


Commands for a TM

.TM 76-1234-1 99999 99999-11
 .ND April 1, 1976
 .TL
 The Role of the Allen Wrench in Modern Electronics
 .AU "MH 2G-111" 2345
 J. Q. Pencilpusher
 .AU "MH 1K-222" 5432
 X. Y. Hardwired
 .AI
 .MH
 .OK
 Tools
 Design
 .AB

This abstract should be short enough to fit on a single page cover sheet. It must attract the reader into sending for the complete memorandum.

.AE
 .CS 10 2 12 5 6 7
 .NH
 Introduction.
 .PP
 Now the first paragraph of actual text' ...
 ...
 Last line of text.
 .SG MH-1234-JQP/XYH-unix
 .NH
 References ...

Commands not needed in a particular format are ignored.

 Bell Laboratories		Cover Sheet for TM	
This information is for employees of Bell Laboratories. (GEI 11.9-3)			
Title: The Role of the Allen Wrench in Modern Electronics		Date: April 1, 1976	
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J. Q. Pencilpusher	MH 2G-111	2345	Filing Case- 99999-11
X. Y. Hardwired	MH 1K-222	5432	
ABSTRACT			
This abstract should be short enough to fit on a single page cover sheet. It must attract the reader into sending for the complete memorandum.			
Pages Text	10	Other	2
Total		12	
No. Figures	5	No. Tables	6
No. Refs.		7	
E-1932-U (6-73)		SEE REVERSE SIDE FOR DISTRIBUTION LIST	

A Released Paper with Mathematics

.EQ
 dellm \$\$
 .EN
 .RP

... (as for a TM)

.CS 10 2 12 5 6 7
 .NH
 Introduction
 .PP
 The solution to the torque handle equation
 EQ (1)

$$\sum_0^x F(x_i) = G(x)$$

 .EN
 is found with the transformation $x = \frac{p}{g}$ where $p = G'(x)$ and θ is derived ...

The Role of the Allen Wrench in Modern Electronics

J. Q. Pencilpusher

X. Y. Hardwired

Bell Laboratories
 Murray Hill, New Jersey 07974

ABSTRACT

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April 1, 1976

The Role of the Allen Wrench in Modern Electronics

J. Q. Pencilpusher

X. Y. Hardwired

Bell Laboratories
 Murray Hill, New Jersey 07974

I. Introduction

The solution to the torque handle equation

$$\sum_0^x F(x_i) = G(x) \quad (1)$$

is found with the transformation $x = \frac{p}{g}$ where $p = G'(x)$ and θ is derived from well-known principles.

An Internal Memorandum

.IM
 .ND January 24, 1956
 .TL
 The 1956 Consent Decree
 .AU
 Dewey, Cheatham
 & Howe, Attys.
 .PP

Plaintiff, United States of America, having filed its complaint herein on January 14, 1949; the defendants having appeared and filed their answer to such complaint denying the substantive allegations thereof; and the parties, by their attorneys, ...



Bell Laboratories

Subject: The 1956 Consent Decree date: January 24, 1956
 from: Dewey, Cheatham
 & Howe, Attys.

Plaintiff, United States of America, having filed its complaint herein on January 14, 1949, the defendants having appeared and filed their answer to such complaint denying the substantive allegations thereof; and the parties, by their attorneys, having severally consented to the entry of this Final Judgment without trial or adjudication of any issues of fact or law herein and without this Final Judgment constituting any evidence or admission by any party in respect of any such issues;

Now, therefore before any testimony has been taken herein, and without trial or adjudication of any issue of fact or law herein, and upon the consent of all parties hereto, it is hereby

Ordered, adjudged and decreed as follows:

I. [Sherman Act]

This Court has jurisdiction of the subject matter herein and of all the parties hereto. The complaint states a claim upon which relief may be granted against each of the defendants under Sections 1, 2 and 3 of the Act of Congress of July 2, 1890, entitled "An act to protect trade and commerce against unlawful restraints and monopolies," commonly known as the Sherman Act, as amended.

II. [Definitions]

For the purposes of this Final Judgment:

(a) "Western" shall mean the defendant Western Electric Company, Incorporated.

Other formats possible (specify before .TL) are: .MR ("memo for record"), .MF ("memo for file"), .EG ("engineer's notes") and .TR (Computing Science Tech. Report).

Headings

.NH
 Introduction.
 .PP
 text text text

I. Introduction
 text text text

.SH
 Appendix I
 .PP
 text text text

Appendix I
 text text text

A Guide to Preparing Documents with -ms

M. E. Lesk

Bell Laboratories

April 1977

This guide gives some simple examples of document preparation on Bell Labs. computers, emphasizing the use of the -ms macro package. It enormously abbreviates information in

1. *Typing Documents on UNIX and GCOS*, TM 76-1274-16, by M. E. Lesk;
2. *Typesetting Mathematics - User's Guide*, (Second Edition) TM 76-1273-4, by B. W. Kernighan and L. L. Cherry; and
3. *Tbl - A Program to Format Tables*, TM 76-1274-5, by M. E. Lesk.

These memos are available in one volume for the convenience of GCOS users as *GCOS Photocomposition*, MHCC-009. The new user should also have *A Tutorial Introduction to the UNIX Text Editor*, by B. W. Kernighan.

For more detailed information, read *Advanced Editing on UNIX* and *A Troff Tutorial*, by B. W. Kernighan, and (for experts) *Nroff/Troff Reference Manual* by J. F. Ossanna. Information on related commands is found (for UNIX users) in *UNIX for Beginners* by B. W. Kernighan and the *UNIX Programmer's Manual* by K. Thompson and D. M. Ritchie, or (for GCOS users) in *MH-TSS: Overview and General Use*, document MHCC-001. All these documents are available from the local Computing Information Library.

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Lists, displays, and footnotes	5
Indents, keeps, and double column	6
Equations and registers	7
Tables and usage	8

Throughout the examples, input is shown in this Helvetica sans serif font while the resulting output is shown in this Times Roman font.

A Simple List

.IP 1.
J. Pencilpusher and X. Hardwired,
.I
A New Kind of Set Screw,
.R
Proc. IEEE
.B 75
(1976), 23-255.
.IP 2.
H. Nails and R. Irons,
.I
Fasteners for Printed Circuit Boards,
.R
Proc. ASME
.B 23
(1974), 23-24.
.LP (terminates list)

1. J. Pencilpusher and X. Hardwired, *A New Kind of Set Screw*, Proc. IEEE 75 (1976), 23-255.
2. H. Nails and R. Irons, *Fasteners for Printed Circuit Boards*, Proc. ASME 23 (1974), 23-24.

Displays

text text text text text text
.DS
and now
for something
completely different
.DE
text text text text text text

hoboken harrison newark roseville avenue grove
street east orange brick church orange highland ave-
nue mountain station south orange maplewood
millburn short hills summit new providence

and now
for something
completely different

murray hill berkeley heights gillette stirring millington
lyons basking ridge bernardsville far hills
peapack gladstone

Options: .DS L: left-adjust; .DS C: line-by-line
center; .DS B: make block, then center.

Footnotes

Among the most important occupants
of the workbench are the long-nosed pliers.
Without these basic tools*

.FS
* As first shown by Tiger & Leopard
(1975).

.FE
few assemblies could be completed. They may
lack the popular appeal of the sledgehammer

Among the most important occupants of the work-
bench are the long-nosed pliers. Without these basic
tools* few assemblies could be completed. They
may lack the popular appeal of the sledgehammer

* As first shown by Tiger & Leopard (1975).

Multiple Indents

This is ordinary text to point out
the margins of the page.

.IP 1.
First level item
.RS
.IP a)
Second level.
.IP b)
Continued here with another second
level item, but somewhat longer.
.RE
.IP 2.
Return to previous value of the
indenting at this point.
.IP 3.
Another
line.

This is ordinary text to point out the margins of the
page.

1. First level item
 - a) Second level.
 - b) Continued here with another second level
item, but somewhat longer.
2. Return to previous value of the indenting at this
point.
3. Another line.

Keeps

Lines bracketed by the following commands are kept
together, and will appear entirely on one page:

.KS not moved .KF may float
.KE through text .KE in text

Double Column

.TL
The Declaration of Independence
.2C
.PP

When in the course of human events, it becomes
necessary for one people to dissolve the
political bonds which have connected them with
another, and to assume among the powers of the
earth the separate and equal station to which
the laws of Nature and of Nature's God entitle
them, a decent respect to the opinions of

The Declaration of Independence

When in the course of
human events, it be-
comes necessary for one
people to dissolve the
political bonds which
have connected them
with another, and to as-
sume among the powers
of the earth the separate
and equal station to
which the laws of Nature
and of Nature's God en-
title them, a decent
respect to the opinions
of mankind requires that

they should declare the
causes which impel them
to the separation.

We hold these truths
to be self-evident, that
all men are created
equal, that they are en-
dowed by their creator
with certain unalienable
rights, that among these
are life, liberty, and the
pursuit of happiness.
That to secure these
rights, governments are
instituted among men,

Equations

A displayed equation is marked
with an equation number at the right margin
by adding an argument to the EQ line:
.EQ (1.3)
x sup 2 over a sup 2 = sqrt (p z sup 2 + qz + r)
.EN

A displayed equation is marked with an equation
number at the right margin by adding an argument
to the EQ line:

$$\frac{x^2}{a^2} = \sqrt{pz^2 + qz + r} \quad (1.3)$$

.EQ 1 (2.2a)
bold V bar sub nu = left [pile { a above b above
c } right] + left [matrix { col { A(11) above .
above . } col { . above . above . } col { . above .
above A(33) } } right] cdot left [pile { alpha
above beta above gamma } right]
.EN

$$\bar{V}_r = \begin{bmatrix} a \\ b \\ c \end{bmatrix} + \begin{bmatrix} A(11) & & \\ & \ddots & \\ & & A(33) \end{bmatrix} \cdot \begin{bmatrix} \alpha \\ \beta \\ \gamma \end{bmatrix} \quad (2.2a)$$

.EQ L
F hat (chi) ~ mark = ~ | del V | sup 2
.EN
.EQ L
lineup = (left ({ partial V } over { partial x } right)
| sup 2 + | left ({ partial V } over { partial y } right)
| sup 2 ----- lambda -> inf
.EN

$$\hat{F}(\chi) = |\nabla V|^2$$

$$= \left[\frac{\partial V}{\partial x} \right]^2 + \left[\frac{\partial V}{\partial y} \right]^2 \quad \lambda \rightarrow \infty$$

\$ a dot \$, \$ b dotedot\$, \$ xi tilde times y vec\$:

\hat{a} , \hat{b} , $\hat{\xi} \times \vec{y}$ (with defm \$\$ on, see panel 3).

See also the equations in the second table, panel 8.

Some Registers You Can Change

Line length .nr LL 7i	Paragraph spacing .nr PD 0
Title length .nr LT 7i	Page offset .nr PO 0.5i
Point size .nr PS 9	Page heading .ds CII Appendix (center)
Vertical spacing .nr VS 11	.ds RII 7-25-76 (right)
Column width .nr CW 3i	.ds LII Private (left)
Intercolumn spacing .nr GW .5i	Page footer .ds CF Draft
Margins — head and foot .nr IIM .75i .nr FM .75i	.ds LF similar .ds RF similar
Paragraph indent .nr PI 2n	Page numbers .nr % 3

Tables

.TS (⊙ indicates a tab)

allbox;
c s s
c c c
n n n

AT&T Common Stock
Year⊙Price⊙Dividend
1971⊙41-54⊙\$2.60
2⊙41-54⊙2.70
3⊙41-54⊙2.70
4⊙41-54⊙2.70
5⊙41-54⊙2.70
6⊙41-54⊙2.70
7⊙41-54⊙2.70

AT&T Common Stock		
Year	Price	Dividend
1971	41-54	\$2.60
2	41-54	2.70
3	41-54	2.70
4	41-54	2.70
5	41-54	2.70
6	41-54	2.70
7	41-54	2.70

* (first quarter only)

.TE
* (first quarter only)

The meanings of the key-letters describing the align-
ment of each entry are:

c	center	n	numerical
r	right-adjust	a	subcolumn
l	left-adjust	s	spanned

The global table options are center, expand, box,
doublebox, allbox, tab (x) and linesize (n).

.TS (with defm \$\$ on, see panel 3)

doublebox, center;
c c
l l

Name⊙Definition

.sp
Gamma⊙\$GAMMA (z) = int sub 0 sup inf \
t sup (z-1) e sup -t dt\$
Sine⊙\$Sine (x) = 1 over 2i (e sup ix - e sup -ix)\$
Error⊙\$ roman erfi (z) = 2 over sqrt pi \
int sub 0 sup z e sup -t sup 2 dt\$
Bessel⊙\$ J sub 0 (z) = 1 over pi \
int sub 0 sup pi cos (z sin theta) d theta \$
Zeta⊙\$ zeta (s) = \
sum from k=1 to inf k sup -s (Re s > 1)\$
.TE

Name	Definition
Gamma	$\Gamma(z) = \int_0^\infty t^{z-1} e^{-t} dt$
Sine	$\sin(x) = \frac{1}{2i} (e^{ix} - e^{-ix})$
Error	$\text{erfi}(z) = \frac{2}{\sqrt{\pi}} \int_0^z e^{-t^2} dt$
Bessel	$J_0(z) = \frac{1}{\pi} \int_0^\pi \cos(z \sin \theta) d\theta$
Zeta	$\zeta(s) = \sum_{k=1}^\infty k^{-s} \quad (\text{Re } s > 1)$

Usage

On GCOS

On UNIX

Documents with just text:
troff -ms -st files & troff -ms files
With equations only:
troff -eqn -ms -st files & eqn files | troff -ms
With tables only:
troff -tbl -ms -st files & tbl files | troff -ms
With both tables and equations:
troff -tbl -eqn -ms -st files & tbl files | eqn | troff -ms

The above generates STARE output on GCOS; replace
-st with -ph for typesetter output.