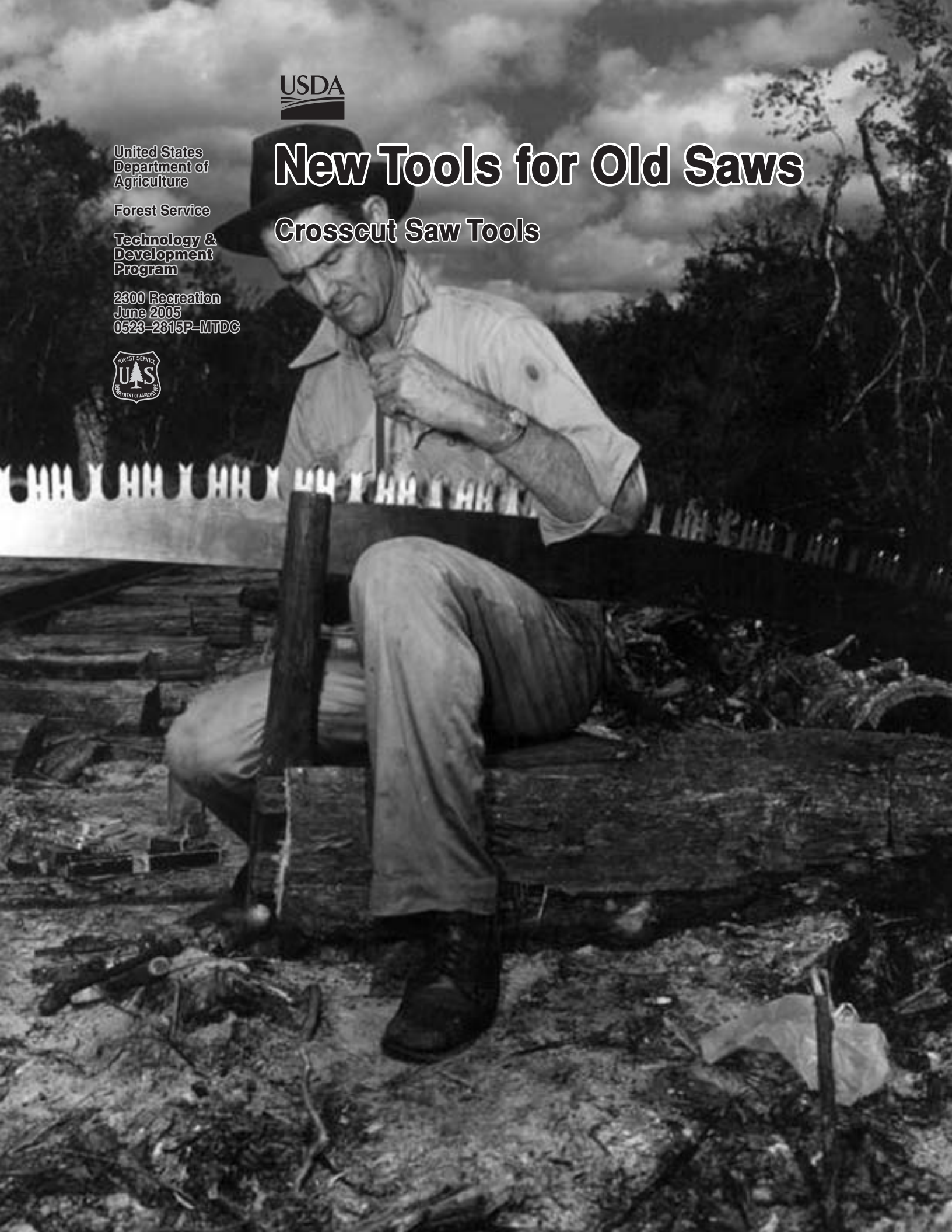


USDA

United States
Department of
Agriculture

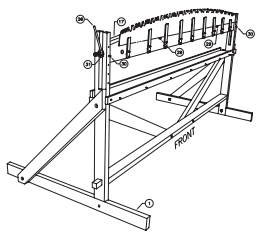
Forest Service

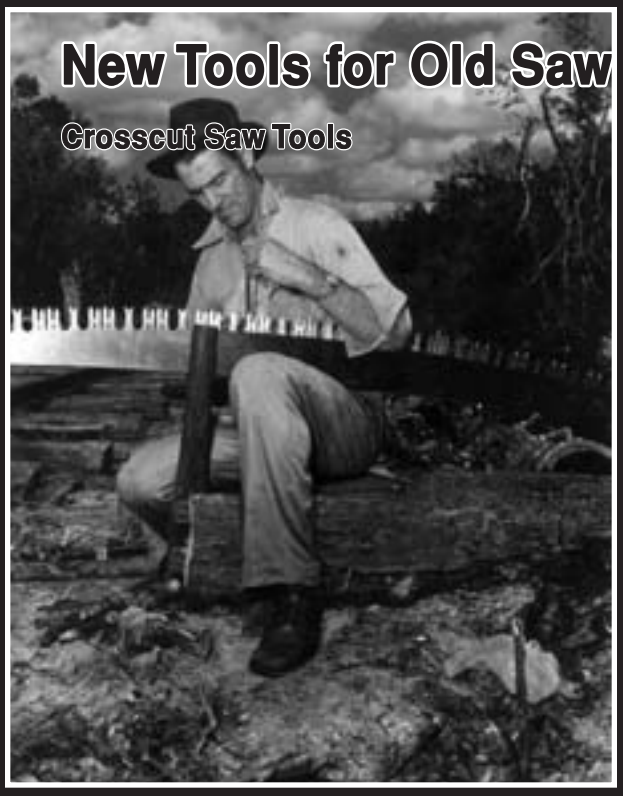
Technology &
Development
Program

2300 Recreation
June 2005
0523–2815P–MTDC

New Tools for Old Saws

Crosscut Saw Tools


FRONT



Bob Beckley
Project Leader

USDA Forest Service
Technology and Development Program
Missoula, MT

2E22A64—Crosscut Saw Sharpening Tools

First printed June 2005

Revised March 2012

Contents

—***Cover photo:*** Rufus M. Beebe files his saw after felling a cypress tree in 1948.
(Photo courtesy of the Florida State Archives.)

Introduction

Crosscut saws and the tools to maintain them are becoming increasingly difficult to find. The U.S. Department of Agriculture, Forest Service, Missoula Technology and Development Center (MTDC) used traditional designs to build prototypes of some common tools needed to maintain crosscut saws. Mechanical drawings for these tools are included in this report. Individuals with the proper skills and equipment may wish to build their own crosscut-saw sharpening tools. Others can take the drawings to a machinist who should be able to build the tools.

When a crosscut saw is used and cared for properly, it shouldn't need to be sharpened more than once a year. Although chain saws are easier to sharpen than crosscut saws, they are more likely to be dulled when they strike rocks or dirt. If a crosscut saw does need to be tuned up during the season, it can be maintained in the field when the proper tools are available. A crosscut saw that is sharpened properly is an extremely efficient tool.

Crosscut saws have to be used in wilderness areas, where motorized tools are not allowed. But sawyers may find that crosscut saws can play an important role outside of the wilderness. When crews clear trails, the majority of their time is spent moving material, not cutting wood. Sawyers on trail crews may find that it's easier to carry a crosscut saw than to carry a chain saw, gas, oil, and the personal protective equipment required to use a chain saw safely. In addition, injuries from crosscut saws are likely to be less severe than those caused by chain saws.

Highlights...

- MTDC redesigned eight traditional tools used to maintain crosscut saws.
- A machinist can make the tools using the drawings in this report.

Maintaining a Crosscut Saw

This report explains the basic function of tools for crosscut saw maintenance, but it does not explain how to use them properly. The Lolo National Forest's Ninemile Wildlands Training Center (406–626–5201) offers a 5-day course in crosscut saw maintenance. Courses are open to anyone. Course information and schedules are available at the Web site: *http://www.fs.fed.us/r1/lolo/resources-culture/nwtc/courses.html*.

The *Crosscut Saw Manual* (7771–2508–MTDC, *http://www.fs.fed.us/eng/php/eng_search.php/*) by Warren Miller is an excellent reference for crosscut saw maintenance. Single copies can be ordered by calling 406–329–3978.

Jointer (Drawing MTDC–1013)

When a crosscut saw is jointed, the teeth are filed to a uniform height. The jointer (figure 1) includes a crosscut file with its tang (the projection for attaching the handle) broken off. A worn file is better than a new file for use with the jointer. A new file might remove more metal than necessary.

After the file is secured to the jointer, the jointer is run across the saw's cutting edge until all the teeth are cut down to the same height. When you see a flat or shiny spot on the tip of each tooth, you will know that the teeth have been cut to the same height. Some teeth will be cut down more than others. Longer teeth will be cut down the most. They may have a large flat spot. The shortest tooth will have only a glimmer of a flat or shiny spot.

Traditionally, filers used a short jointer, often combined with the raker gauge. We modeled our jointer after the "Gibbs" long jointer. The traditional peg- (tooth) and-raker saws used in the Forest Service were built with an arc-shaped design. The arc is important, because the arc determines how many teeth are cutting at a time. The MTDC long jointer has "two shoes" on either end that adjust to the shape of the saw, helping to maintain the saw's arc.

Figure 1—The jointer allows a saw's teeth to be filed to a uniform height before the cutting teeth are pointed (sharpened). Long jointers, such as the one shown here, help maintain the arc of the saw better than short jointers.

Raker/Pin Gauge (Drawing MTDC–1021)

A crosscut saw's rakers remove wood shavings that have been severed by the cutting teeth. To remove the severed wood efficiently, the rakers should be slightly lower than the cutting teeth. If the rakers are too long, they will sever uncut fibers, rather than lifting and removing severed material as they were designed to do. If the rakers are too low, they won't remove all the cut material and the saw will drag.

The raker depth is determined by the raker gauge (figure 2). The raker gauge has an adjustable slotted steel filing plate, which fits over the two tips of the raker. The filing plate is adjusted to the desired raker depth and the rakers are filed even to the plate. After the rakers have been filed, they need to be shaped.

There are two basic methods of shaping rakers, the straight method and the swaged method. The straight method is relatively simple. The swaged method, although more difficult, produces a chisel-like tip that allows the raker to pick up severed material more easily. Swaging uses a hammer to form the leading edge of the raker. An 8- to 16-ounce upholsterer's hammer or a tinner's riveting hammer works well for swaging.

The *pin* part of the raker gauge (figure 3) is used to compare the height of a raker to an adjacent cutting tooth. When the pin is set to 0.002 or 0.003 inches, the appropriate setting for most wood, the raker will be 0.002 or 0.003 inches shorter than the adjacent cutting tooth.

The rakers on some saws may be too hard. Their tips may break when they are swaged. To reduce the rakers' hardness, they can be heated with a propane torch. Apply heat only to the rakers, not to the cutting teeth.

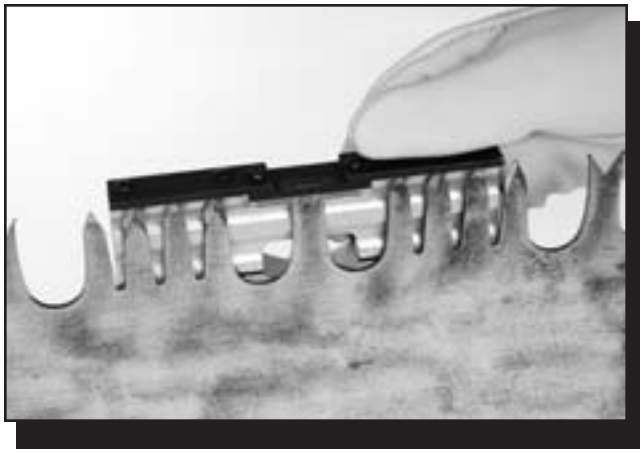


Figure 2—A saw raker fits into the slot of the adjustable raker gauge for filing.

Figure 3—The pin on the raker gauge can be adjusted to the desired raker height.

Tooth-Setting Tools (Drawings MTDC–998 and MTDC–1018)

After the saw has been jointed and the rakers have been shaped, the saw is ready for sharpening. Filers typically use a high-quality 7- or 8-inch special crosscut saw file for sharpening. After the saw's cutting teeth have been sharpened, they must be set.

Setting bends the tip of each cutting tooth slightly away from the plane of the saw. Too little set could cause the saw to bind. Too much set would make a wider kerf, removing more wood than necessary and possibly leading to sloppy or curved cuts. Dry wood or hardwood requires less set than green wood or softwood. There are several ways to set a saw's teeth. The tools redesigned by MTDC use the hammer and anvil method, the most common method.

MTDC built two types of tooth-setting devices, the crosscut saw tooth-set tool (drawing MTDC–998, figure 4) and the hand-held anvil (drawing MTDC–1018, figure 5). The crosscut saw tooth-set tool is a combination anvil and swinging hammer. The tooth tip is placed in a designated slot and the anvil is placed behind the tooth. The swinging hammer is struck with a hand-held hammer until the tooth has been set properly. When the hand-held anvil is used, it is placed behind the tooth and the tooth is struck with a hammer until the tooth has the proper set.

Choosing which of the two tools to use is a matter of personal preference. Experienced saw filers seem to prefer the hand-held anvil, while less-experienced filers may find that the tooth-set tool gives them better control and reduces the chance that they might strike a glancing blow when setting the tooth. If the hand-held anvil is not available, any similarly shaped flat piece of metal could be used in its place.

Figure 4—The tooth-set tool is placed on the saw when setting a tooth. Some saw filers prefer the tooth-set tool because it reduces the chance of a glancing blow.

Figure 5—Hand-held anvils are less cumbersome than the tooth-set tool. They may be preferred by experienced saw filers.

Adjustable Spider Gauge (Drawing MTDC–1014)

The adjustable spider gauge (figure 6) measures the set of the tooth. The spider gauge has three fixed legs and one adjustable leg.

Using a feeler gauge, adjust the spider leg to the desired saw set. To determine the set of a tooth, place the three fixed legs of the spider on the saw's main body and the longer adjustable leg on the tip of the tooth being set. To change a tooth's set, use the tooth-setting tool or hand-held anvil, and hammer to strike the tooth's tip, checking the set frequently with the spider. A set of 0.012 inch is good for most cutting applications. Flat-ground saws require more set to prevent them from binding than do tapered saws.

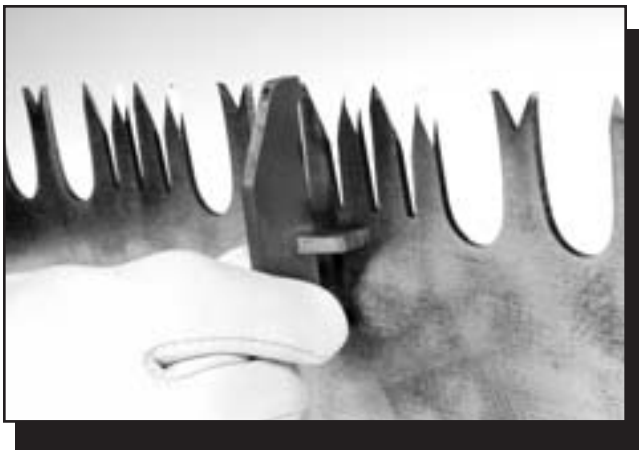


Figure 6—The adjustable spider gauge is used to determine the amount of set in a tooth. This spider gauge can be adjusted by using an allen wrench to turn the top screw to the desired tooth set.

Freestanding Crosscut Saw Vise

Crosscut saw-filing vises (figure 7, drawing MTDC–1044) come in a variety of designs and styles. You can field sharpen your saw with a small or improvised vise, but this usually is done to correct an immediate problem. To properly sharpen your crosscut saw, a vise is needed to hold the entire length of the saw securely. The freestanding saw vise drawing in this report will accommodate up to a 7-foot crosscut saw. The drawing can be adjusted for larger saws. The freestanding saw vise can be adjusted and the vise can be rotated to a comfortable angle for the filer. The drawing includes a shelf for additional crosscut saw maintenance tools.

The freestanding saw vise can be assembled and disassembled quickly.

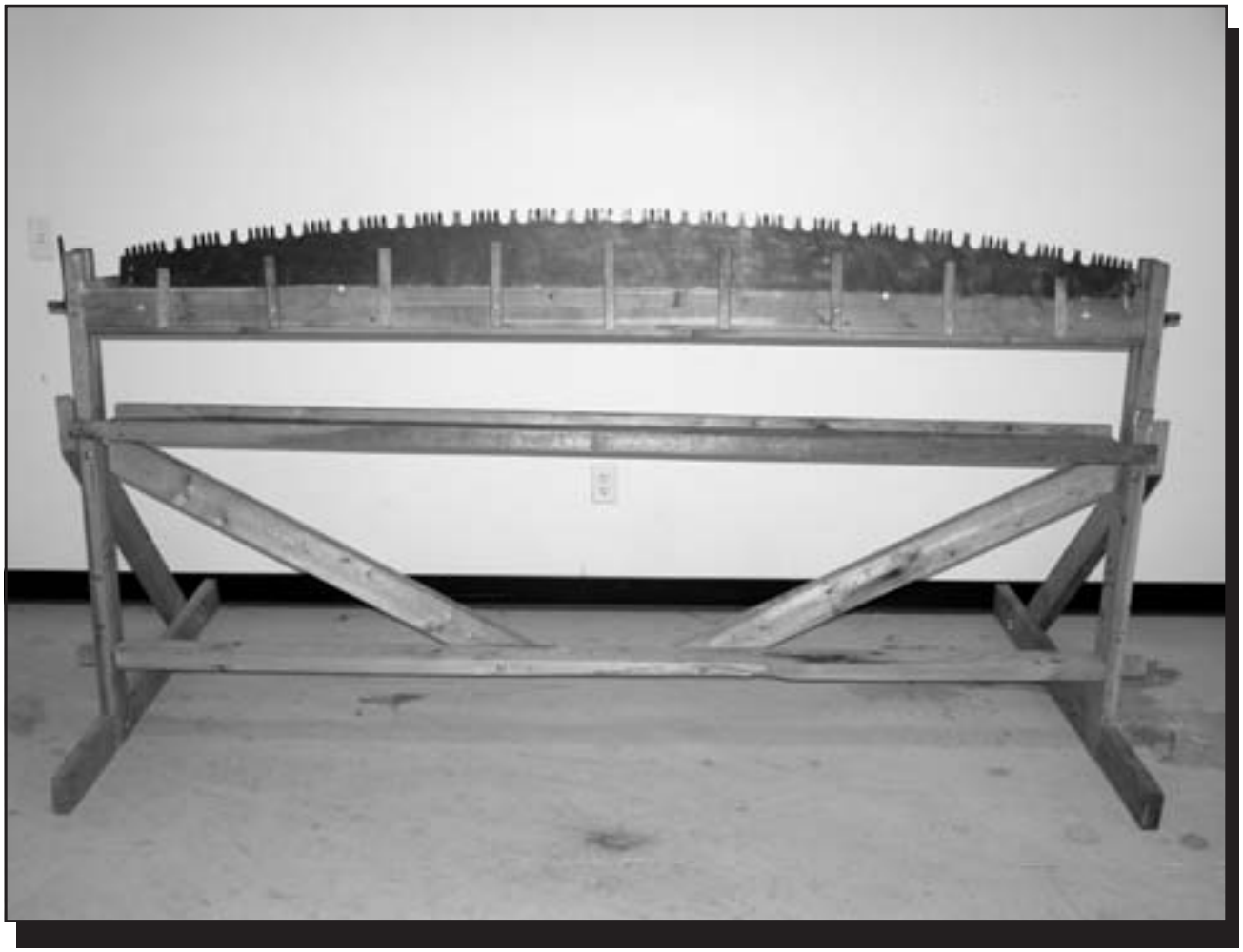


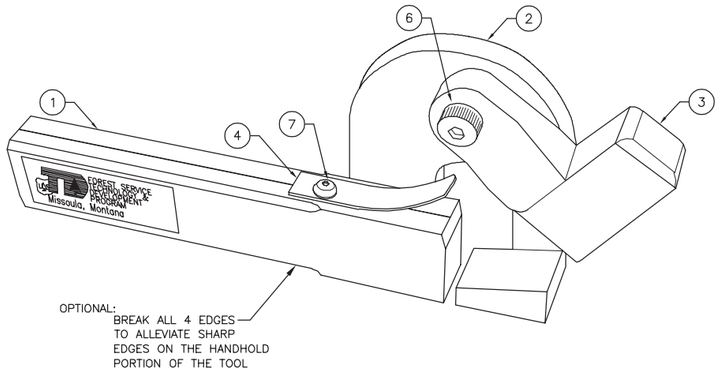
Figure 7—Freestanding crosscut saw vise.

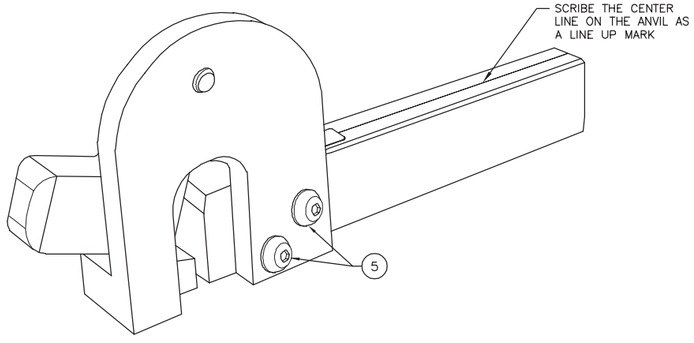
Crosscut Saw Handle Brackets (Drawings MTDC–1024 and MTDC–1025)

Crosscut saw handles are becoming hard to find. MTDC has prepared drawings of two common styles of handle brackets: the Western style (drawing MTDC–1024) and the Eastern style (drawing MTDC–1025). The Western-style handle has a four-point adjustable hand and knuckle guard. The Eastern-style handle is a straight handle without hand or knuckle guards. Although loop-style handles were fairly common, MTDC prepared drawings of pin-through saw handles. The pin-through handles are easier to build and seem to be preferred by the majority of modern sawyers.

Crosscut Saw Tooth-Set Tool

THIS TOOL IS A COPY OF AN EARLY CROSSCUT SAW TOOL.





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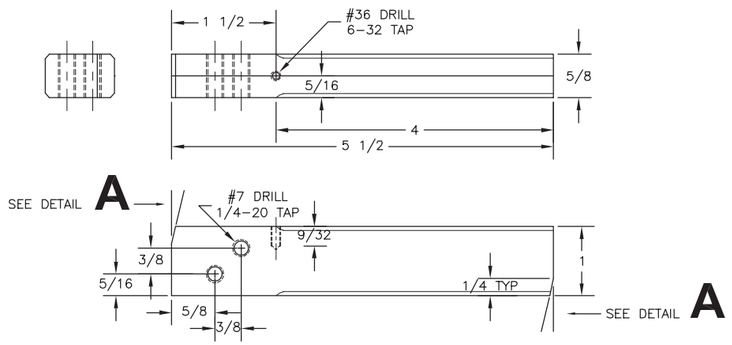
2	ARCH	1	1–INCH PLATE A–36
3	HAMMER	1	5/8 X 1–3/4 AISI TYPE 01 GROUND FLAT STOCK
4	SPRING	1	0.028 X 3/8 SPRING STEEL
5	FASTENER	2	1/4–20 X 3/4 BUTTON HEAD CAP SCREW
6	HAMMER PIVOT	1	5/16 X 3/8 SOCKET HEAD SHOULDER SCREW
7	FASTENER	1	6–32 X 1/4 BUTTONED CAP SCREW



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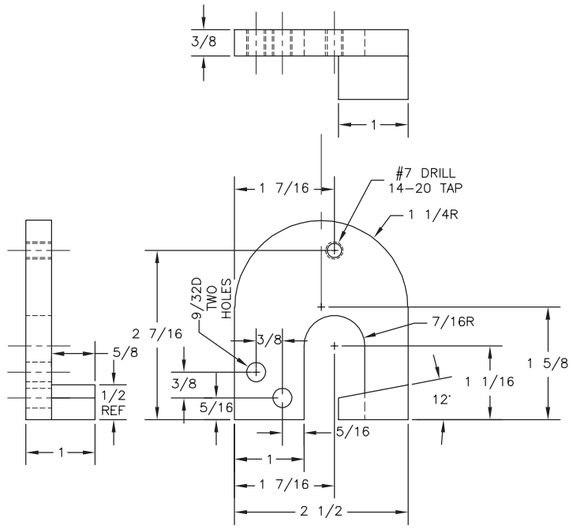

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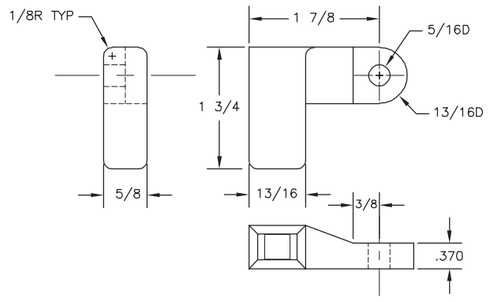
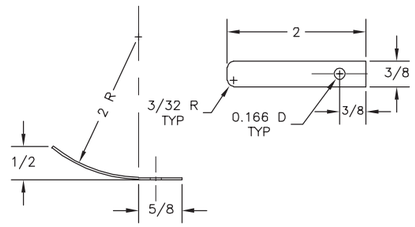


3 HAMMER



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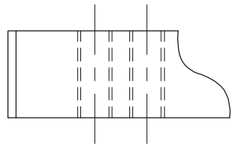

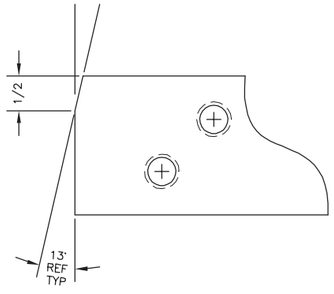

DETAIL A
2X

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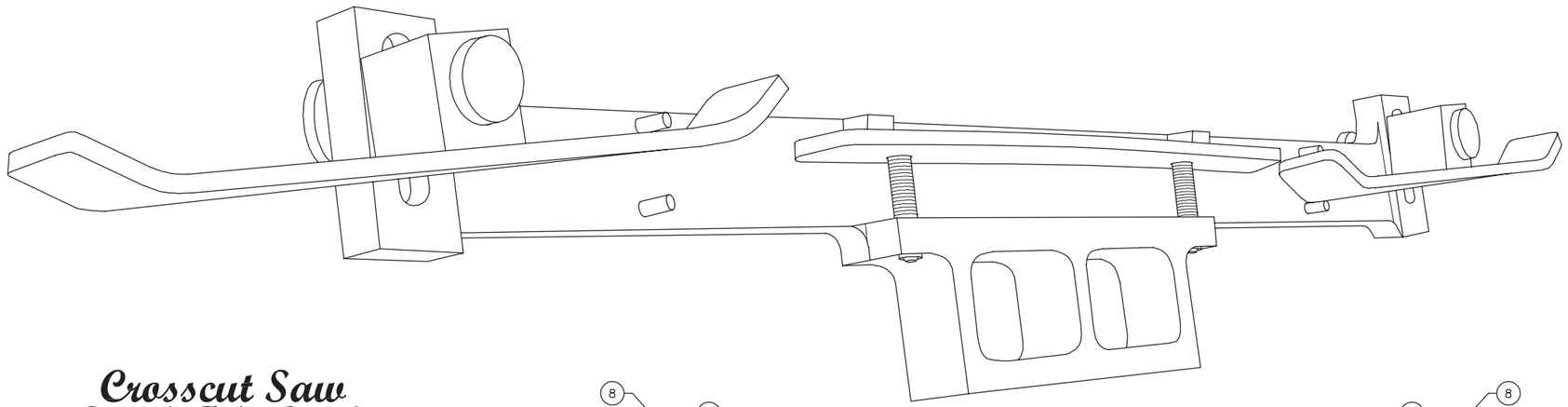
UNLESS OTHERWISE SPECIFIED	DATE	REVISION	BY
TOLERANCES: FRACTIONS +/– ____ DECIMALS +/– ____ ANGLES +/– ____ DIMENSIONS ARE IN INCHES BREAK SHARP EDGES	U.S. Department of Agriculture Forest Service TECHNOLOGY & DEVELOPMENT CENTER Missoula, MT		
DRAWN B.KILROY	Traditional Tool Series		
DESIGNED MORIN	CROSSCUT SAW TOOTH–SET TOOL		
CHECKED B.KILROY			
APPROVED B.BECKLEY			
SCALE FULL & NOTED	998–01.dwg		
DATE JUL 2002	SHEET 1 OF 1		MTDC–998

Crosscut Saw Tooth File Guide

THIS TOOL IS A MODIFIED COPY OF AN EARLY TOOTH FILE TOOL.



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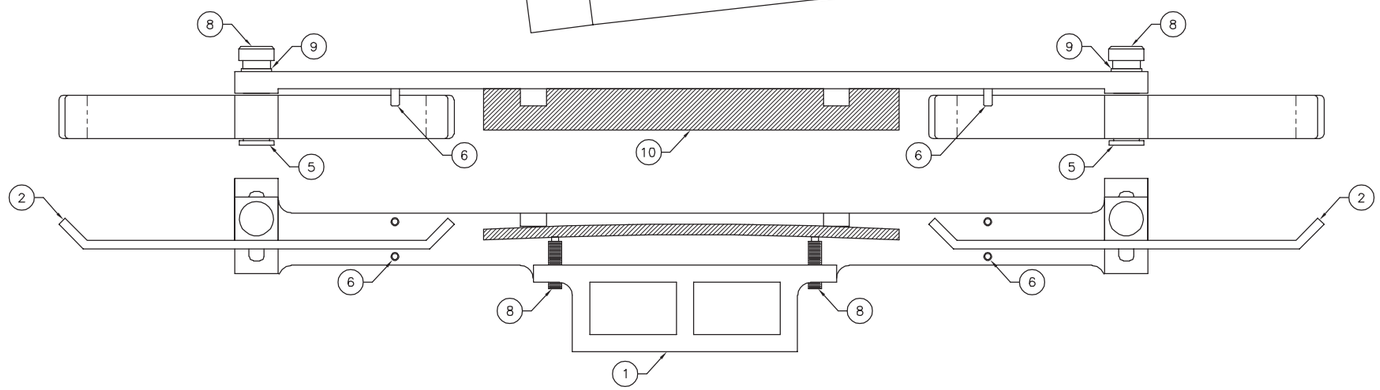
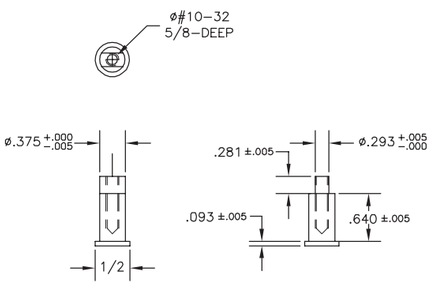
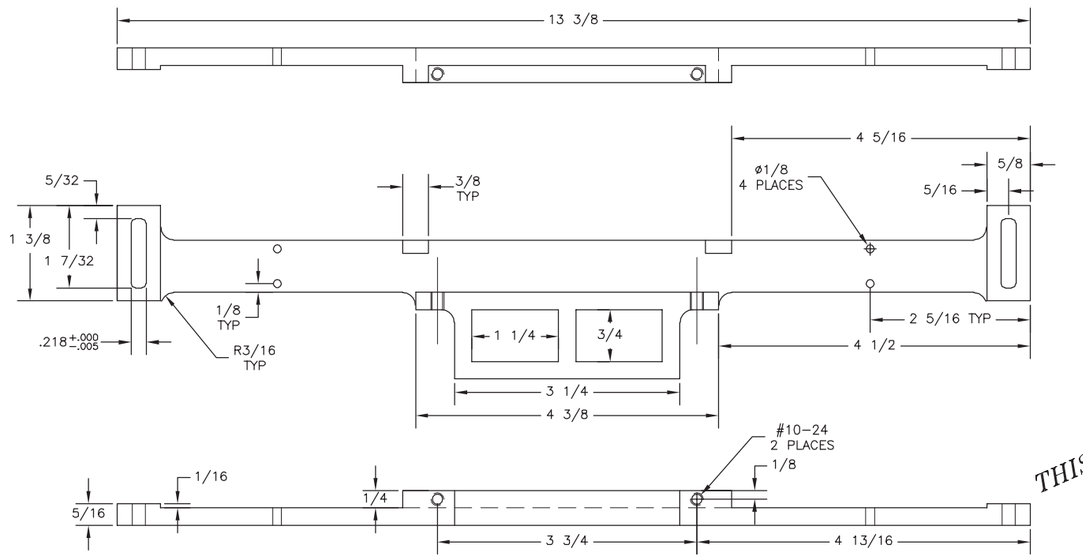
1	FRAME	1	6061 T–6 ALUMINUM
2	SHOE ASSEMBLY	2	PARTS 3 & 4
3	SHOE PIVOT	2	MILD STEEL
4	SHOE ARM	2	A2 TOOL STEEL, HARDENED
5	SHOE NUT	2	1/2 X 1 LG ROUND ROD, MILD STEEL
6	STOP	2	1/8 X 7/16 LG DOWEL PIN
7	SCREW	2	#10–24 X 3/4 LG STANDARD SOCKET CUP POINT
8			SET SCREW
	SCREW	2	#10–32 X 5/8 LG KNURLED THUMB SCREW, BRASS
9			McMASTER–CARR PART NO. 988164A252
	WASHER	2	#10–32 FLAT WASHER, BRASS
10	FILE	1	6–1/4 LG





4 SHOE NUT



1 FRAME

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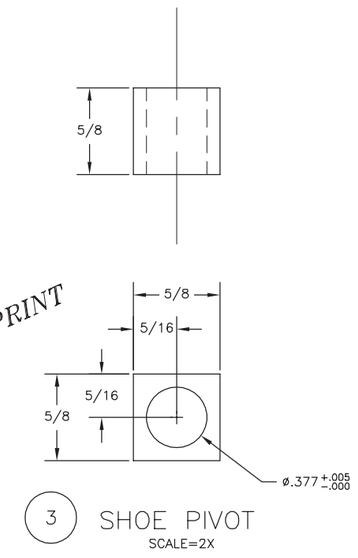

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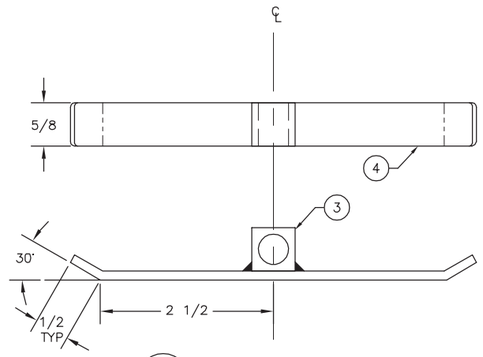

2 SHOE ASSEMBLY
WELDED CONSTRUCTION

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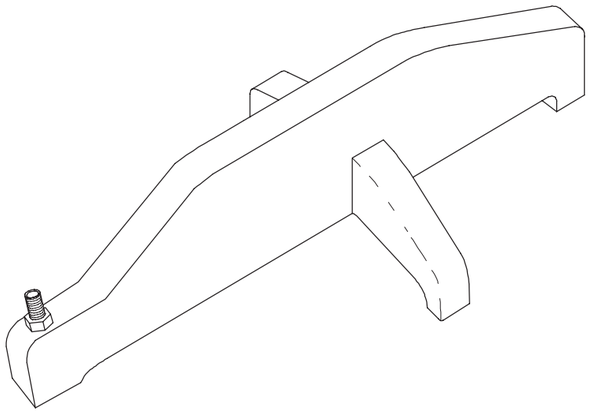
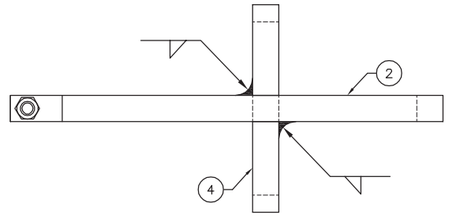
DRAWN KILROY/MUCCI	TITLE *Traditional Tool Series* CROSSCUT SAW JOINTER (TOOTH FILE GUIDE)		
DESIGNED HARDING			
CHECKED X			
APPROVED X			
SCALE FULL	1013–01.dwg		
DATE JAN 2005	SHEET 1 OF 1	MTDC–1013	

MATERIAL LIST			
NO	PART NAME	REQD	MATERIAL–DESCRIPTION
1	RAKE SPIDER ASS'Y	1	SEE PARTS 2 THRU 4
2	ROCKER	1	3/16 X 1 COLD FORM STRIP
3	SET SCREW	1	6–32 X 3/4 SOCKET CUP POINT SET SCREW
4	LEG	1	3/16 X COLD FORM STRIP
5	NUT	1	6–32 HEX NUT





Crosscut Saw Adjustable Spider Gauge

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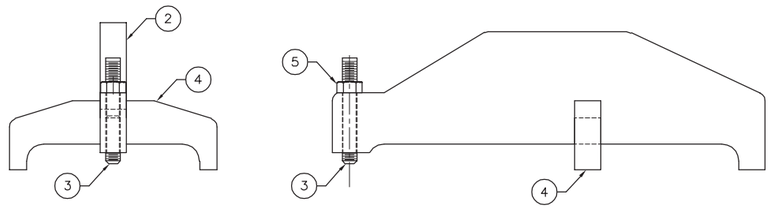

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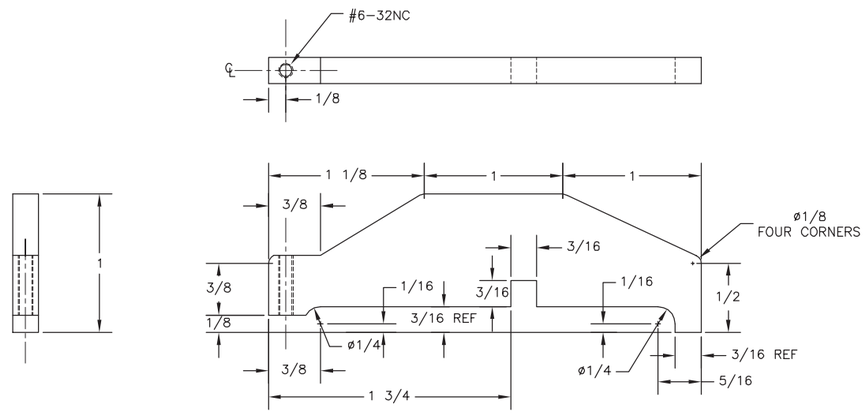
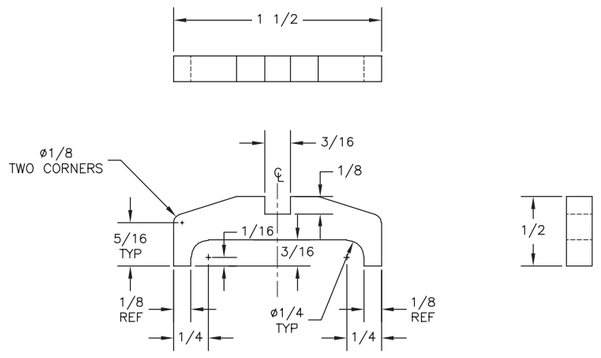


2 ROCKER
2X SCALE



4 LEGS
2X SCALE

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TOLERANCES: FRACTIONS +/– ____ DECIMALS +/– ____ ANGLES +/– ____ DIMENSIONS ARE IN INCHES BREAK SHARP EDGES	U.S. Department of Agriculture Forest Service **TECHNOLOGY & DEVELOPMENT CENTER** Missoula, MT		
DRAWN MUCCI	*Traditional Tool Series*		
DESIGNED HARDING	ADJUSTABLE SPIDER GAUGE		
CHECKED			
APPROVED			
SCALE FULL	1014–01.dwg		
DATE JAN 2005	SHEET 1 OF 1	MTDC–1014	

MATERIAL LIST			
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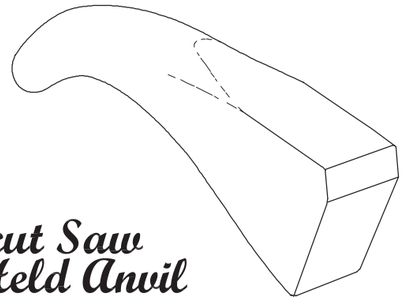
1	ANVIL	1	GRADE 0–1 OIL HARDING TOOL STEEL
			FLAT STOCK 1 X 2 X 6–1/2

NOTES:

BREAK ALL EDGES EXCEPT FACE.
HANDLE SHOULD BE SMOOTH BUT NOT POLISHED SURFACE.



Crosscut Saw Hand-Held Anvil

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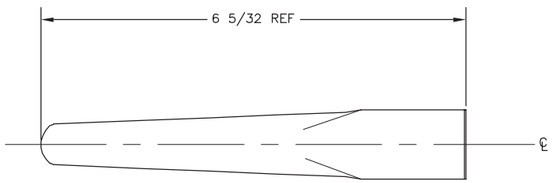

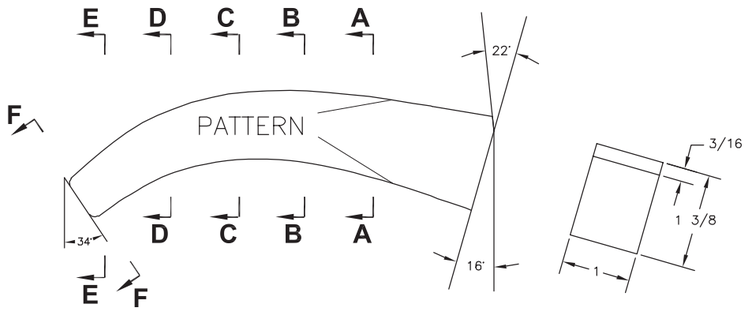

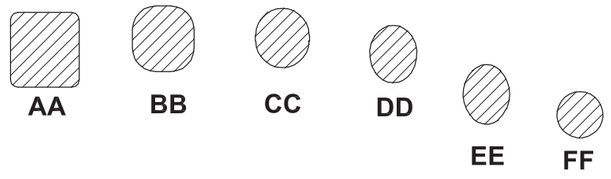

1 ANVIL

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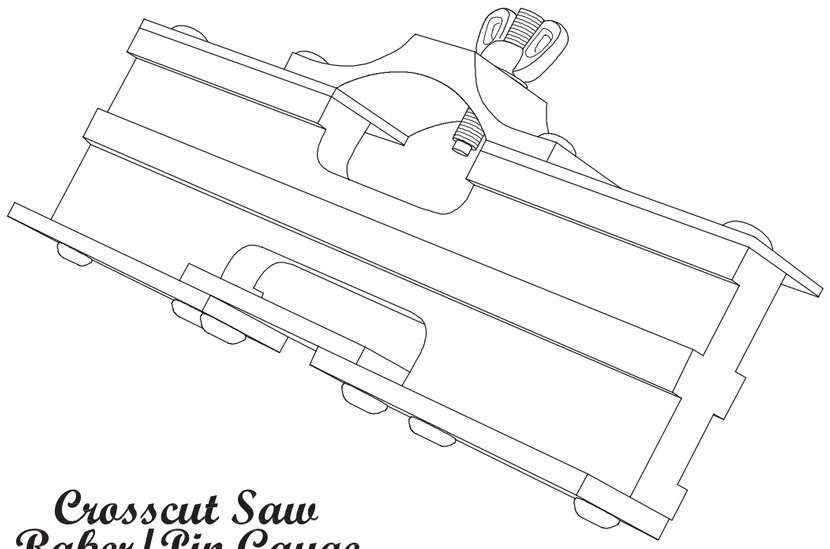
UNLESS OTHERWISE SPECIFIED	DATE	REVISION	BY
TOLERANCES: FRACTIONS +/– ____ DECIMALS +/– ____ ANGLES +/– ____ DIMENSIONS ARE IN INCHES BREAK SHARP EDGES	U.S. Department of Agriculture Forest Service **TECHNOLOGY & DEVELOPMENT CENTER** Missoula, MT		
DRAWN KILROY/MUCCI	*Traditional Tool Series* CROSSCUT SAW HAND–HELD ANVIL		
DESIGNED KILROY			
CHECKED KILROY			
APPROVED X			
SCALE FULL	1018–01.dwg		
DATE FEB 2003	SHEET 1 OF 1		MTDC–1018



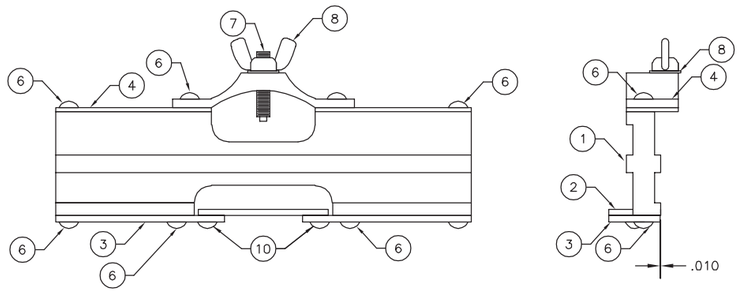
Crosscut Saw Raker/Pin Gauge

THIS TOOL IS A MODIFIED COPY OF AN EARLY CROSSCUT SAW TOOL

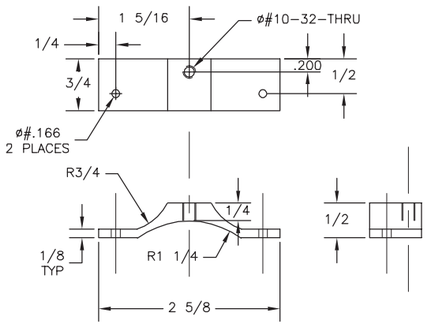
MATERIAL LIST

NO	PART NAME	REQD	MATERIAL–DESCRIPTION
1	FRAME	1	6061 T–6 ALUMINUM
2	FILE GUIDE	1	A2 TOOL STEEL, HARDENED
3	BOTTOM GUIDE	2	A2 TOOL STEEL, HARDENED
4	TOP GUIDE	2	A2 TOOL STEEL, HARDENED
5	PIN GUIDE	1	6061 T–6 ALUMINUM
6	SCREW	8	#8–32 X 1/2 LG BUTTON HEAD SOCKET CAP SCREWS
7	GAUGE SCREW	1	#10–32 X 1 LG STANDARD SOCKET PILOT/DOG SET SCREW
8	WASHER	1	#10 FLAT WASHER
9	WING NUT	1	#10–32 STANDARD SHAPE WING NUT
10	SCREW	2	#8–32 X 1/4 LG BUTTON HEAD SOCKET CAP SCREWS

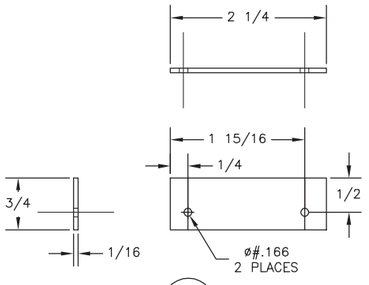
THIS IS A REDUCED PRINT



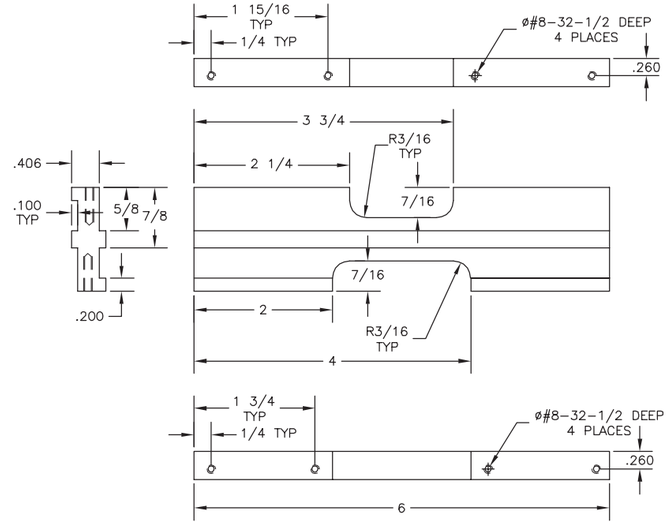
RAKER GAUGE ASSEMBLY



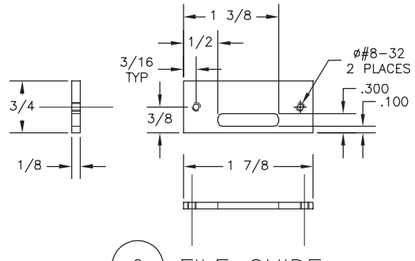
5 PIN GAUGE



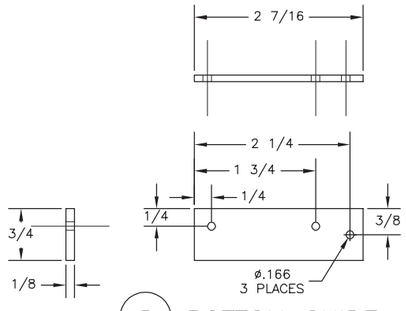
4 TOP GUIDE



1 FRAME



2 FILE GUIDE



3 BOTTOM GUIDE

UNLESS OTHERWISE SPECIFIED
TOLERANCES:
FRACTIONS +/– ____
DECIMALS +/– ____
ANGLES +/– ____
DIMENSIONS ARE IN INCHES
BREAK SHARP EDGES

DRAWN D.MUCCI
DESIGNED HARDING
CHECKED
APPROVED
SCALE FULL
DATE JAN 2005

DATE	REVISION	BY

U.S. Department of Agriculture
Forest Service
TECHNOLOGY & DEVELOPMENT CENTER
Missoula, MT

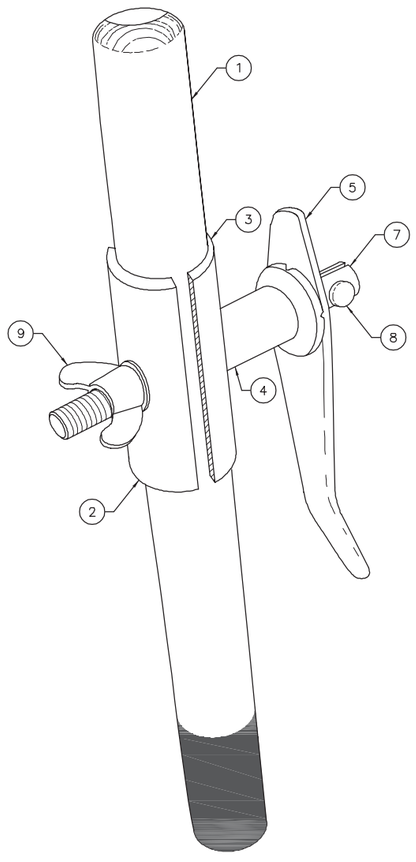
Traditional Tool Series
CROSSCUT SAW
RAKER/PIN GAUGE

.1021–1.dwg

SHEET 1 OF 1 | MTDC–1021

Crosscut Saw
Western Handle Bracket

THIS TOOL IS A COPY OF AN EARLY
WESTERN HANDLE BRACKET

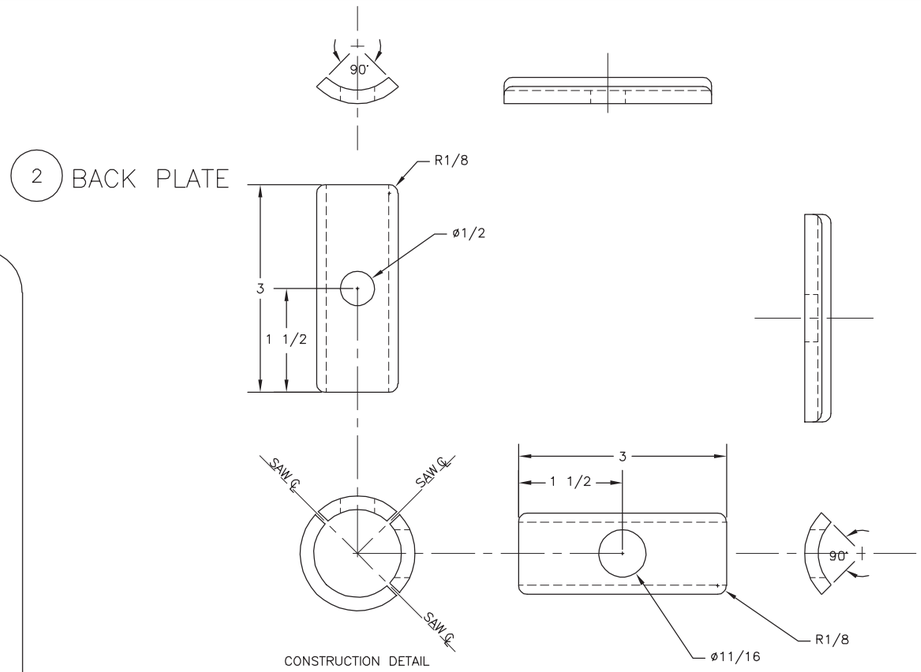


NO SCALE

THIS IS A REDUCED PRINT

MATERIAL LIST

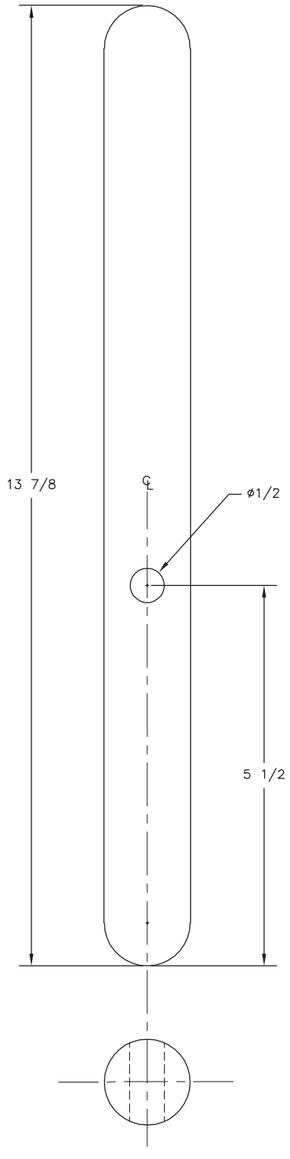
NO	PART NAME	REQD	MATERIAL–DESCRIPTION
1	HANDLE	1	1–1/4 ROUND HARDWOOD
2	BACK PLATE	1	1–1/4 SCHEDULE 80 STEEL PIPE
3	FRONT PLATE	1	1–1/4 SCHEDULE 80 STEEL PIPE
4	STANDOFF	1	1–1/2 ROUND COLD ROLLED STEEL
5	HANDGUARD	1	5/16 X 1 COLD DRAWN FLAT STEEL (CASE HARDENED)
6	DOWLPIN	2	1/8 X 1/4 HARDENED STEEL McMASTER–CARR #98381A469
7	THROUGH BOLT	1	3/4 ROUND COLD ROLLED STEEL
8	RIVET	1	1/4 X 3/4 ROUND HEAD SOLID STEEL RIVET
			McMASTER–CARR #97300A685
9	WING NUT	1	7/16–14 ZINC–PLATED STEEL McMASTER–CARR
			#90866A150



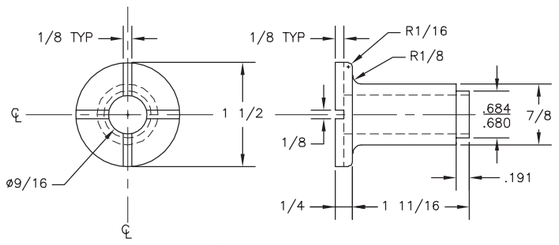
2 BACK PLATE

CONSTRUCTION DETAIL

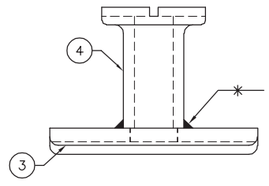
3 FRONT PLATE



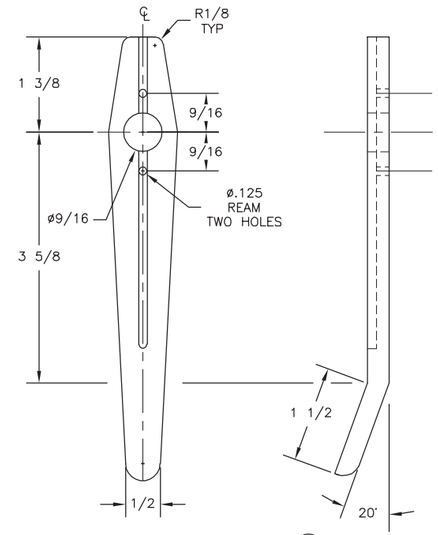
1 HANDLE



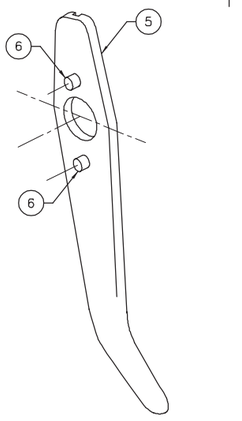
4 STAND OFF



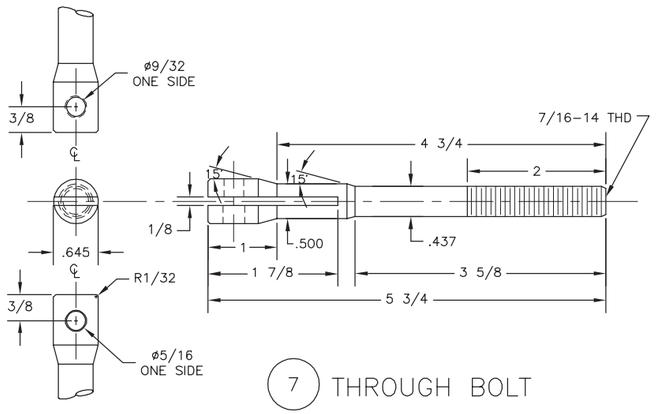
FRONT PLATE
ASSEMBLY



5 HAND GUARD



HAND GUARD
ASSEMBLY
NO SCALE

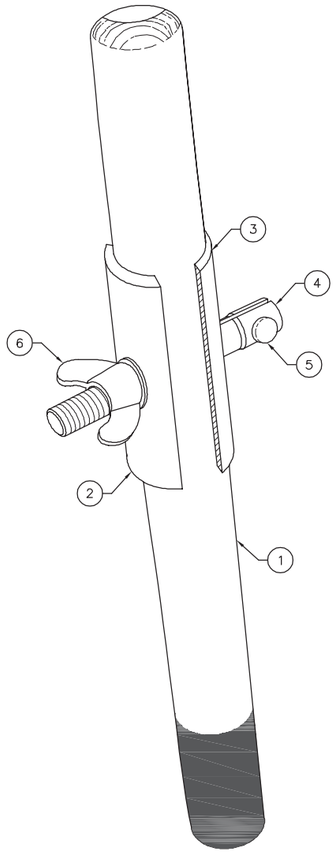


7 THROUGH BOLT

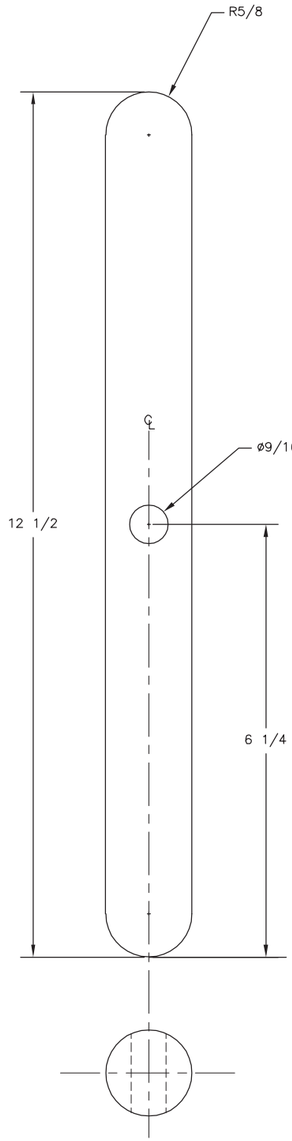
UNLESS OTHERWISE SPECIFIED	DATE	REVISION	BY
TOLERANCES: FRACTIONS +/– ____ DECIMALS +/– ____ ANGLES +/– ____ DIMENSIONS ARE IN INCHES BREAK SHARP EDGES	U.S. Department of Agriculture Forest Service **TECHNOLOGY & DEVELOPMENT CENTER** Missoula, MT		
DRAWN KILROY/MUCCI	TITLE *Traditional Tool Series* CROSSCUT SAW WESTERN HANDLE BRACKET		
DESIGNED KILROY			
CHECKED KILROY			
APPROVED X			
SCALE FULL	1024–01.dwg		
DATE SEPT 2003	SHEET 1 OF 1	MTDC–1024	

Crosscut Saw
Eastern Handle Bracket

THIS TOOL IS A COPY OF AN EARLY
EASTERN HANDLE BRACKET

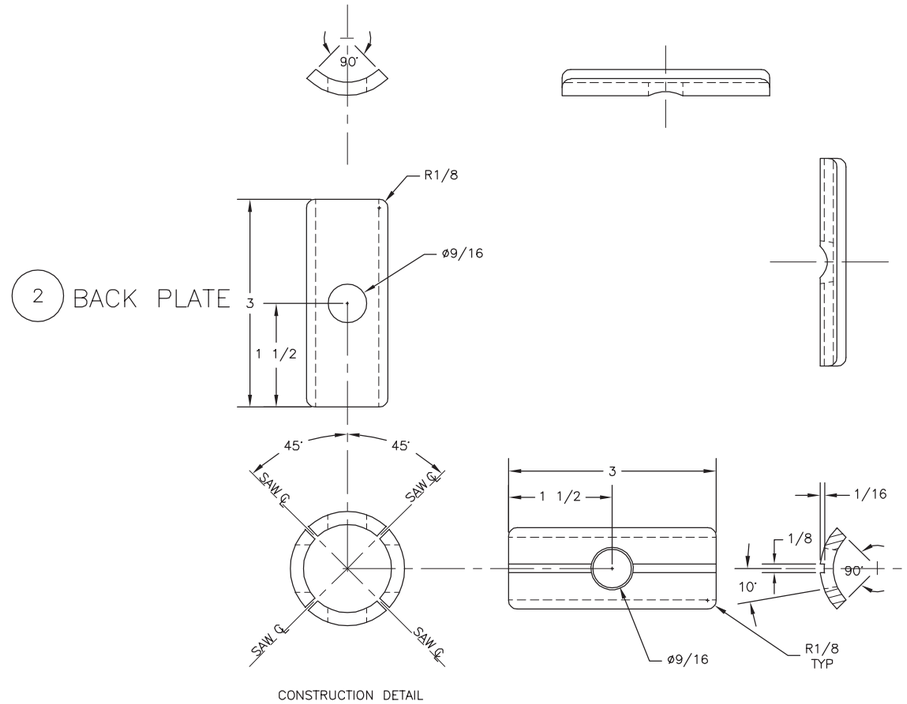


THIS IS A REDUCED PRINT



1 HANDLE

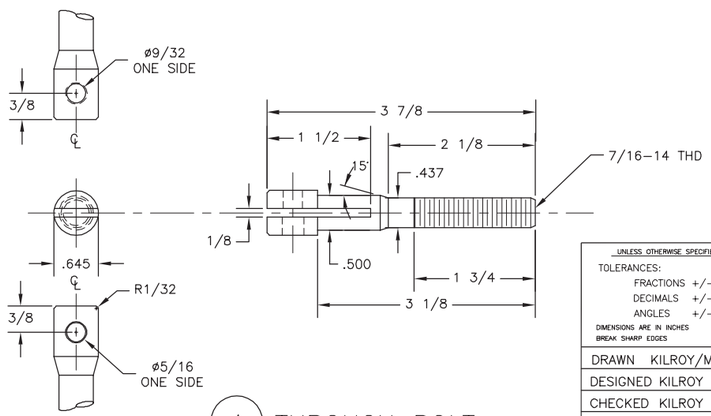
MATERIAL LIST			
NO	PART NAME	REQD	MATERIAL–DESCRIPTION
1	HANDLE	1	1–1/4 ROUND HARDWOOD
2	BACK PLATE	1	1–1/4 SCHEDULE 80 STEEL PIPE
3	FRONT PLATE	1	1–1/4 SCHEDULE 80 STEEL PIPE
4	THROUGH BOLT	1	3/4 ROUND COLD ROLLED STEEL
5	RIVET	1	1/4 X 3/4 ROUND HEAD SOLID STEEL RIVET
			McMASTER–CARR #97300A685
6	WING NUT	1	7/16–14 ZINC–PLATED STEEL McMASTER–CARR
			#90866A150



2 BACK PLATE

CONSTRUCTION DETAIL

3 FRONT PLATE



4 THROUGH BOLT

UNLESS OTHERWISE SPECIFIED
TOLERANCES:
FRACTIONS +/– ____
DECIMALS +/– ____
ANGLES +/– ____
DIMENSIONS ARE IN INCHES
BREAK SHARP EDGES

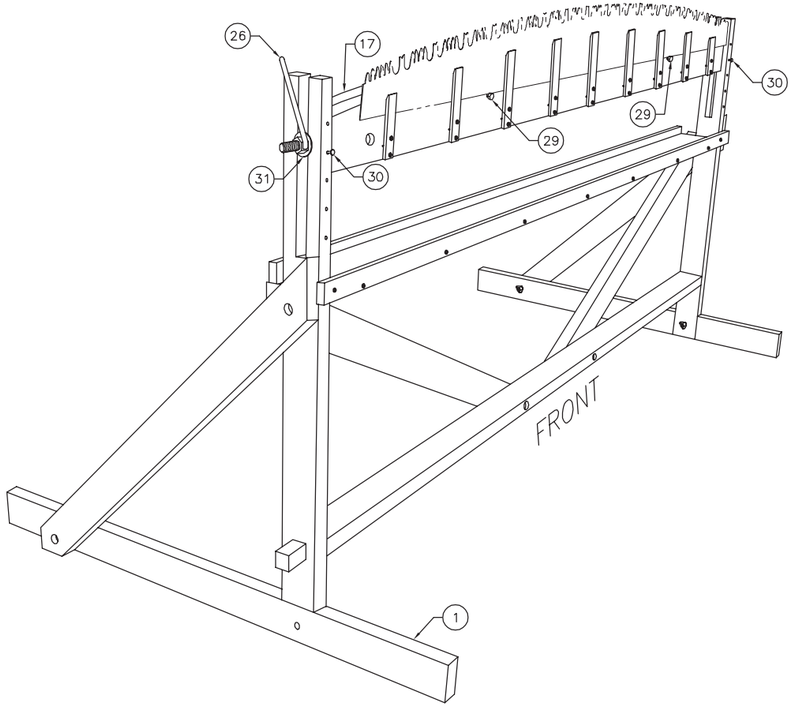
DATE	REVISION	BY

U.S. Department of Agriculture
Forest Service
TECHNOLOGY & DEVELOPMENT CENTER
Missoula, MT

DRAWN KILROY/MUCCI
DESIGNED KILROY
CHECKED KILROY
APPROVED X
SCALE FULL
DATE SEPT 2003

Traditional Tool Series
CROSSCUT SAW
EASTERN HANDLE BRACKET
1025–01.dwg

SHEET 1 OF 1 | MTDC–1025



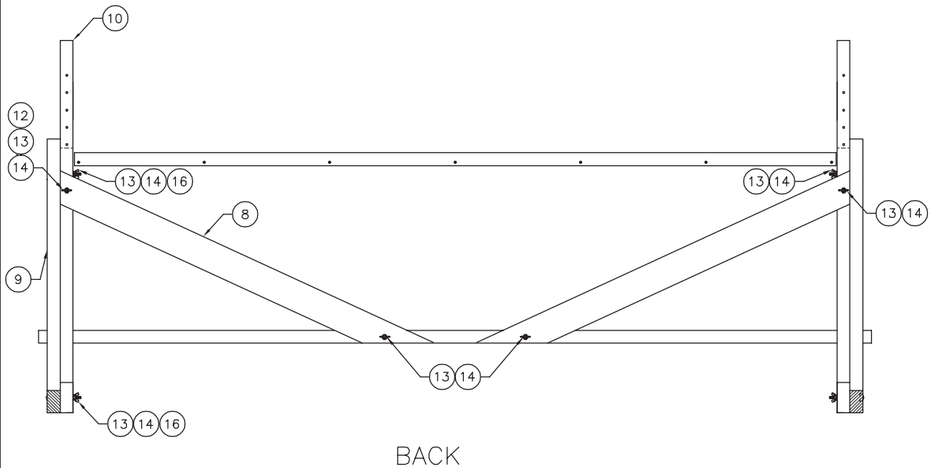
Crosscut Saw
Freestanding Saw Vise

FOR 7–FOOT SAW

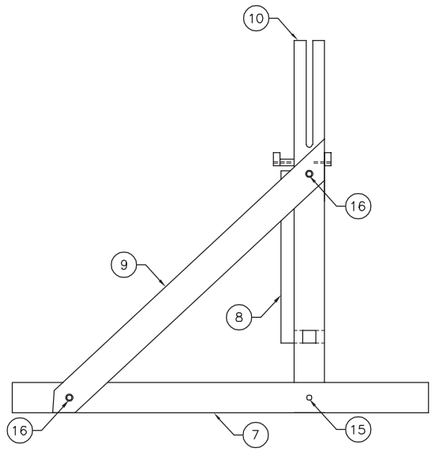
MATERIAL LIST

NO	PART NAME	REQD	MATERIAL–DESCRIPTION	SHEET
1	STAND ASSEMBLY	1	PARTS 2 THRU 16	
2	TRAY ASSEMBLY	–	PARTS 3 THRU 6	2
6	SCREW	2	SEE PART NO. 6	2
7	BASE	–	SEE PART NO. 7	2
8	BACK BRACE	–	SEE PART NO. 8	2
9	SIDE BRACE	–	SEE PART NO. 9	2
10	ARM	–	SEE PART NO. 10	2
11	FOOT RAIL	–	SEE PART NO. 11	3
12	BOLT	4	1/4–20NC X 6 LG ROUND HEAD, SQUARE NECK,	
			CARRIAGE BOLT	
13	WASHER	8	1/4–INCH FLAT WASHER	
14	NUT	8	1/4–20NC STANDARD WING NUT	
15	BOLT	2	1/4–20NC X 2 LG ROUND HEAD, SQUARE NECK,	
			CARRIAGE BOLT	
16	BOLT	4	1/4–20NC X 3–1/2 LG ROUND HEAD, SQUARE	
			NECK, CARRIAGE BOLT	
17	VICE ASSEMBLY	–	PARTS 17 THRU 25	3
26	HANDLE ASSEMBLY	–	PARTS 27 & 28	3
29	BOLT	2	3/8–16NC X 2–1/2 LG HEX HEAD BOLT	
30	STOP	2	1/4–INCH X 4 LG ROUND ROD OR 60d SPIKE	
31	WASHER	2	3/4 ID X 1–1/2 OD FLAT WASHER	

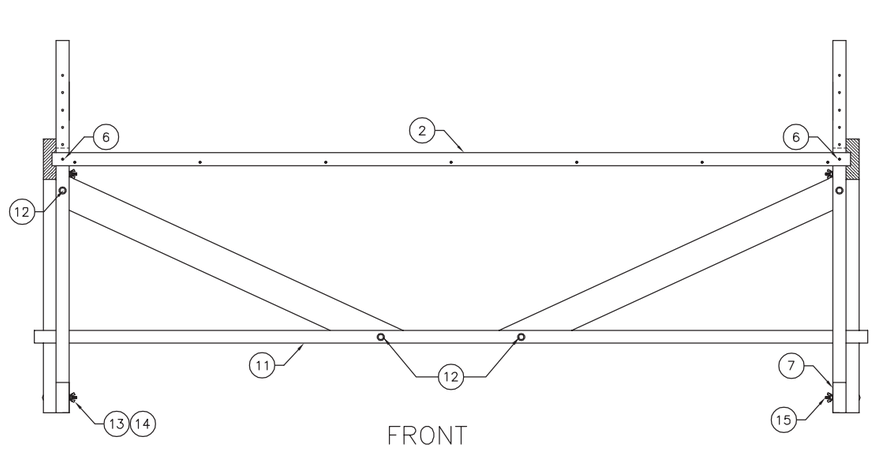
THIS IS A REDUCED PRINT



BACK



1 STAND ASSEMBLY



FRONT

UNLESS OTHERWISE SPECIFIED
TOLERANCES:
FRACTIONS +/– ____
DECIMALS +/– ____
ANGLES +/– ____
DIMENSIONS ARE IN INCHES
BREAK SHARP EDGES

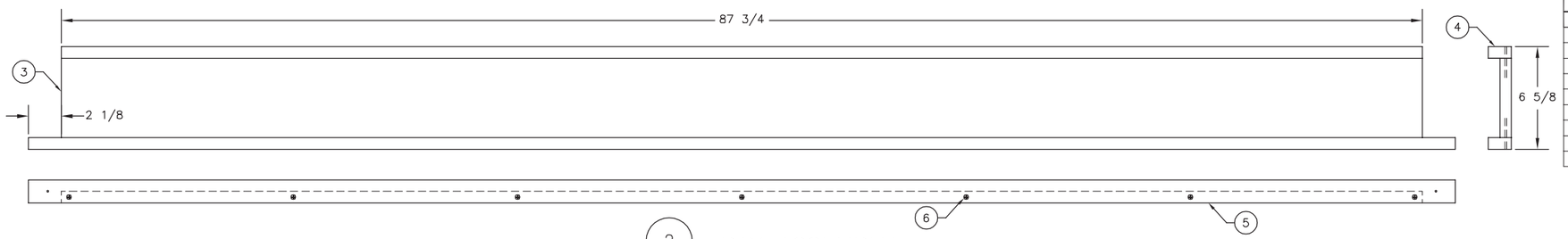
DATE	REVISION	BY

U.S. Department of Agriculture
Forest Service
TECHNOLOGY & DEVELOPMENT CENTER
Missoula, MT

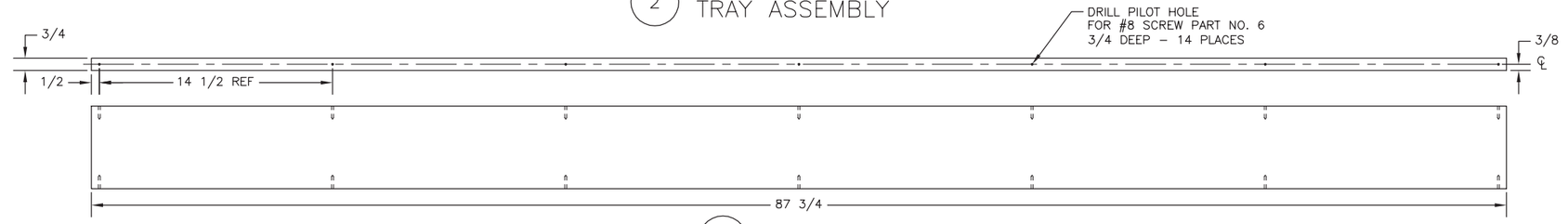
DRAWN D.MUCCI	*Traditional Tool Series*
DESIGNED –	FREESTANDING CROSSCUT SAW VISE STAND ASSEMBLY
CHECKED –	
APPROVED R.BECKLEY	
SCALE 1/8	:1044–01.dwg
DATE APR 05	SHEET 1 OF 3 | MTDC–1044

MATERIAL LIST

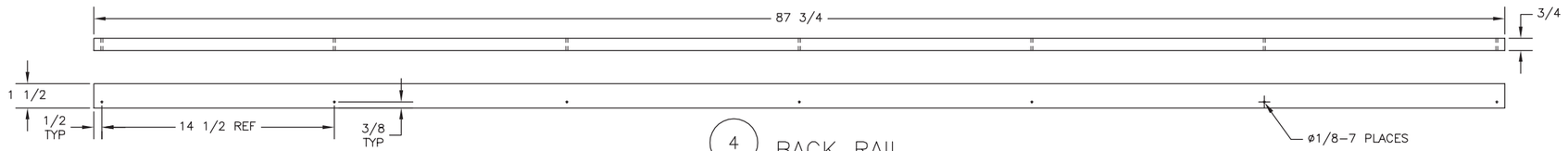
NO	PART NAME	REQD	MATERIAL–DESCRIPTION	SHEET
2	TRAY ASSEMBLY	1	PARTS 3 THRU 6	
3	TRAY	1	1 X 6 LUMBER	
4	BACK RAIL	1	1 X 2 LUMBER	
5	FRONT RAIL	1	1 X 2 LUMBER	
6	SCREW	14	#8 X 1–1/2 LG STANDARD FLATHEAD WOOD SCREW	
7	BASE	2	2 X 4 LUMBER	
8	BACK BRACE	2	2 X 4 LUMBER	
9	SIDE BRACE	2	2 X 4 LUMBER	
10	ARM	2	2 X 4 LUMBER	



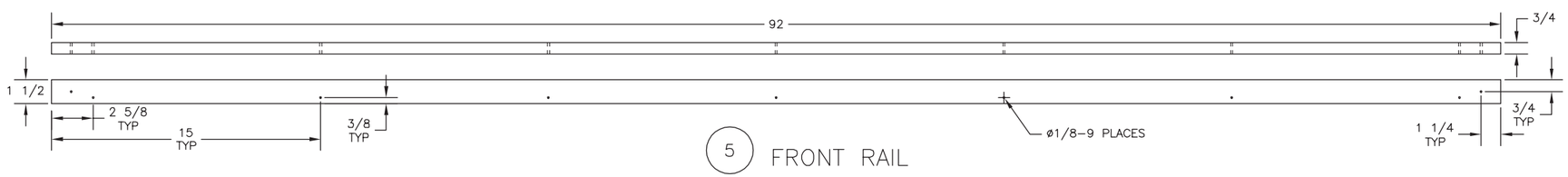
2 TRAY ASSEMBLY



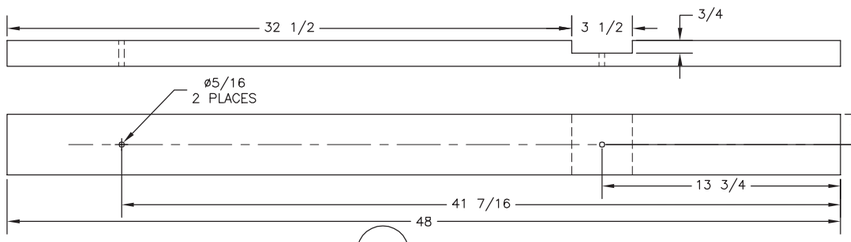
3 TRAY



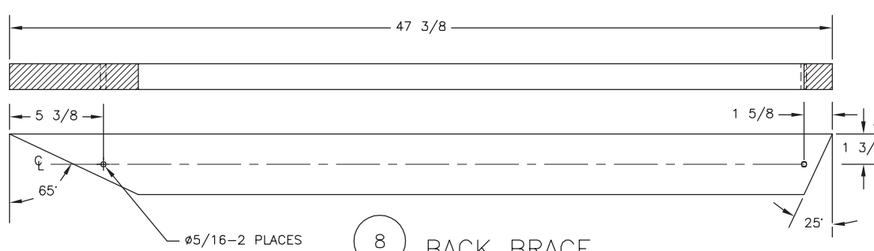
4 BACK RAIL



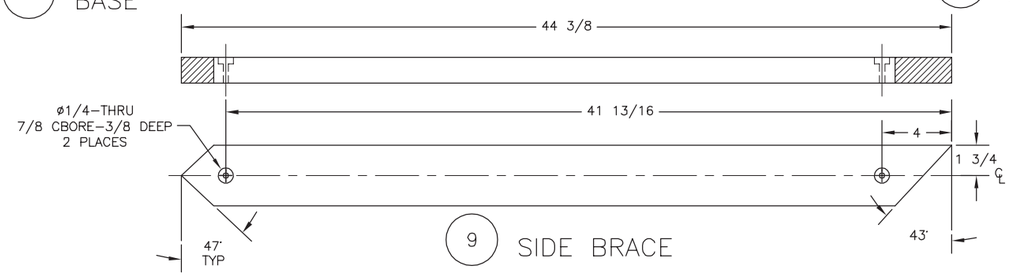
5 FRONT RAIL



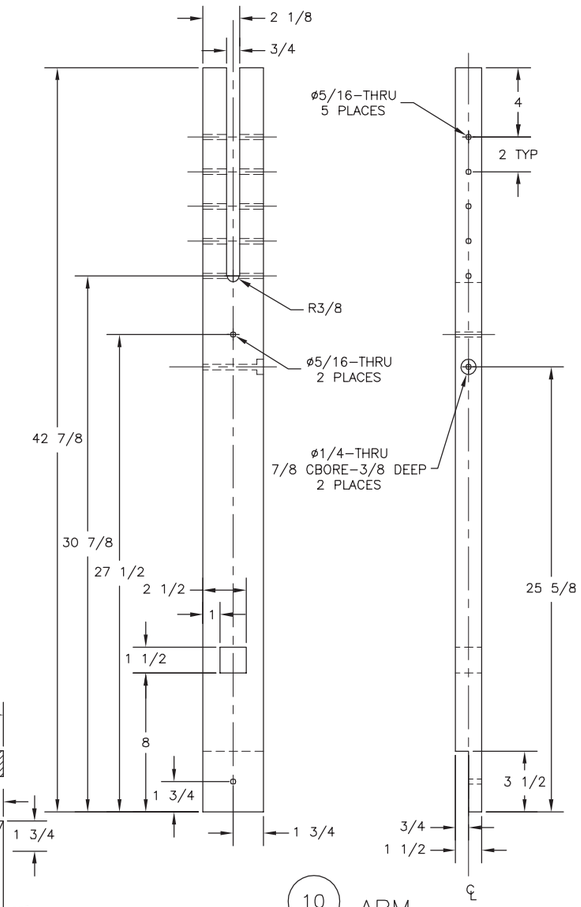
7 BASE



8 BACK BRACE



9 SIDE BRACE



10 ARM

THIS IS A REDUCED PRINT

UNLESS OTHERWISE SPECIFIED
TOLERANCES:
FRACTIONS +/– ____
DECIMALS +/– ____
ANGLES +/– ____
DIMENSIONS ARE IN INCHES
BREAK SHARP EDGES

DATE	REVISION	BY

U.S. Department of Agriculture
Forest Service
TECHNOLOGY & DEVELOPMENT CENTER
Missoula, MT

DRAWN	D.MUCCI
DESIGNED	–
CHECKED	–
APPROVED	R.BECKLEY
SCALE	1/4
DATE	APR 05

Traditional Tool Series

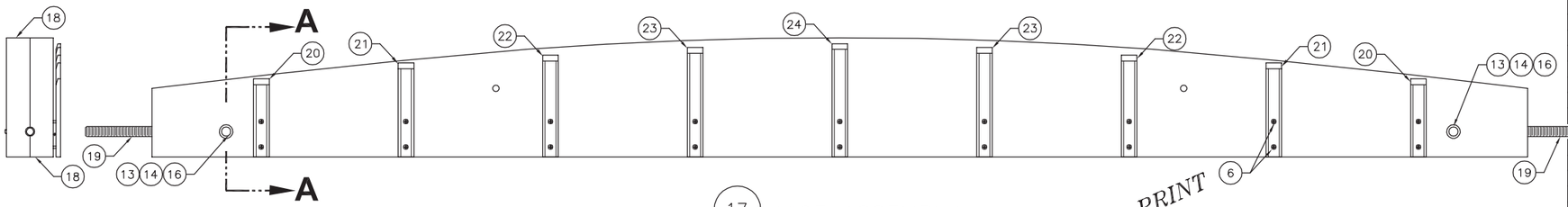
FREESTANDING CROSSCUT SAW VISE STAND
COMPONENTS

1044–02.dwg

SHEET 2 OF 3 | MTDC–1044

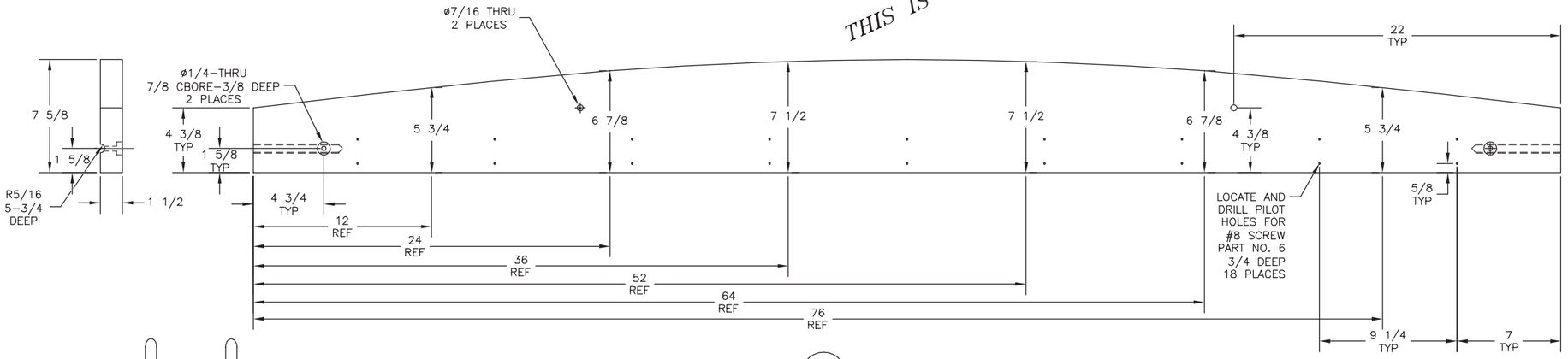
MATERIAL LIST

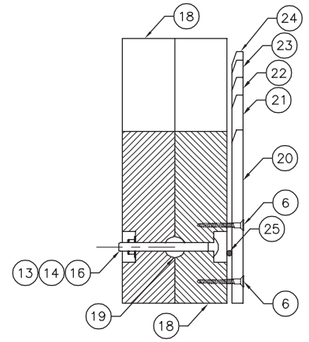
NO	PART NAME	REQD	MATERIAL–DESCRIPTION	SHEET
6	SCREW	14	SEE PART NO. 6	2
11	FOOT RAIL	1	2 X 4 LUMBER	
13	WASHER	2	SEE PART NO. 13	2
14	NUT	2	SEE PART NO. 14	2
16	BOLT	2	SEE PART NO. 16	2
17	VISE ASSEMBLY	1	PARTS 7 THRU 25	
18	BODY	2	2 X 10 LAMINATED TRUCK DECKING	
19	ROD	2	5/8–11NC X 10 LG ALL THREAD ROD	
20	SLAT	2	5/16 X 1 HARDWOOD SLAT (OAK)	
21	SLAT	2	5/16 X 1 HARDWOOD SLAT (OAK)	
22	SLAT	2	5/16 X 1 HARDWOOD SLAT (OAK)	
23	SLAT	2	5/16 X 1 HARDWOOD SLAT (OAK)	
24	SLAT	1	5/16 X 1 HARDWOOD SLAT (OAK)	
25	SPACER	9	5/32 X 1 LG ROUND ROD, STEEL	
26	HANDLE ASSEMBLY	2	PARTS 27 & 28	
27	NUT	2	5/8–11NC HEX NUT	
28	GRIP	2	3/8 X 6–1/2 LG ROUND ROD, STEEL	



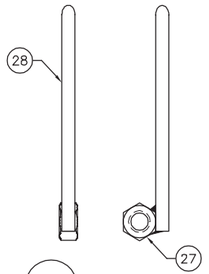
17 VICE ASSEMBLY

THIS IS A REDUCED PRINT

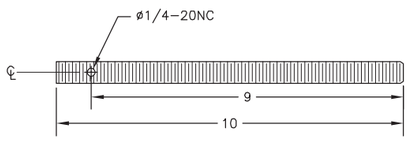




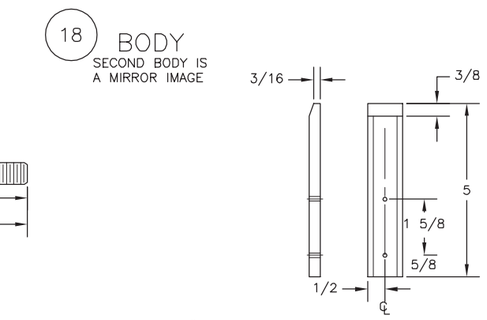
SECTION **A-A**



26 HANDLE
1/2 SCALE
WELDED CONSTRUCTION



19 ROD
1/2 SCALE



DRILL PILOT HOLES FOR #8 SCREWS
PART NO. 6, 3/4 DEEP, 2 PLACES ON EACH
SLAT

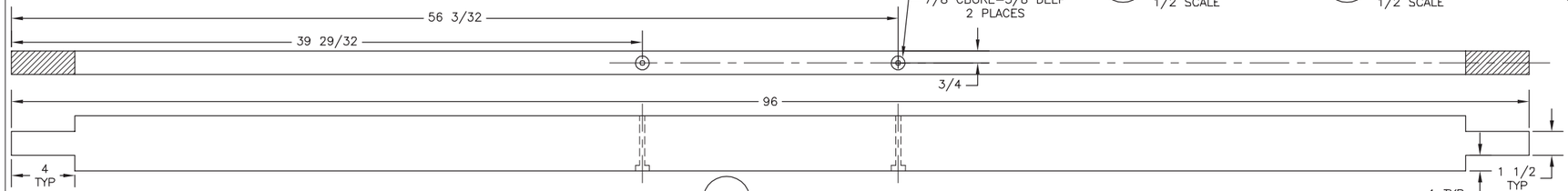
20 SLAT
1/2 SCALE

21 SLAT
1/2 SCALE

22 SLAT
1/2 SCALE

23 SLAT
1/2 SCALE

24 SLAT
1/2 SCALE



11 FOOT RAIL

UNLESS OTHERWISE SPECIFIED
TOLERANCES:
FRACTIONS +/– ____
DECIMALS +/– ____
ANGLES +/– ____
DIMENSIONS ARE IN INCHES
BREAK SHARP EDGES

DATE	REVISION	BY

U.S. Department of Agriculture
Forest Service
TECHNOLOGY & DEVELOPMENT CENTER
Missoula, MT

DRAWN	D.MUCCI
DESIGNED	–
CHECKED	–
APPROVED	R.BECKLEY
SCALE	1/4 & NOTED
DATE	APR 05

Traditional Tool Series

FREESTANDING CROSSCUT SAW VISE
VISE
ASSEMBLY & COMPONENTS

1044–03.dwg

SHEET 3 OF 3 | MTDC–1044

About the Author

Bob Beckley received a bachelor's degree in political science from the University of Montana in 1982. He began his Forest Service career as a timber technician on the Nez Perce National Forest. He was a smokejumper when he came to the Missoula Technology and Development Center in 1990. He is a project leader and a public affairs specialist.

Library Card

Beckley, Bob. 2005. New tools for old saws: crosscut saw tools. Tech. Rep. 0523–2815P–MTDC. Missoula, MT: U.S. Department of Agriculture, Forest Service, Missoula Technology and Development Center. 18 p.

Describes eight tools that have been redesigned by the Missoula Technology and Development Center. These crosscut saw maintenance tools are redesigns of traditional tools that are hard to find now. Chain saws can't be used in wilderness and aren't as light as crosscut saws. The U.S. Department of Agriculture, Forest Service still uses crosscut saws and needs to maintain them. The report includes mechanical drawings of each of the tools. The tools include a jointer, raker/pin gauge, tooth-set tool, hand-held anvil, adjustable spider gauge, Western-style handle, Eastern-style handle, and free-standing crosscut saw vise.

Keywords: anvils, mechanical drawings, gauges, handles, handtools, jointers, raker gauges, spider gauges, tooth set, traditional tools, vises

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Single copies of this document may be ordered from:

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