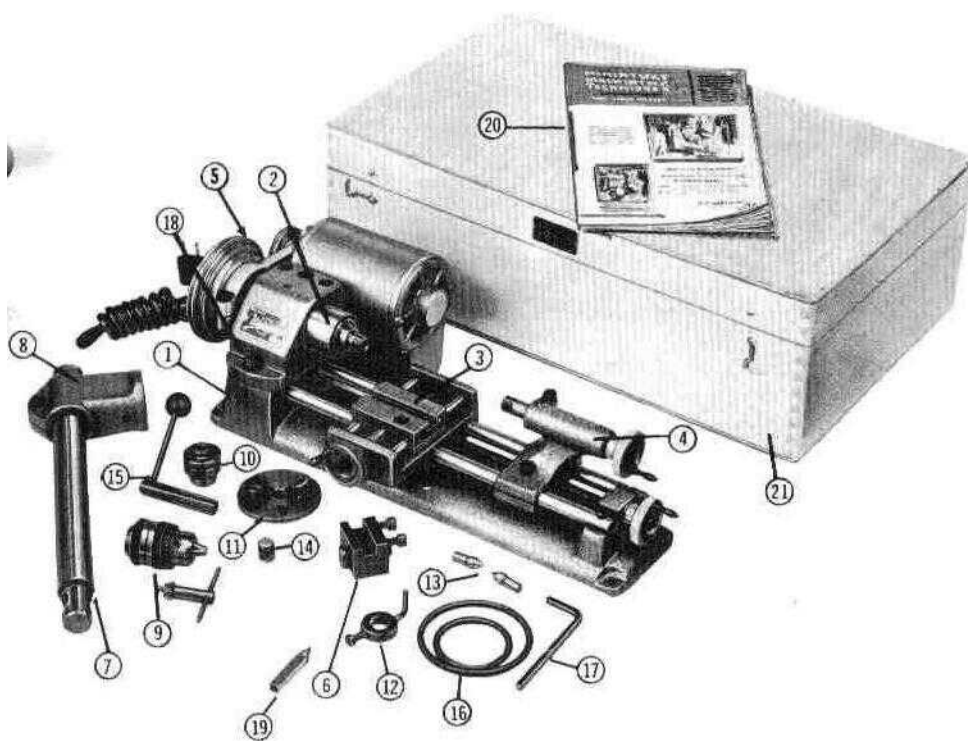
DB 200 parts are identified by means of the photos on this page. On pages 37 and 38 you will find a complete parts list for the basic Unimat and all accessories.

A guarantee registration card is included with each Unimat. Be sure to mail the card immediately. The card not only registers you as a Unimat owner, but automatically puts your name on a mailing list to receive a free one year subscription to the Unimat Owners Magazine as well as supplementary literature.

Your Unimat has been carefully inspected at the factory. If a part has been damaged in shipment or becomes defective during the warranty period, write to the Customer Service Department, American Edelstaal Inc. describing exactly what, is wrong. Be sure to refer to parts by name and number.

If it is necessary to return a part to us you will receive a special shipping ticket and instructions. The repair department will not accept shipments unless authorized as above. In most cases minor adjustments fully described in this manual are the answer, Unimat is a precise, carefully engineered machine. Take care of it, keep it clean and well oiled and it will give you many years of service.

Model DB 200 Unimat Basic Unit



Complete with powerful 1/10 hp motor and the following components:

- | | | |
|-----------------------------------|--------------------------------------|--------------------------------|
| 1. Ribbed, Lathe Bed | 8. Vertical Column Headstock Adapter | 15. Spindle-feed Hand Lever |
| 2. Ball Bearing Headstock Spindle | 9. Jacobs-type Drill Chuck & Key | 16. Set of Drive Belts |
| 3. Carriage Assembly | 10. Grinding Wheel Arbor | 17. Allen Wrench |
| 4. Tailstock | 11. Face Plate | 18. Headstock Alignment Pin |
| 5. Ball Bearing Idler Pulley | 12. Lathe Dog | 19. Roughing Tool Bit |
| 6. Tail Post | 13. Dead Centers (two) | 20. 40 Page Instruction Manual |
| 7. Vertical Column | 14. Slotted Adapter | 21. Wood Storage Chest |

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