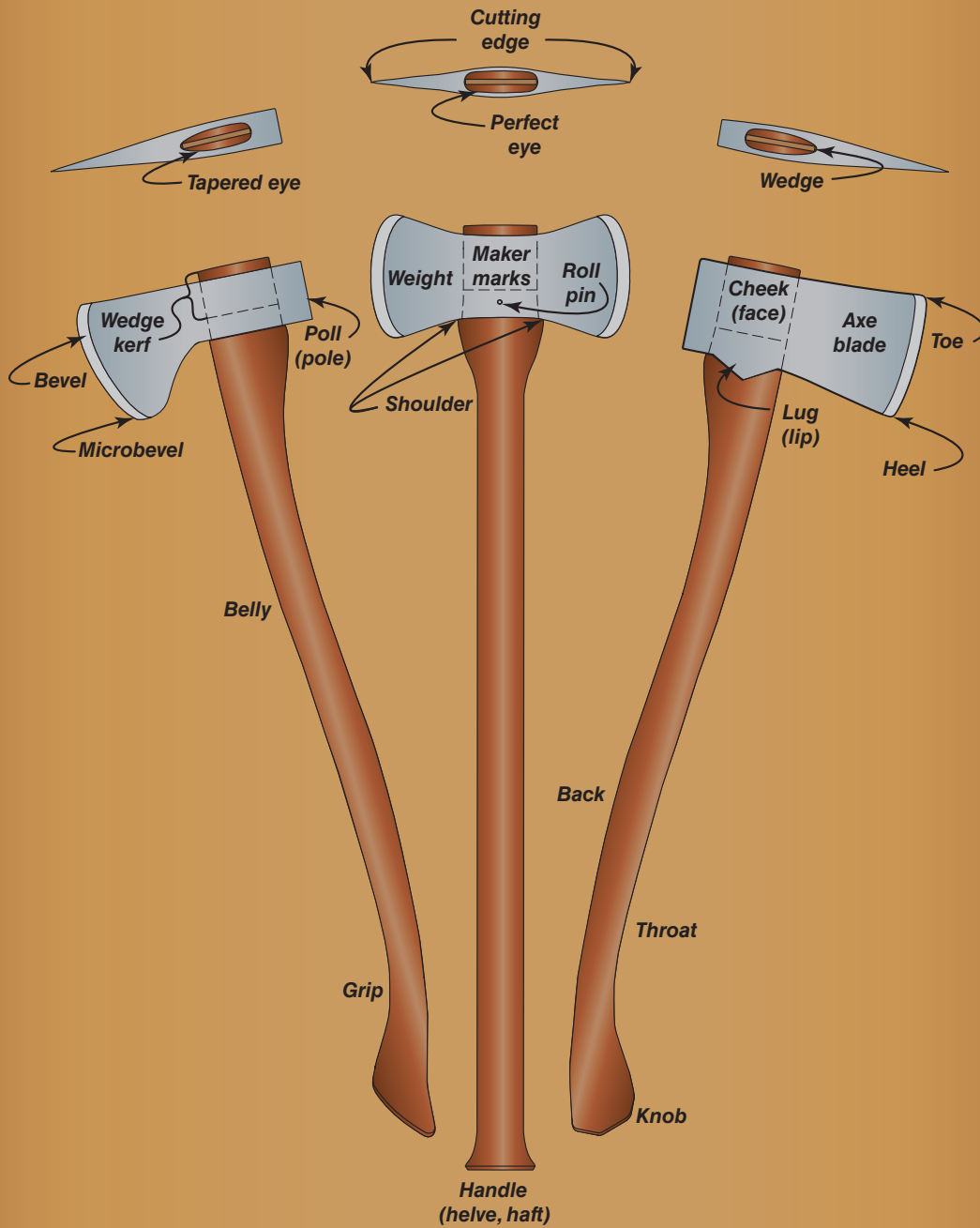


Appendix A—Full Page Ax Illustrations

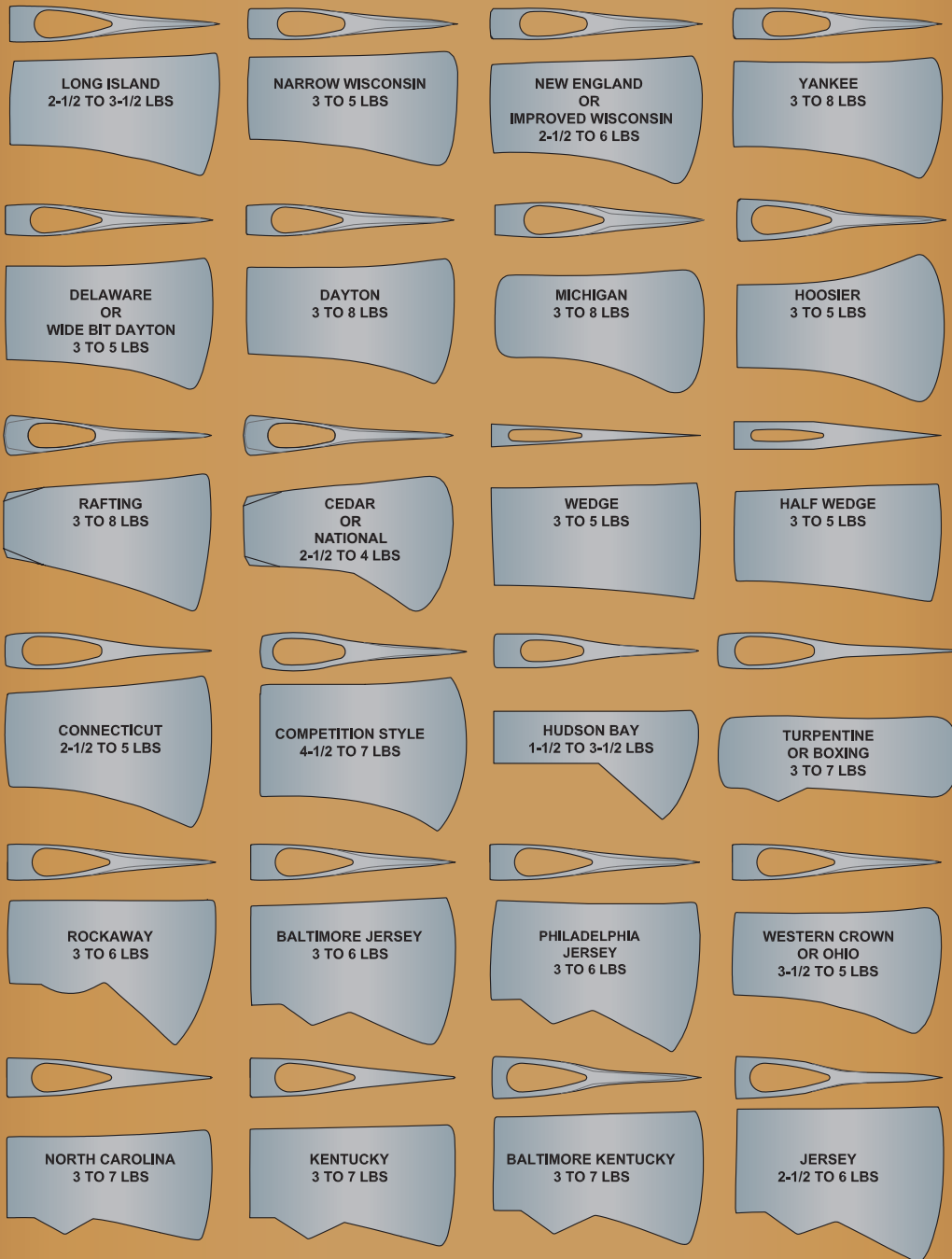
Order full-size copies of the illustrations included in this appendix by [emailing the National Technology and Development Program](#) at wo_mtdc_pubs@fs.fed.us or by calling 406-329-3978.

- [Parts of an Axe](#)
- [Common Single-Bit Axe Head Patterns](#)
- [Common Double-Bit Axe Head Patterns](#)
- [Axe Handles](#)

Parts of an Axe



Common Single-Bit Axe Head Patterns



Common Double-Bit Axe Head Patterns



WEDGE
3 TO 4 LBS



NARROW MICHIGAN
3 TO 4 LBS



MICHIGAN
2-1/2 TO 7 LBS



WISCONSIN
3 TO 4 LBS



**REGULAR
WISCONSIN**
3 TO 4 LBS



YOUNG
3 TO 5 LBS



**WESTERN OR
PENNSYLVANIA**
3 TO 7 LBS



**WESTERN OR
LIPPENCOTT**
3 TO 4-1/2 LBS



**REDWOOD OR
HUMBOLDT**
3 TO 5 LBS



**REVERSIBLE OR
HALF PEELING**
3 TO 6 LBS



FULL PEELING
3 TO 5 LBS



**NARROW
SWAMPING**
3-1/2 TO 4-1/2 LBS



FALLING
3-1/2 TO 5 LBS



PUGET SOUND FALLING
4 TO 5 LBS




SWAMPING
3 TO 5 LBS



Axe Handles


Single-bit
tapered eye

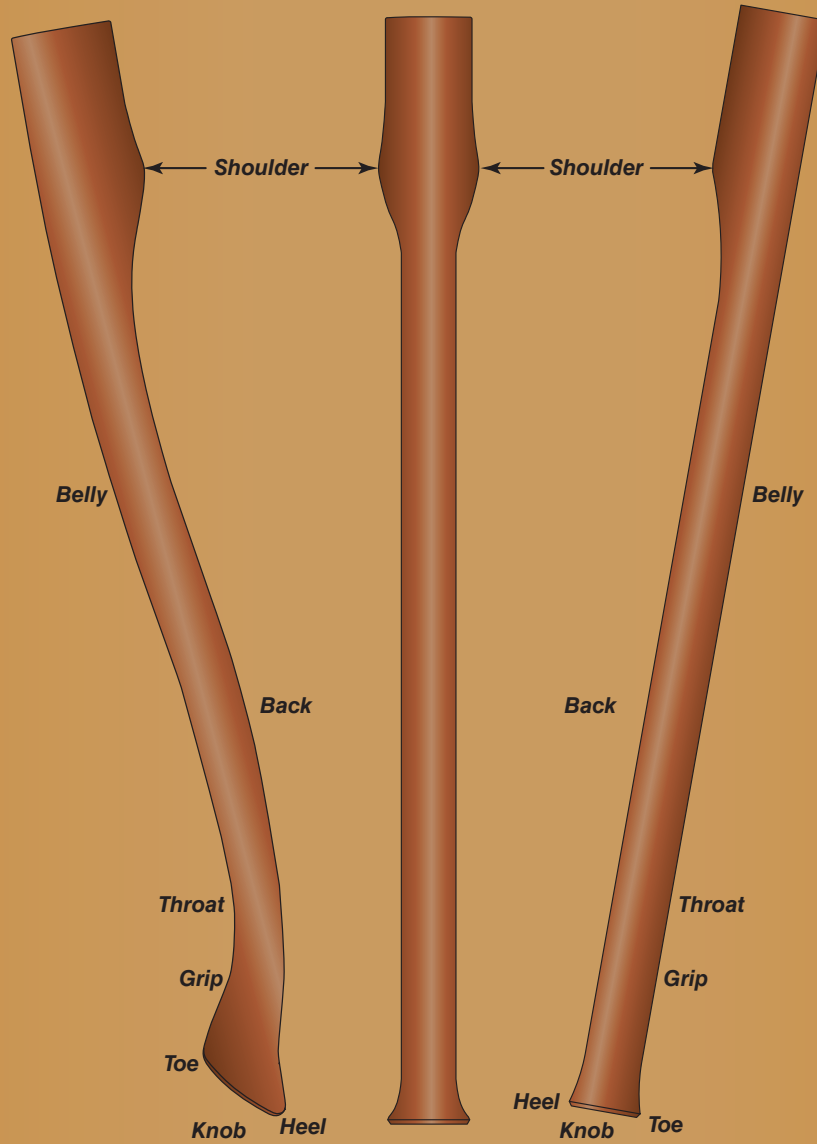

Double-bit
tapered eye

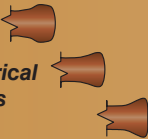

Perfect
eye


Oval
handle


Octagonal
handle


Shaped
handle





Symmetrical
knobs

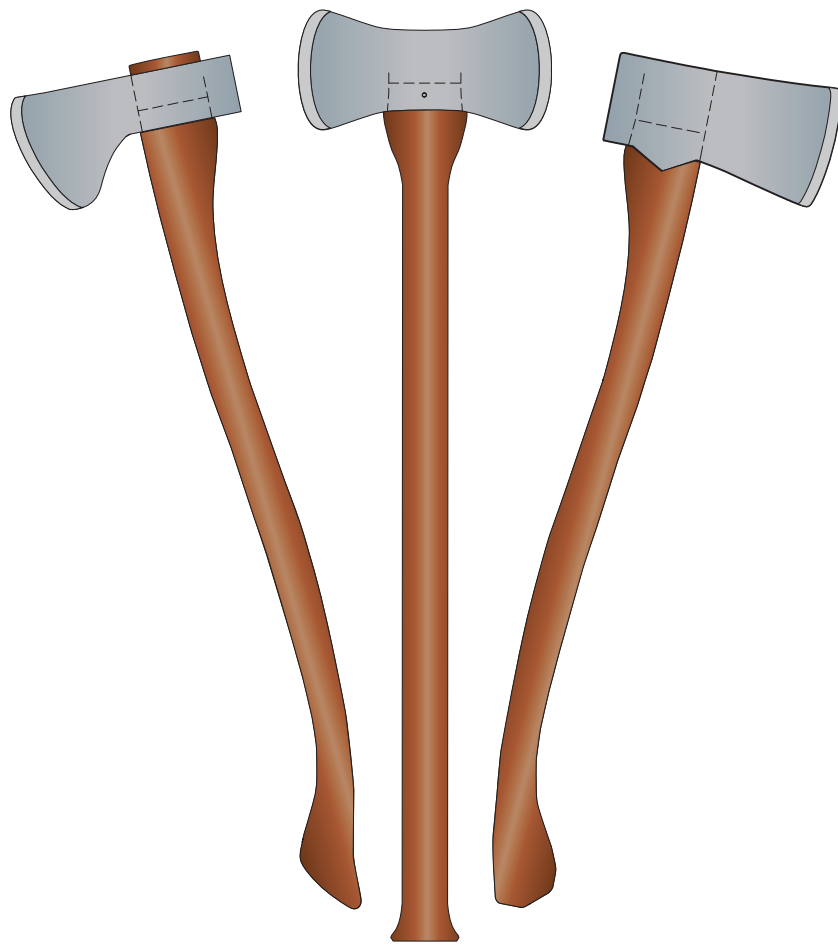


Inline grain
(desirable)



Cross grain
(less desirable)


Asymmetrical
knobs



Appendix B—Technical Drawings

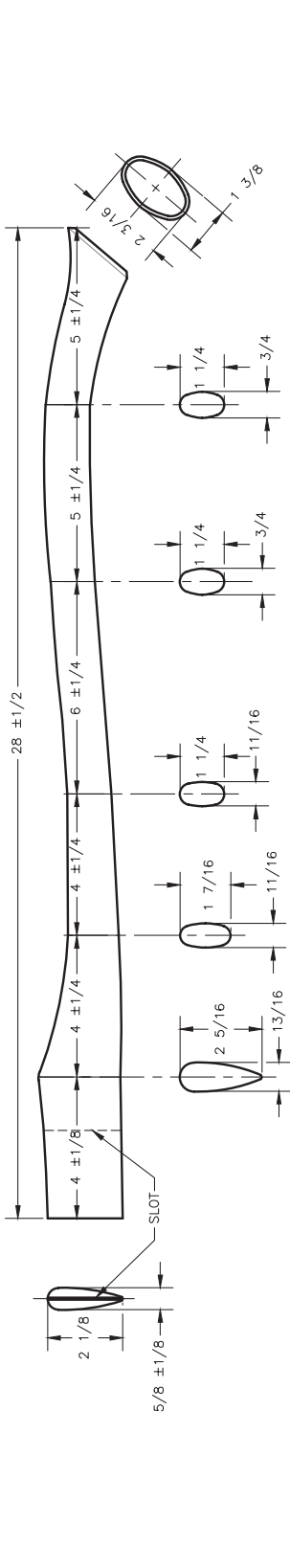
- **Handles**
 - Single Bit Curved 28" (Boy's Style)
 - Single Bit Straight 34"
 - Single Bit Curved-Octagonal 36"
 - Single Bit Straight-Octagonal 27" (Miner's Style)
 - Single Bit Curved-Octagonal 31"
 - Double Bit Straight 28" (Cruiser Style)
 - Double Bit Straight 36" (Western Style)
 - Double Bit Straight-Octagonal 44" (Felling Style)

- **Sheaths**
 - Leather Axe Sheath (Western)
 - Leather Axe Sheath (Cruiser)
 - Leather Axe Sheath (Boys)
 - Leather Sheath (Pulaski)

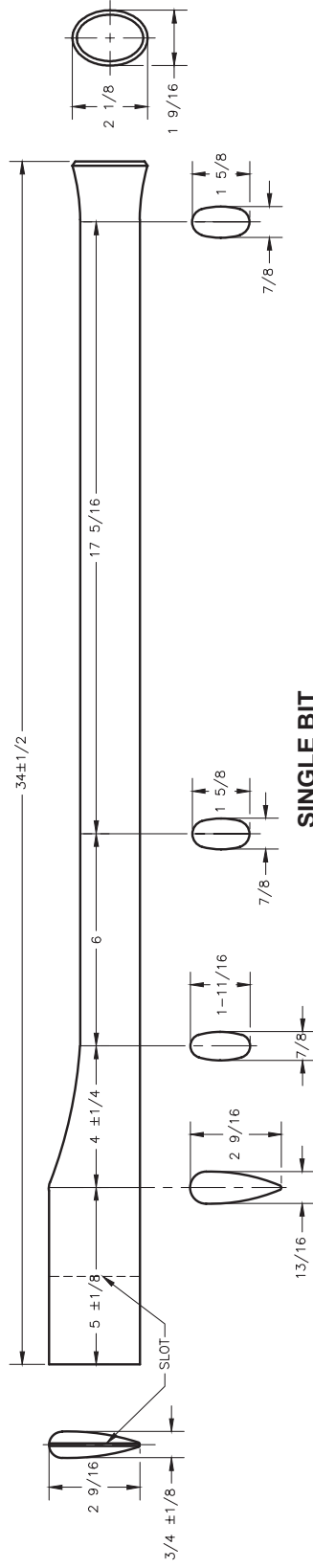
- **Handle Jigs**
 - Axe Handle Jig Assembly
 - Axe Handle Removing Jig (Steel)
 - Axe Handle Removing Jig (Primitive)

- **Drift Pin Assemblies**
 - Single Bit Axe Drift Pin Assembly
 - Double Bit Axe Drift Pin Assembly
 - Single Bit Boys or Camp Axe Drift Pin Assembly
 - Double Bit Cruiser Axe Drift Pin Assembly

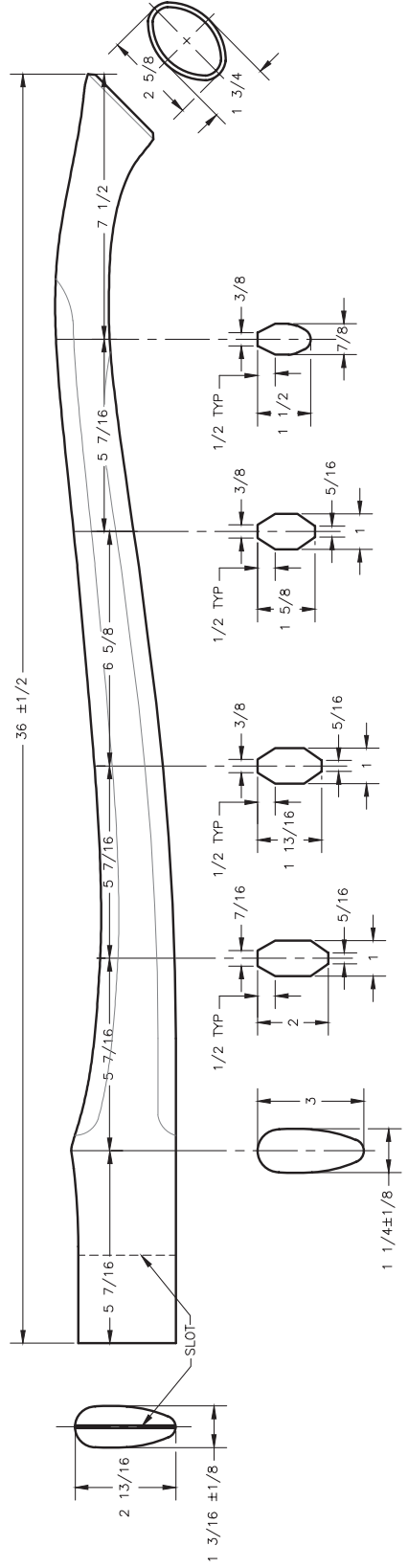
- **Gauges**
 - Handtools Sharpening Gauge
 - Axe Sharpening Gauge



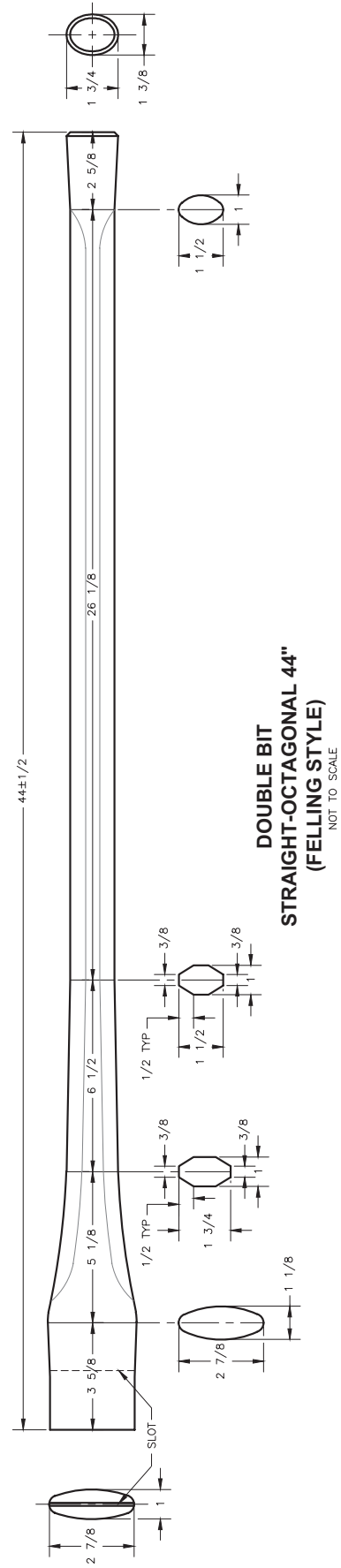
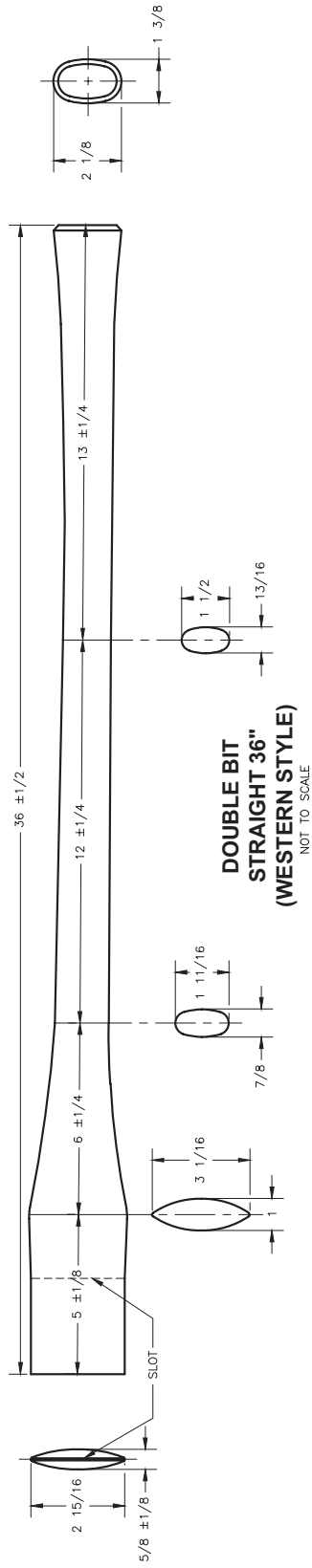
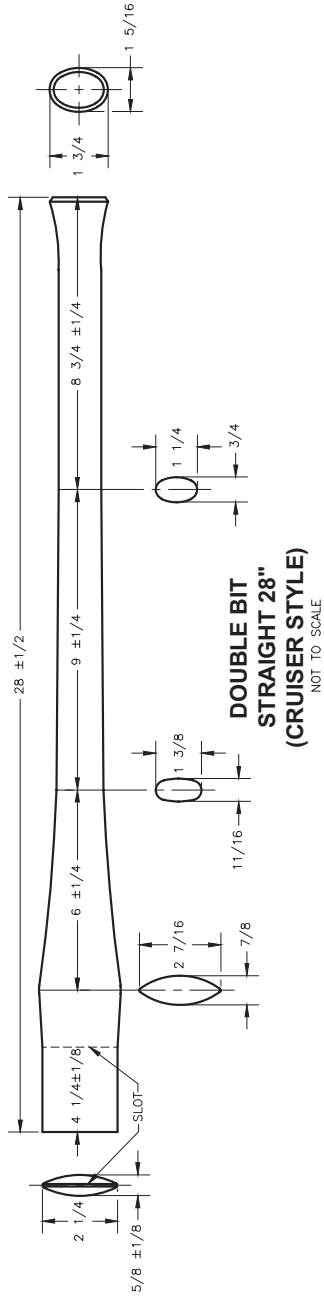
**SINGLE BIT
CURVED 28"
(BOY'S STYLE)**
NOT TO SCALE

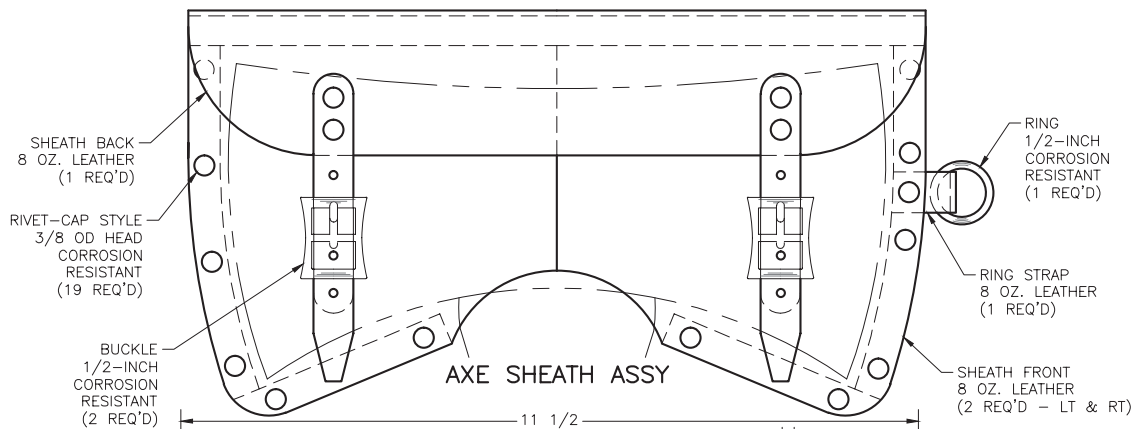


**SINGLE BIT
STRAIGHT 34"**
NOT TO SCALE

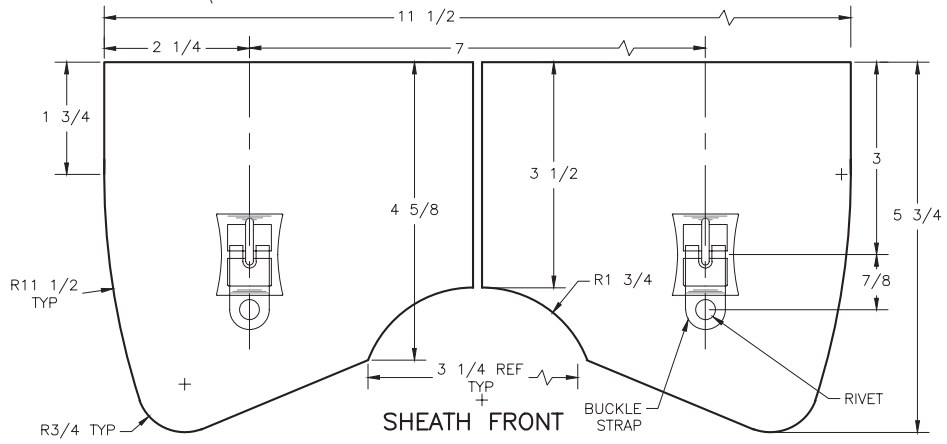
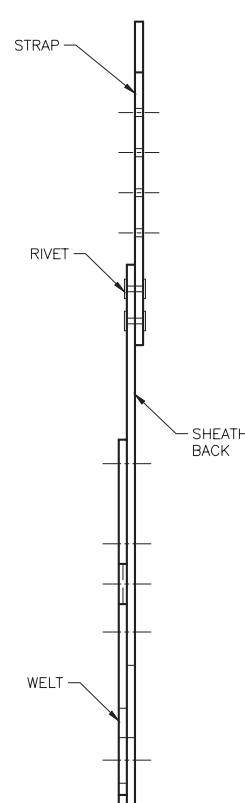
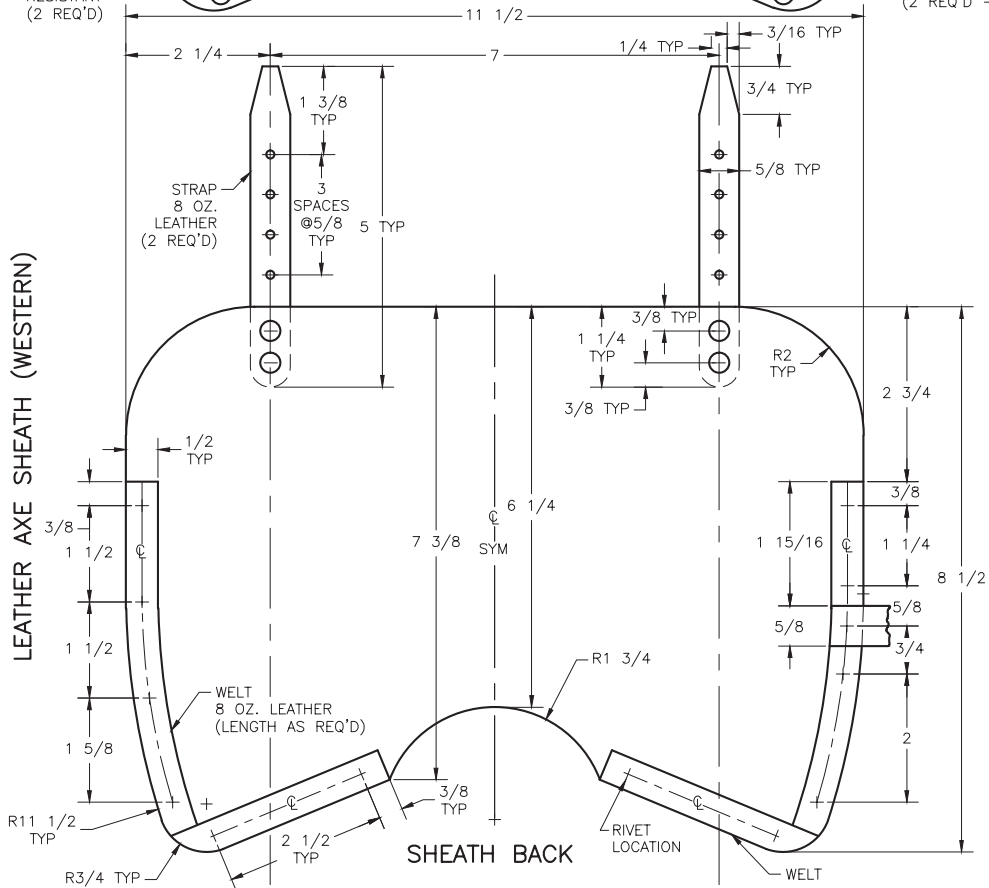


**SINGLE BIT
CURVED-OCTAGONAL
36"**
NOT TO SCALE



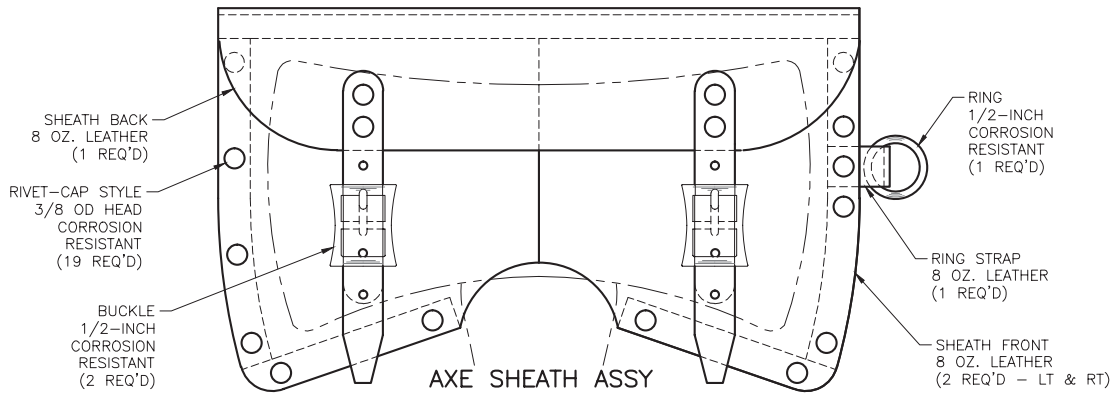


LEATHER AXE SHEATH (WESTERN)

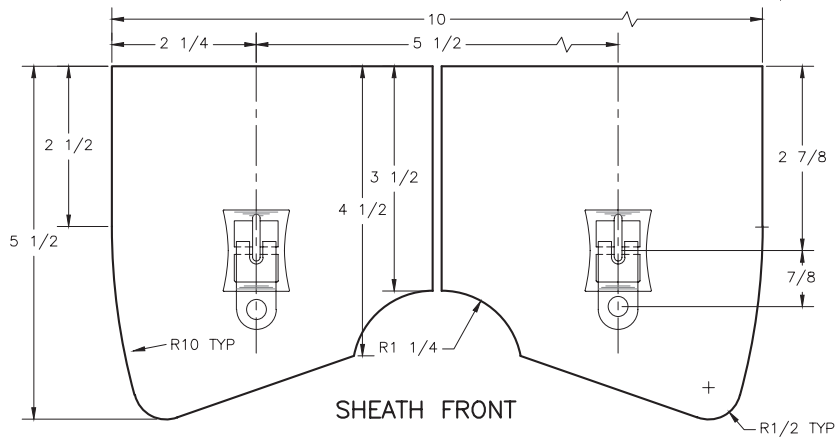
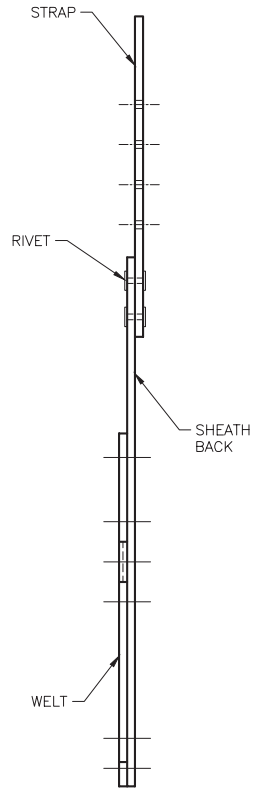
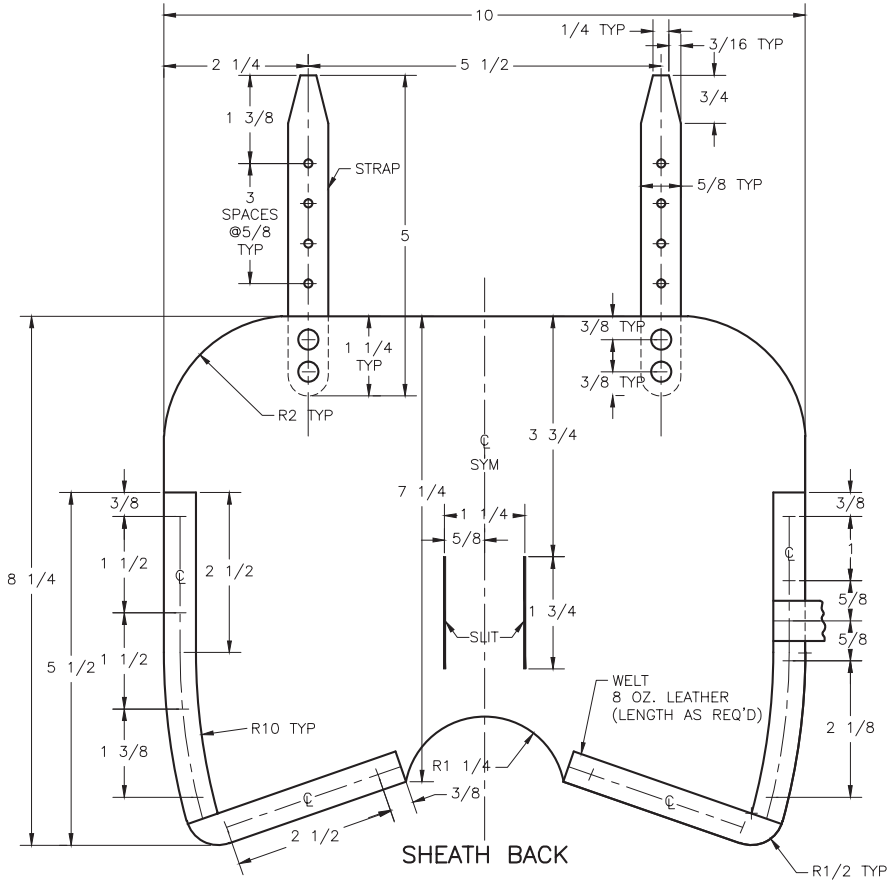


NOTE:
SHEATH MAY BE STITCHED
WITH WAXED LINEN CORD,
5± STITCHES PER INCH.

NOT TO SCALE



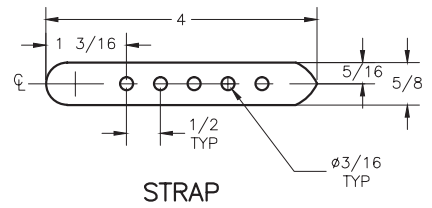
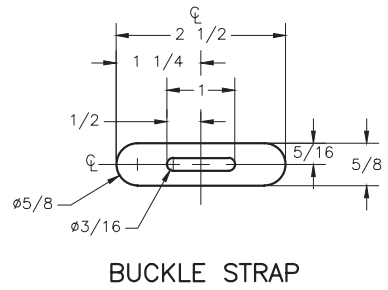
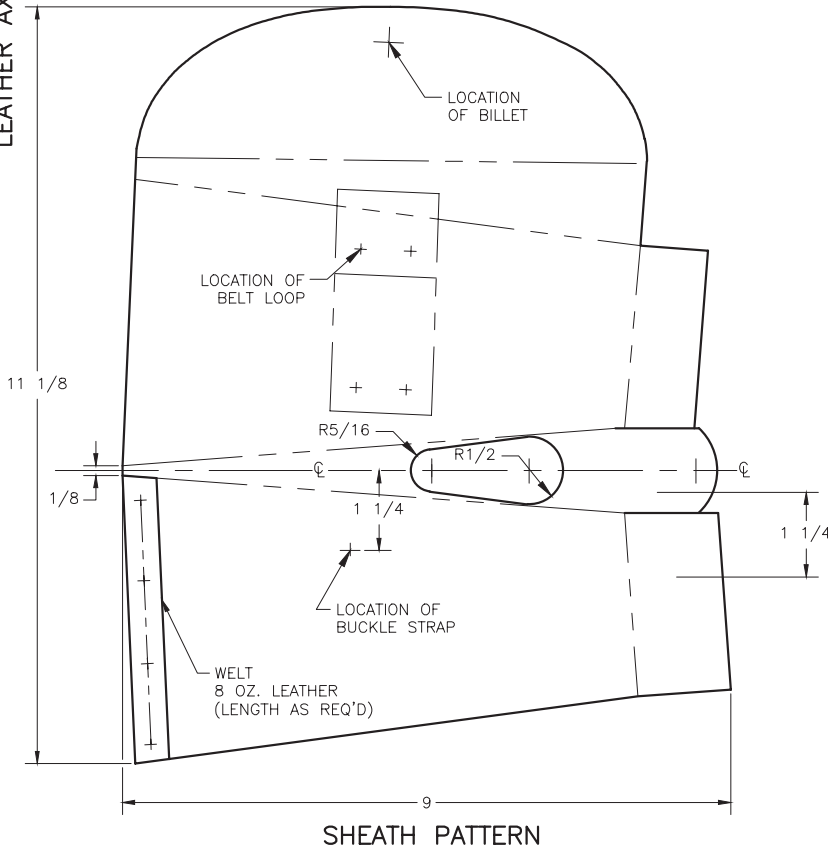
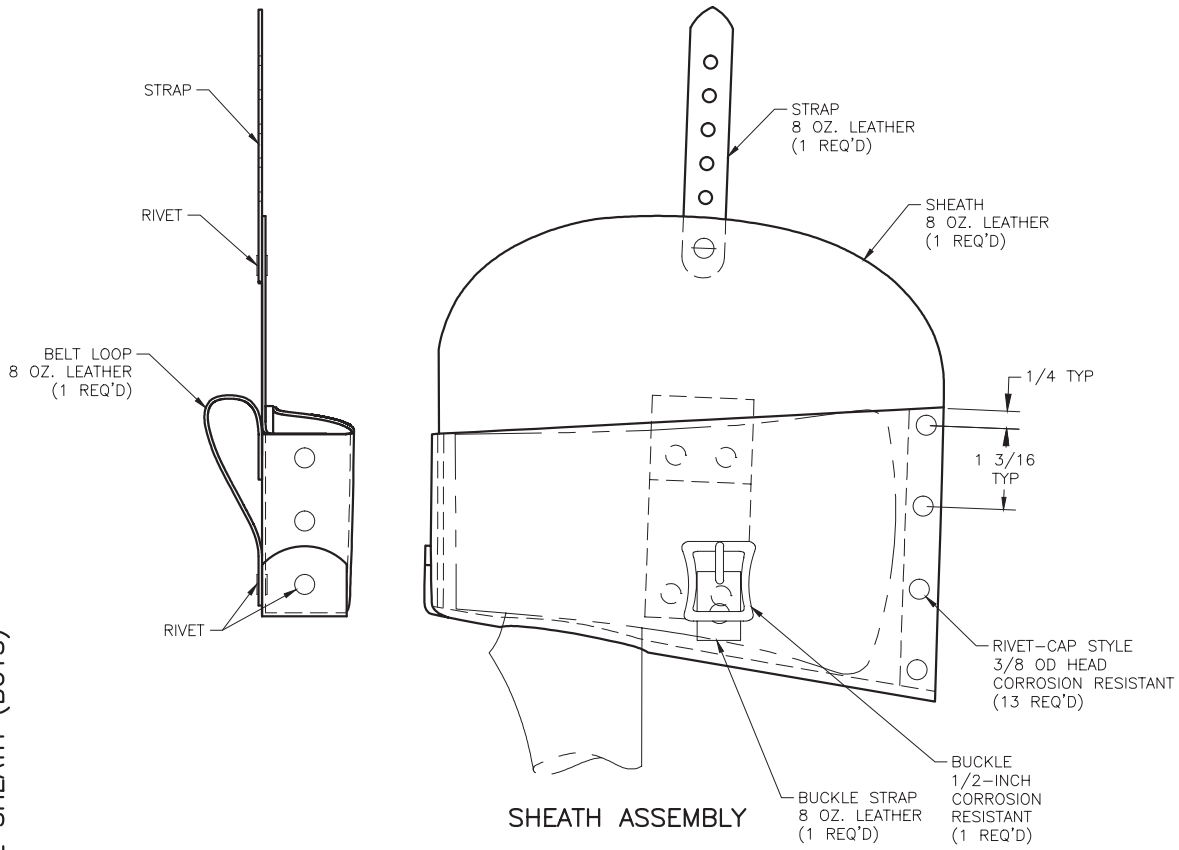
LEATHER AXE SHEATH (CRUISER)



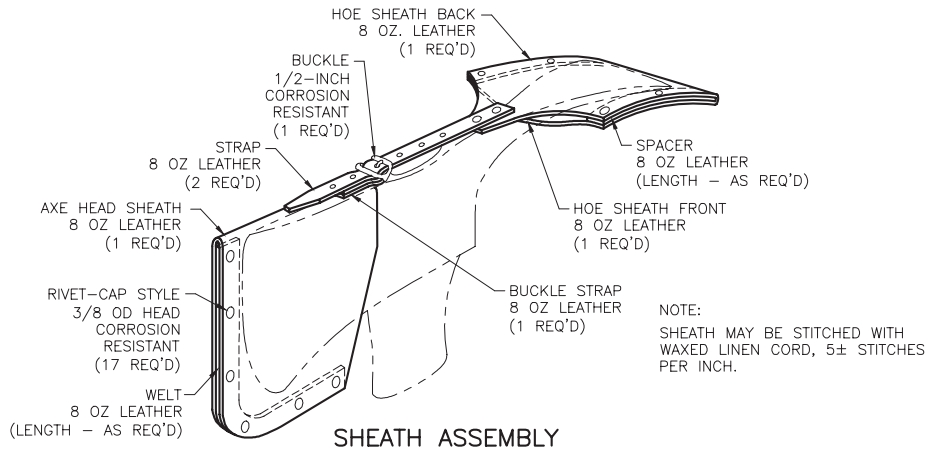
NOTE:
SHEATH MAY BE STITCHED
WITH WAXED LINEN CORD,
5± STITCHES PER INCH.

NOT TO SCALE

LEATHER AXE SHEATH (BOYS)

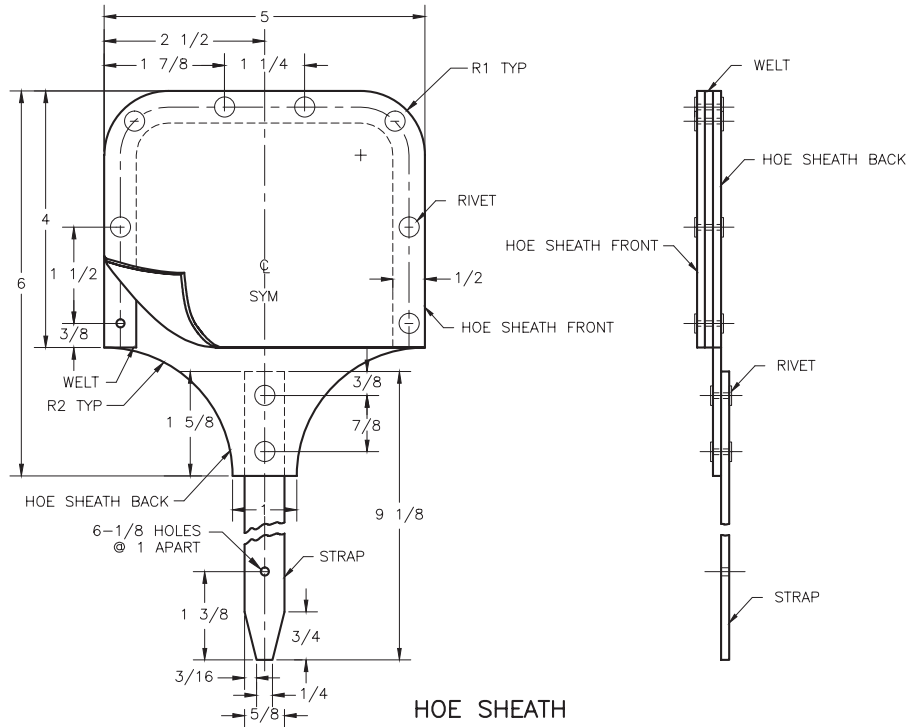


NOTE:
SHEATH MAY BE STITCHED WITH WAXED LINEN CORD, 5± STITCHES PER INCH.

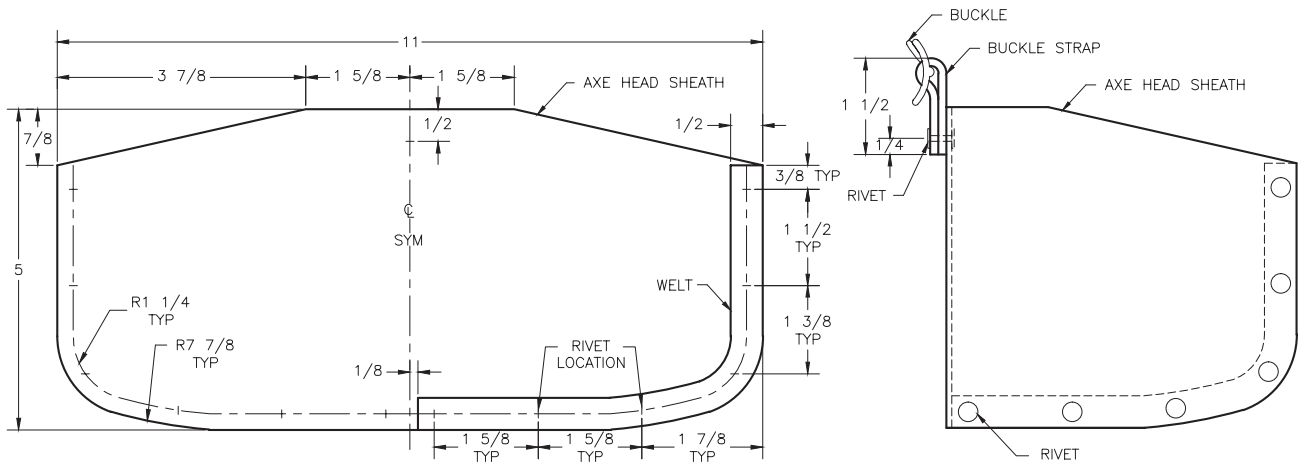


SHEATH ASSEMBLY

LEATHER SHEATH (PULASKI)

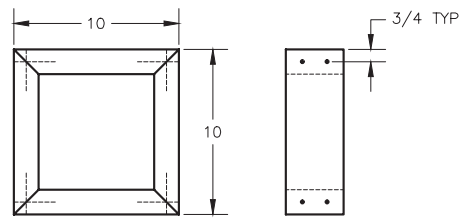
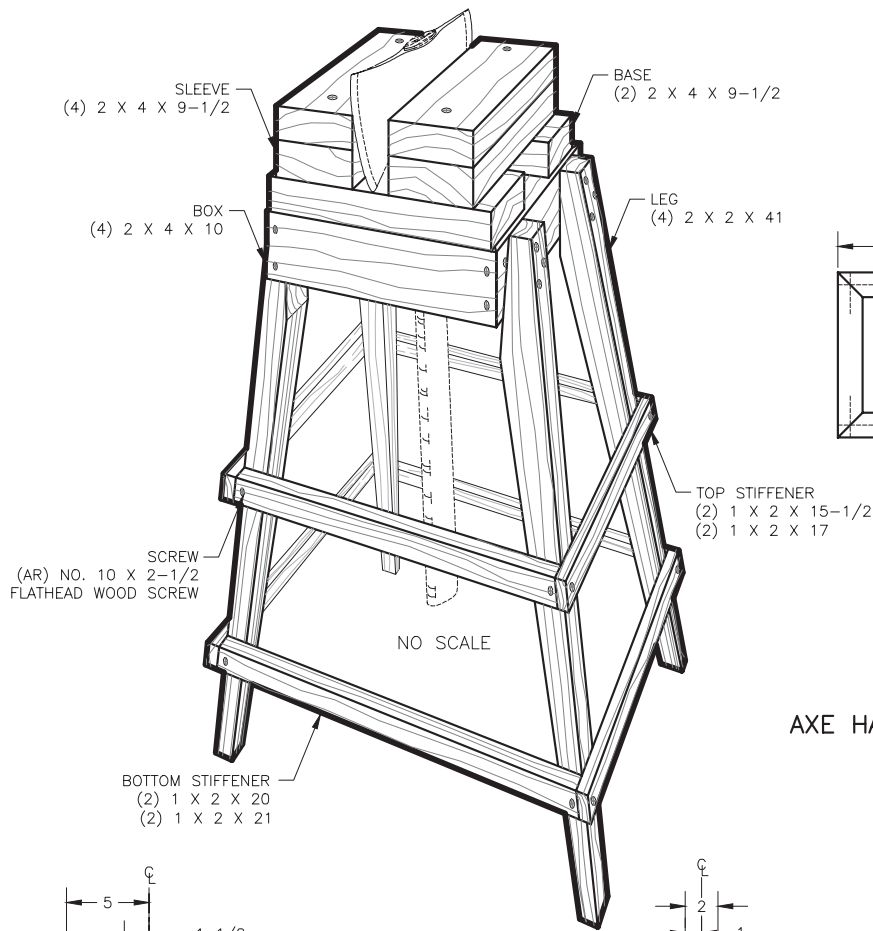


HOE SHEATH



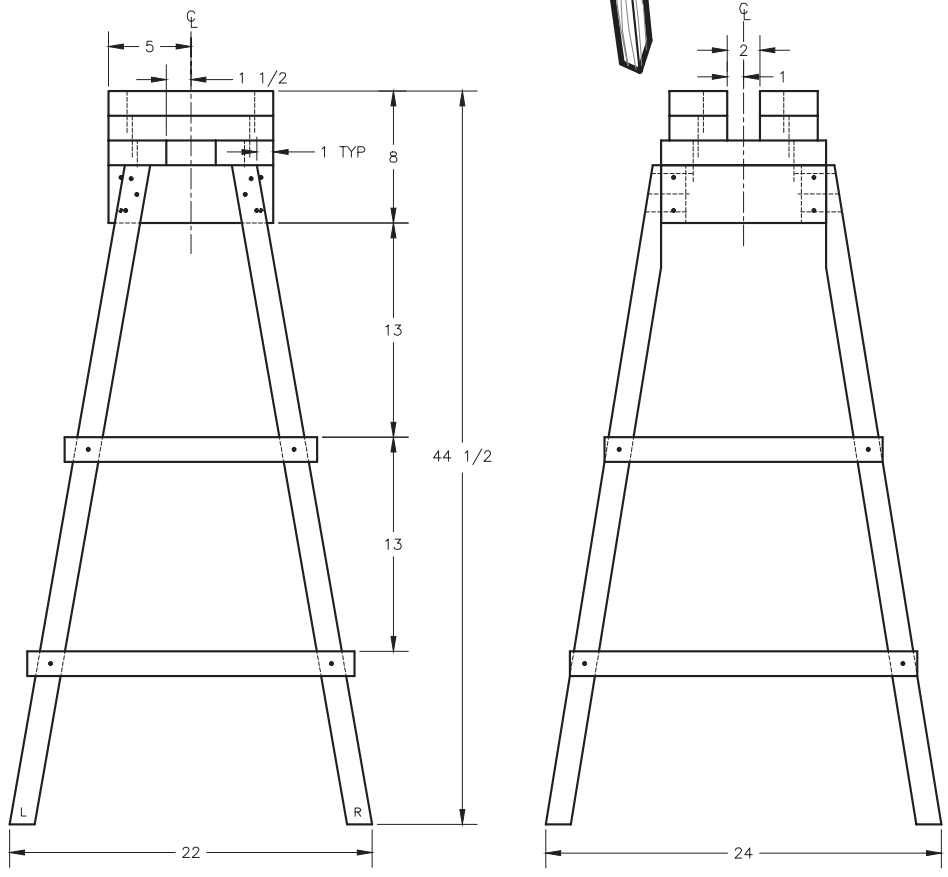
AXE HEAD SHEATH

NOT TO SCALE



BOX ASSEMBLY

AXE HANDLE REMOVING JIG (WOOD)

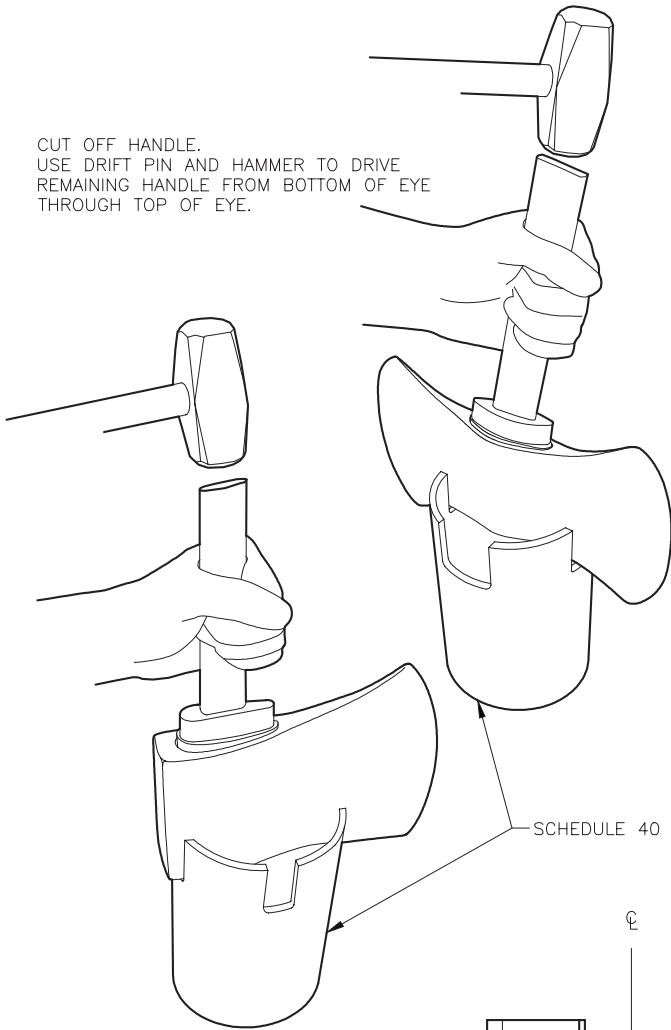


AXE HANDLE JIG ASSEMBLY

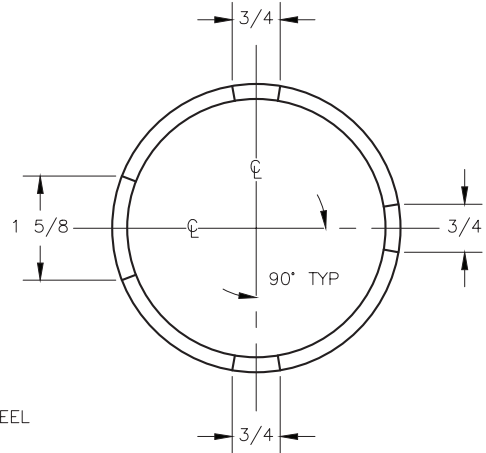
LEG
 LEFT LEG SHOWN
 MIRROR IMAGE FOR RIGHT

NOT TO SCALE

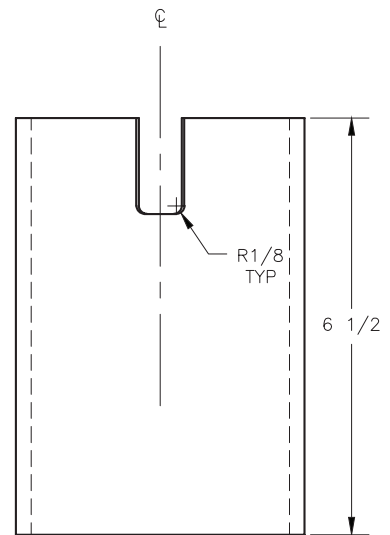
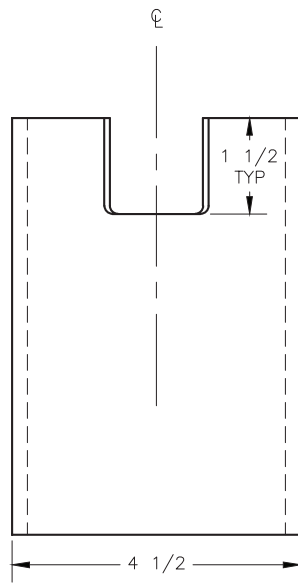
CUT OFF HANDLE.
 USE DRIFT PIN AND HAMMER TO DRIVE
 REMAINING HANDLE FROM BOTTOM OF EYE
 THROUGH TOP OF EYE.



AXE HANDLE REMOVING JIG (STEEL)

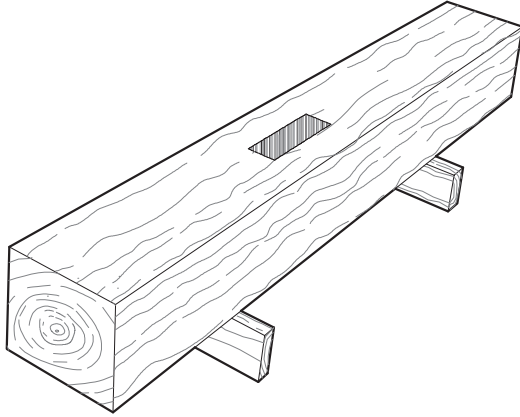


SCHEDULE 40 PIPE, STEEL

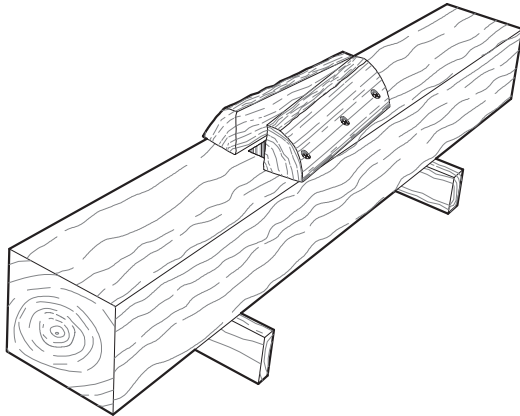


NOT TO SCALE

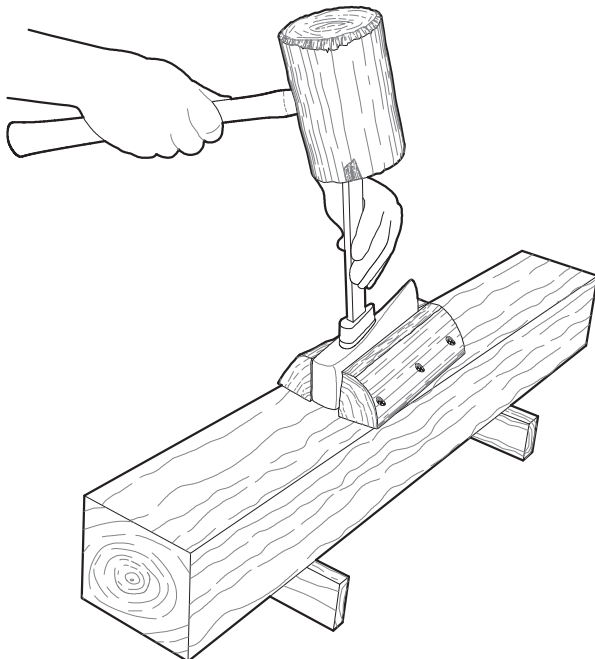
AXE HANDLE REMOVING JIG (PRIMITIVE)



DRILL 1-1/2 X 3 INCH
HOLE THROUGH 8 X 8
POST.

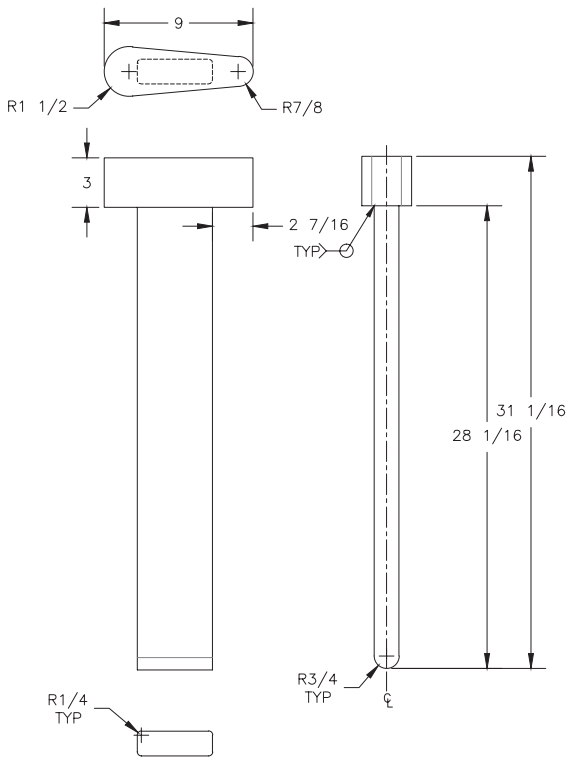


WOOD GUIDES CAN BE SCREWED INTO
POST AT AN ANGLE TO HOLD AXE HEAD
SECURE.

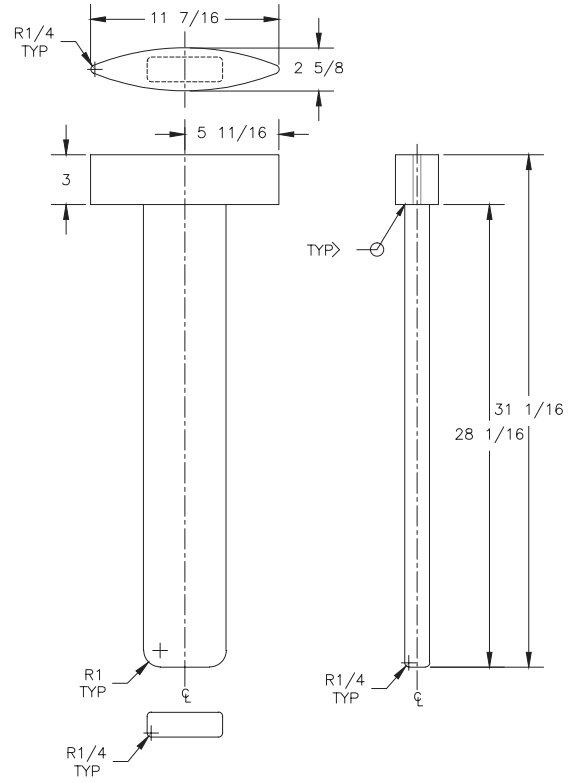


CUT OFF HANDLE.
USE DRIFT PIN AND HAMMER TO DRIVE
REMAINING HANDLE FROM BOTTOM OF EYE
THROUGH TOP OF EYE.

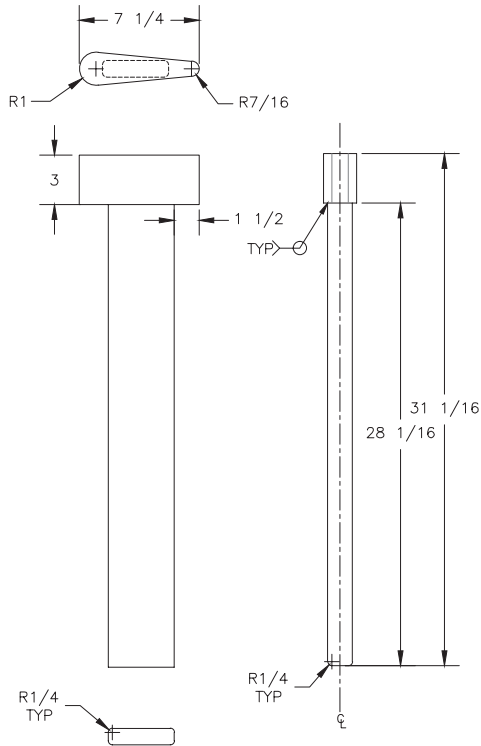
SINGLE & DOUBLE BIT AXE DRIFT PINS



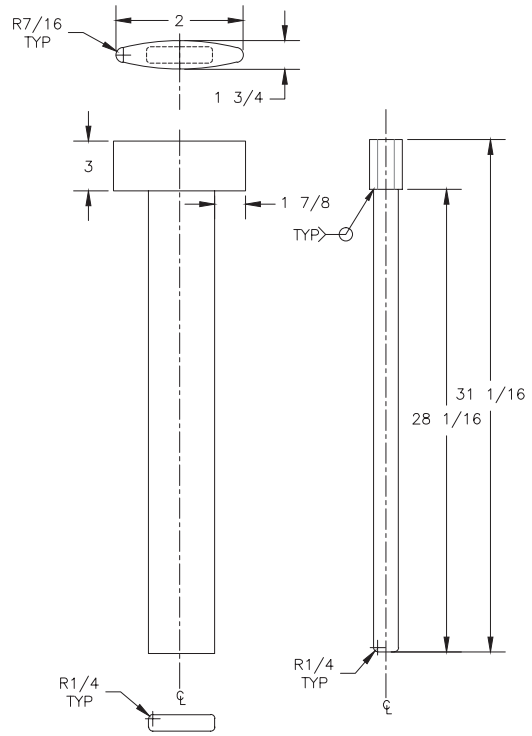
SINGLE BIT AXE
DRIFT PIN ASSEMBLY



DOUBLE BIT AXE
DRIFT PIN ASSEMBLY



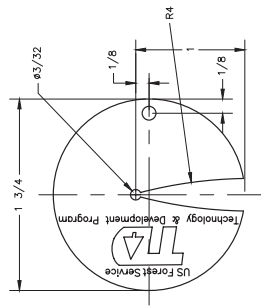
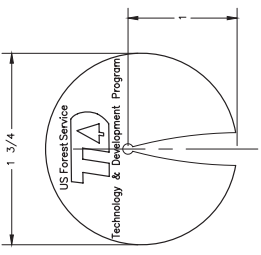
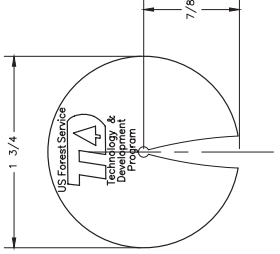
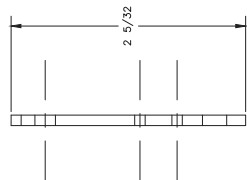
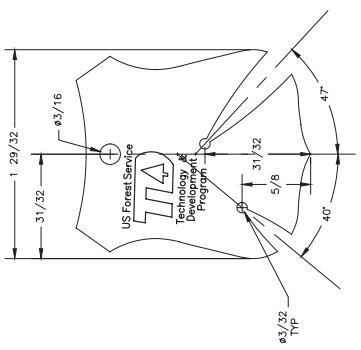
SINGLE BIT BOY'S OR CAMP
AXE DRIFT PIN ASSEMBLY



DOUBLE BIT CRUISER AXE
DRIFT PIN ASSEMBLY

MATERIAL LIST

NO	PART NAME	QTY	RECD	MATERIAL-DESCRIPTION	SHEET
1	GAUGE	1	77777		



1 GAUGE
PATTERN PIECE

THIS IS A REDUCED PRINT

+

DATE	REVISION	BY
U. S. DEPT. OF AGRICULTURE FOREST SERVICE TECHNOLOGY & DEVELOPMENT PROGRAM MISSOULA, MONTANA		
TITLE AXE SHARPENING GAUGE		
DRAWN: D.MILICCI DESIGNED: . CHECKED: . APPROVED: . SCALE: FULL DATE: AUG 2017		
U137-01.dwg C SHEET 1 OF 1 NITDP- 1137		

About the Author

Bob Beckley is a project leader and public affairs specialist for the Forest Service National Technology and Development Program (NTDP). He transferred to the Missoula Technology and Development Center from the Missoula Smokejumper Base in 1991. Along with his public affairs work, Beckley's primary project work for NTDP includes traditional skills, blasting and explosives, and safety. He is recognized by his peers both inside and outside the Forest Service as a traditional skills expert.

About NTDP

The U.S. Department of Agriculture, Forest Service, National Technology and Development Program, provides Forest Service employees and partners with practical, science-based solutions to resource management challenges. We evaluate, design, and develop new technologies, products, and systems to solve problems and deliver solutions.



The author with a mule from the Lolo National Forest Ninemile packstring.

Contact Information

Contact the National Technology & Development Program (NTDP) for additional technical information:

USDA Forest Service

National Technology & Development Program

Phone: 406-329-3978 or 909-599-1267

Email: wo_mtdc_pubs@usda.gov

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Library Card

Beckley, B. 2020. One moving part: the Forest Service ax manual. 1823-2812P –NTDP. Missoula, MT: U.S. Department of Agriculture, Forest Service, National Technology and Development Program. 234 p.

This manual provides information about different types of axes and their historic and current usage in the U.S. Department of Agriculture, Forest Service. Subjects covered include the anatomy of an ax, types of axes and related tools, selecting the right ax for you, the art of filing, sharpening an ax head, restoring or replacing an ax handle, using an ax, maintaining an ax, and purchasing an ax. The manual also includes a list of resources and information about ax manufacturers and suppliers.

Keywords: adzes, ax, axes, crosscut saws, double-bit axes, felling, handtools, hand tools, heritage, logging, lumberjacks, primitive skills, primitive tools, pulaskis, single-bit axes, survival skills, traditional skills, traditional tools, trails, two-man saw, wilderness