ARROW IV

PILOT'S OPERATING HANDBOOK

AND

FAA APPROVED AIRPLANE FLIGHT MANUAL

DUPLICATE

AIRPLANE SERIAL NO. 28R-7918021

AIRPLANE REGIST. NO. SE-LAi

PA-28RT-201
REPORT: VB-930 FAA APPROVED BY: Ward Evans
WARD EVANS
D.O.A. NO. SO-1
PIPER AIRCRAFT CORPORATION
VERO BEACH, FLORIDA

DATE OF APPROVAL:
NOVEMBER 30, 1978

FAA APPROVED IN NORMAL CATEGORY BASED ON CAR 3. THIS HANDBOOK INCLUDES THE MATERIAL REQUIRED TO BE FURNISHED TO THE PILOT BY CAR 3 AND CONSTITUTES THE APPROVED AIRPLANE FLIGHT MANUAL AND MUST BE CARRIED IN THE AIRPLANE AT ALL TIMES.

HANDBOOK PART NO. 761 690

PIPER

WARNING

EXTREME CARE MUST BE EXERCISED TO LIMIT THE USE OF THIS HANDBOOK TO APPLICABLE AIRCRAFT. THIS HANDBOOK REVISED AS INDICATED BELOW OR SUBSEQUENTLY REVISED IS VALID FOR USE WITH THE AIRPLANE IDENTIFIED ON THE FACE OF THE TITLE PAGE WHEN OFFICIALLY APPROVED. SUBSEQUENT REVISIONS SUPPLIED BY PIPER AIRCRAFT CORPORATION MUST BE PROPERLY INSERTED.

MODEL PA-28RT-201, ARROW IV

PILOT'S OPERATING HANDBOOK,
REPORT: VB-930 REVISION 5

PIPER AIRCRAFT CORPORATION
APPROVED SIGNATURE AND STAMP Daniel Johnston

Published by
PUBLICATIONS DEPARTMENT
Piper Aircraft Corporation
Issued: November 30, 1978

APPLICABILITY

The aircraft serial number eligibility bracket for application of this handbook is 28R-7918001 through 28R-7918267. The specific application of this handbook is limited to the Piper PA-28RT-201 model airplane designated by serial number and registration number on the face of the title page of this handbook.

This handbook cannot be used for operational purposes unless kept in a current status.

REVISIONS

The information compiled in the Pilot's Operating Handbook will be kept current by revisions distributed to the airplane owners.

Revision material will consist of information necessary to update the text of the present handbook and/or to add information to cover added airplane equipment.

I. Revisions

Revisions will be distributed whenever necessary as complete page replacements or additions and shall be inserted into the handbook in accordance with the instructions given below.

1. Revision pages will replace only pages with the same page number.
2. Insert all additional pages in proper numerical order within each section.
3. Page numbers followed by a small letter shall be inserted in direct sequence with the same common numbered page.

II. Identification of Revised Material

Revised text and illustrations shall be indicated by a black vertical line along the outside margin of the page, opposite revised, added or deleted material. A line along the outside margin of the page opposite the page number will indicate that an entire page was added.

Black lines will indicate only current revisions with changes and additions to or deletions of existing text and illustrations. Changes in capitalization, spelling, punctuation or the physical location of material on a page will not be identified.

ORIGINAL PAGES ISSUED

The original pages issued for this handbook prior to revision are given below:

Title, ii through vii, 1-1 through 1-21, 2-1 through 2-11, 3-1 through 3-17, 4-1 through 4-26, 5-1 through 5-31, 6-1 through 6-47, 7-1 through 7-31, 8-1 through 8-17, 9-1 through 9-8, 10-1 through 10-2.

PILOT'S OPERATING HANDBOOK LOG OF REVISIONS

Current Revisions to the PA-28RT-201 Arrow IV Pilot's Operating HandBook, REPORT: VB-930 issued November 30, 1978.

Revision Number and Code	Revised Pages	Description of Revision	FAA Approval Signature and Date
Rev. 1 761 690 (PR790216)	3-11	Revised first para.	
	3-15	Revised first & third para.	
	3-16	Correct report number.	
	4-14	Revised second para.	
	6-2	Revised first & second para.	
	6-17, 6-20, 6-23	Revised page headings.	
	6-33	Revised Autopilots info.	
	7-17	Revised note to warning & changed anti-collision to strobe.	
	9-i	Revised Table of Contents.	
	9-9 through 9-12	Added AutoFlite II Autopilot Instl. Supplement.	
	9-13 through 9-18	Added AutoControl IIIB Autopilot Instl. Supplement.	
	9-19 through 9-28	Added AltiMatic IIIC Autopilot Instl. Supplement.	Ward Evans Ward Evans Feb. 16, 1979
Rev. 2 761 690 (PR790413)	6-42	Revised item 349; added item 350; relocated item 351 to pg. 6-43.	
	6-43	Added item 351 from pg. 6-42.	
	7-29, 7-30	Revised para. 7.39.	Ward Evans Ward Evans
	7-31	Added pg.	April 13, 1979

PILOT'S OPERATING HANDBOOK LOG OF REVISIONS (cont)

Revision Number and Code	Revised Pages	Description of Revision	FAA Approval Signature and Date
Rev. 3 761 690 (PR800229)	iii	Revised ser. no. applicability.	
	I-3	Revised item 1.3 (c).	
	2-3	Revised item 2.7 (c) and (e).	
	2-4	Revised item 2.9 (c).	
	3-15	Revised para. numbers, rpm and KIAS.	
	4-i	Revised Table of Contents.	
	4-9	Revised para. 4.5.	
	4-18	Relocated para. 4.21 from page 4-19; added para. 4.23 info. from pg. 4-20.	
	4-19	Relocated info. to pg. 4-18; added para. 4.23 from pg. 4-20	
	4-20	Relocated para. 4.23 to pg. 4-19; added note to para. 4.25.	
	4-26	Revised warning.	
	5-5	Revised para. 5.5. (c) (3), (4), (5).	
	5-6	Revised para. 5.5 (d) (1), (2), (3); revised power setting in 5.5 (e); revised 5.5 (e) (2).	
	5-7	Revised para. 5.5 (e) (5), (f) (1), (g) (1).	
	5-9	Revised Table of Contents.	
	5-19	Revised fig. 5-17.	
	5-24	Relocated fig. 5-23 to pg. 5-24a.	
	5-24a	Added pg.; relocated fig. 5-23 from pg. 5-24.	
	5-24b	Added pg.; added fig. 5-24.	
	5-25	Revised fig. 5-25.	
	5-26	Revised fig. 5-27.	
	5-26a	Added pg.; added fig. 5-28.	
	5-26b	Added pg.	
	5-27	Revised fig. 5-29	

Revision Number and Code	Revised Pages	Description of Revision	FAA Approval Signature and Date
Rev. 3 761 690 (PR800299) (cont)	5-28	Revised fig. 5-31.	
	5-29	Revised fig. 5-33.	
	6-i	Revised Table of Contents.	
	6-1	Revised para. 6.1.	
	6-3	Relocated para. 6.3 fig. 6-1 on pg. 6-4; added caution note to para. 6.3 (a) (3).	
	6-4	Relocated para. 6.3 (d) (2) on pg. 6-5; added para. 6.3 fig. 6-1.	
	6-5	Relocated para. 6.3 (d) (2) from pg. 6-4.	
	6-14	Revised item 1b.	
	6-15	Revised item 9.	
	6-16	Revised item 21.	
	6-18	Revised item 43.	
	6-30	Relocated item 203 on pg. 6-31; added item 202.	
	6-31	Relocated item 213 and 215 on pg. 6-32; added item 203.	
	6-32	Relocated items 213 and 215 from pg. 6-31.	
	6-34	Relocated items 243 thru 249 on pg. 6-34a.	
	6-34a	Added pg.; relocated items 243 thru 249 from pg. 6-34.	
	6-34b	Added pg.; Relocated items 251 thru 255 from pg. 6-35.	
	6-35	Relocated items 251 thru 255 on page 6-34b; added item 256; added item 271 from pg. 6-36.	
	6-36	Relocated item 271 on pg. 6-35; revised item 273.	Ward Evans Feb. 28, 1980
	7-3	Revised para. 7.7.	
	8-i	Revised Table of Contents.	

Revision Number and Code	Revised Pages	Description of Revision	FAA Approval Signature and Date
Rev. 4 761 690 (PR870131)	2-9 3-2, 3-3, 3-6 3 9, 3-10 3-11, 3-12 3-15 3-16 4-9 4-18 4-19 4-20 4-25, 4-26 7-4 7-6 7-7 7-8 7-9 7-10 7-11	Revised para. 2.25. Revised para. 3.3. Revised para. 3.9. Revised para. 3.13. Revised para. 3.27. Relocated info. to page 3-16. Revised para. 3.27. Relocated info from page 3-15. Revised para. 4.5. Revised para. 4.21. Relocated info. to page 4-19. Revised para. 4-21. Relocated info from page 4-18. Revised para. 4.25. Revised para. 4.39. Revised fig. 7-1. Revised para. 7.11; revised fig. 7-3. Relocated info. from page 7-7. Revised para. 7.11. Relocated info. to page 7-6. Revised para. 7.11 Revised fig. 7-5. Revised fig. 7-7. Revised fig. 7-9.	D.H. Trompler 5/7/87 Date
Rev. 5 761 690 (PR960906)	vi-b 3-6, 3-15, 8-1, 8-2, 8-3, 8-11, 9-13,	Added Rev. 5 to L of R pg. Revised para. 3.3. Revised para. 3.27. Revised para. 8.1. Revised para. 8.3. Revised para. 8.3 Revised para. 8.19 Removed Sec. 3(a)(2)	Peter E. Peck Sept. 06, 1996 Date

TABLE OF CONTENTS

SECTION 1 GENERAL

SECTION 2 LIMITATIONS

SECTION 3 EMERGENCY PROCEDURES

SECTION 4 NORMAL PROCEDURES

SECTION 5 PERFORMANCE

SECTION 6 WEIGHT AND BALANCE

SECTION 7 DESCRIPTION AND OPERATION OF THE AIRPLANE AND ITS SYSTEMS

SECTION 8 AIRPLANE HANDLING, SERVICING AND MAINTENANCE

SECTION 9 SUPPLEMENTS

SECTION 10 SAFETY TIPS

TABLE OF CONTENTS

SECTION 1

GENERAL

Paragraph No.		Page No.
1.1	Introduction	1-1
1.3	Engines	1-3
1.5	Propellers	1-3
1.7	Fuel	1-4
1.9	Oil	1-4
1.11	Maximum Weights	1-5
1.13	Standard Airplane Weights	1-5
1.15	Baggage Space	1-5
1.17	Specific Loadings	1-5
1.19	Symbols, Abbreviations and Terminology	1-6
1.21	Conversion Factors	1-12

SECTION I

GENERAL

1.1 INTRODUCTION

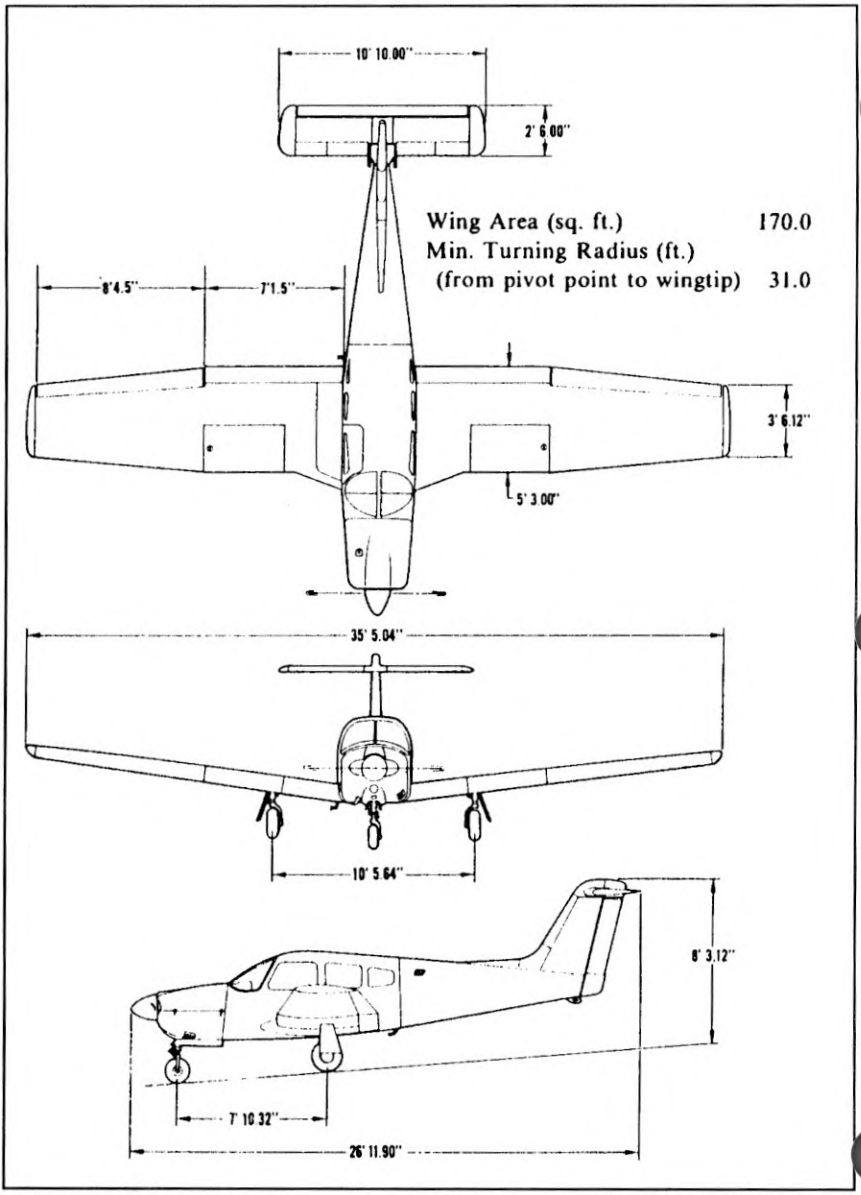
This Pilot's Operating Handbook is designed for maximum utilization as an operating guide for the pilot. It includes the material required to be furnished to the pilot by CAR 3 and FAR Part 21 Subpart J. It also contains supplemental data supplied by the airplane manufacturer.

This handbook is not designed as a substitute for adequate and competent flight instruction, knowledge of current airworthiness directives, applicable federal air regulations or advisory circulars. It is not intended to be a guide for basic flight instruction or a training manual and should not be used for operational purposes unless kept in a current status.

Assurance that the airplane is an airworthy condition is the responsibility of the owner. The pilot in command is responsible for determining that the airplane is safe for flight. The pilot is also responsible for remaining within the operating limitations as outlined by instrument markings, placards, and this handbook.

Although the arrangement of this handbook is intended to increase its in-flight capabilities, it should not be used solely as an occasional operating reference. The pilot should study the entire handbook to familiarize himself with the limitations, performance, procedures and operational handling characteristics of the airplane before flight.

The handbook has been divided into numbered (arabic) sections, each provided with a "finger-tip" tab divider for quick reference. The limitations and emergency procedures have been placed ahead of the normal procedures, performance and other sections to provide easier access to information that may be required in flight. The "Emergency Procedures" Section has been furnished with a red tab divider to present an instant reference to the section. Provisions for expansion of the handbook have been made by the deliberate omission of certain paragraph numbers, figure numbers, item numbers and pages noted as being intentionally left blank.



THREE VIEW
Figure 1-1

1.3 ENGINES

(a) Number of Engines	1
(b) Engine Manufacturer	Lycoming
(c) Engine Model Number	IO-360-C1C6
(d) Rated Horsepower	200
(e) Rated Speed (rpm)	2700
(f) Bore (in.)	5.125
(g) Stroke (in.)	4.375
(h) Displacement (cu. in.)	361
(i) Compression Ratio	8.5:1
(j) Engine Type	Four Cylinder, Direct Drive, Horizontally Opposed, Air Cooled, and Fuel Injected

1.5 PROPELLERS

McCAULEY

(a) Number of Propellers	1
(b) Propeller Manufacturer	McCauley
(c) Blade Model	90DHA- 16
(d) Number of Blades	2
(e) Hub Model	B2D34C213
(f) Propeller Diameter (in.)	
(1) Maximum	74
(2) Minimum	73
(g) Propeller Type	Constant Speed, Hydraulically Actuated

HARTZELL

(a) Number of Propellers	1
(b) Propeller Manufacturer	Hartzell
(c) Blade Model	F7666A-2R
(d) Number of Blades	2
(e) Hub Model	HC-C2YK-1( )F
(f) Propeller Diameter (in.)	
(1) Maximum	74
(2) Minimum	72
(g) Propeller type	Constant Speed, Hydraulicaly Actuated

1.7 FUEL

(a) Fuel Capacity (U.S. gal.) (total)	77
(b) Usable Fuel (U.S. gal.) (total)	72
(c) Fuel Grade Aviation	
(1) Minimum Octane	100/130 - Green
(2) Specified Octane	100 - Green 100 LL - Blue or 100/130 - Green
(3) Alternate Fuels	Refer to latest revision of Lycoming Service Instruction 1070

1.9 OIL

(a) Oil Capacity (U.S. qts.)	8
(b) Oil Specification	Refer to latest issue of Lycoming Service Instruction 1014
(c) Oil Viscosity	Refer to Section 8 - paragraph 8.19

1.11 MAXIMUM WEIGHTS

(a) Maximum Takeoff Weight (lbs.)	2750
(b) Maximum Landing Weight (lbs.)	2750
(c) Maximum Weights in Baggage Compartment	200

1.13 STANDARD AIRPLANE WEIGHTS*

(a) Standard Empty Weight (lbs.): Weight of a standard airplane including unusable fuel, full operating fluids and full oil.	1627
(b) Maximum Useful Load (lbs.): The difference between the Maximum Takeoff Weight and the Standard Empty Weight.	1123

1.15 BAGGAGE SPACE

(a) Compartment Volume (cu. ft.)	24
(b) Entry Width (in.)	22
(c) Entry Height (in.)	20

1.17 SPECIFIC LOADINGS

(a) Wing Loading (lbs. per sq. ft.)	16.18
(b) Power Loading (lbs. per hp)	13.75

*These values are approximate and vary from one aircraft to another. Refer to Figure 6-5 for the Standard Empty Weight value and the Useful Load value to be used for C.G. calculations for the aircraft specified.

1.19 SYMBOLS, ABBREVIATIONS AND TERMINOLOGY

The following definitions are of symbols, abbreviations and terminology used throughout the handbook and those which may be of added operational significance to the pilot.

(a) General Airspeed Terminology and Symbols

CAS	Calibrated Airspeed means the indicated speed of an aircraft, corrected for position and instrument error. Calibrated airspeed is equal to true airspeed in standard atmosphere at sea level.
KCAS	Calibrated Airspeed expressed in "Knots."
GS	Ground Speed is the speed of an airplane relative to the ground.
IAS	Indicated Airspeed is the speed of an aircraft as shown on the airspeed indicator when corrected for instrument error. IAS values published in this handbook assume zero instrument error.
KIAS	Indicated Airspeed expressed in "Knots."
M	Mach number is the ratio of true airspeed to the speed of sound.
TAS	True Airspeed is the airspeed of an airplane relative to undisturbed air which is the CAS corrected for altitude, temperature and compressibility.
VA	Maneuvering Speed is the maximum speed at which application of full available aerodynamic control will not overstress the airplane.
VFE	Maximum Flap Extended Speed is the highest speed permissible with wing flaps in a prescribed extended position.

VLE	Maximum Landing Gear Extended Speed is the maximum speed at which an aircraft can be safely flown with the landing gear extended.
VLO	Maximum Landing Gear Operating Speed is the maximum speed at which the landing gear can be safely extended or retracted.
VNE/MNE	Never Exceed Speed or Mach Number is the speed limit that may not be exceeded at any time.
VNO	Maximum Structural Cruising Speed is the speed that should not be exceeded except in smooth air and then only with caution.
VS	Stalling Speed or the minimum steady flight speed at which the airplane is controllable.
VSO	Stalling Speed or the minimum steady flight speed at which the airplane is controllable in the landing configuration.
VX	Best Angle-of-Climb Speed is the airspeed which delivers the greatest gain of altitude in the shortest possible horizontal distance.
VY	Best Rate-of-Climb Speed is the airspeed which delivers the greatest gain in altitude in the shortest possible time.

(b) Meteorological Terminology

ISA	International Standard Atmosphere in which: The air is a dry perfect gas; The temperature at sea level is 15° Celsius (59° Fahrenheit); The pressure at sea level is 29.92 inches Hg (1013 mb); The temperature gradient from sea level to the altitude at which the temperature is -56.5° C (-69.7°F) is -0.00198°C (-0.003566°F) per foot and zero above that altitude.
OAT	Outside Air Temperature is the free air static temperature, obtained either from inflight temperature indications or ground meteorological sources, adjusted for instrument error and compressibility effects.
Indicated Pressure Altitude	The number actually read from an altimeter when the barometric subscale has been set to 29.92 inches of mercury (1013 millibars).
Pressure Altitude	Altitude measured from standard sea-level pressure (29.92 in. Hg) by a pressure or barometric altimeter. It is the indicated pressure altitude corrected for position and instrument error. In this handbook, altimeter instrument errors are assumed to be zero.
Station Pressure	Actual atmospheric pressure at field elevation.
Wind	The wind velocities recorded as variables on the charts of this handbook are to be understood as the headwind or tailwind components of the reported winds.

(c) Power Terminology

Takeoff Power	Maximum power permissible for takeoff.
Maximum Continuous Power	Maximum power permissible continuously during flight.
Maximum Climb Power	Maximum power permissible during climb.
Maximum Cruise Power	Maximum power permissible during cruise.

(d) Engine Instruments

EGT Gauge	Exhaust Gas Temperature Gauge

(e) Airplane Performance and Flight Planning Terminology

Climb Gradient	The demonstrated ratio of the change in height during a portion of a climb, to the horizontal distance traversed in the same time interval.
Demonstrated Crosswind Velocity	The demonstrated crosswind velocity is the velocity of the crosswind component for which adequate control of the airplane during takeoff and landing was actually demonstrated during certification tests.
Accelerate-Stop Distance	The distance required to accelerate an airplane to a specified speed and, assuming failure of an engine at the instant that speed is attained, to bring the airplane to a stop.
MEA	Minimum en route IFR altitude.
Route Segment	A part of a route. Each end of that part is identified by: (1) a geographical location; or (2) a point at which a definite radio fix can be established.

(f) Weight and Balance Terminology

Reference Datum	An imaginary vertical plane from which all horizontal distances are measured for balance purposes.
Station	A location along the airplane fuselage usually given in terms of distance from the reference datum.
Arm	The horizontal distance from the reference datum to the center of gravity (C.G.) of an item.
Moment	The product of the weight of an item multiplied by its arm. (Moment divided by a constant is used to simplify balance calculations by reducing the number of digits.)
Center of Gravity (C.G.)	The point at which an airplane would balance if suspended. Its distance from the reference datum is found by dividing the total moment by the total weight of the airplane.
C.G. Arm	The arm obtained by adding the airplane's individual moments and dividing the sum by the total weight.
C.G. Limits	The extreme center of gravity locations within which the airplane must be operated at a given weight.
Usable Fuel	Fuel available for flight planning.
Unusable Fuel	Fuel remaining after a runout test has been completed in accordance with governmental regulations.
Standard Empty Weight	Weight of a standard airplane including unusable fuel, full operating fluids and full oil.

Basic Empty Weight	Standard empty weight plus optional equipment.
Payload	Weight of occupants, cargo and baggage.
Useful Load	Difference between takeoff weight, or ramp weight if applicable, and basic empty weight.
Maximum Ramp Weight	Maximum weight approved for ground maneuver. (It includes weight of start, taxi and run up fuel.)
Maximum Takeoff Weight	Maximum weight approved for the start of the takeoff run.
Maximum Landing Weight	Maximum weight approved for the landing touchdown.
Maximum Zero Fuel Weight	Maximum weight exclusive of usable fuel.

1.21 CONVERSION FACTORS

MULTIPLY	BY	TO OBTAIN
acres	0.4047	ha
	43560	sq. ft.
	0.0015625	sq. mi.
atmospheres (atm)	76	cm Hg
	29.92	in. Hg
	1.0133	bar
	1.033	kg/cm ^{2}
	14.70	lb./sq. in.
	2116	lb./ sq. ft.
bars (bar)	0.98692	atm
	14.503768	lb./sq. in.
British Thermal Unit (BTU)	0.2519958	kg-cal
centimeters (cm)	0.3937	in.
	0.032808	ft.
centimeters of mercury at 0℃ (cm Hg)	0.01316	atm
	0.3937	in. Hg
	0.1934	lb./sq. in.
	27.85	lb./sq. ft.
	135.95	kg/m ^{2}
centimeters per second (cm/sec.)	0.032808	ft./sec.
	1.9685	ft./min.
	0.02237	mph
cubic centimeters (cm^3)	0.03381	fl. oz.
	0.06102	cu. in.
	3.531 x 10 $^{-5}$	cu. ft.
	0.001	l
	2.642 x 10 $^{-4}$	U.S. gal.

MULTIPLY	BY	TO OBTAIN
cubic feet (cu. ft.)	28317	cm^3
	0.028317	m^3
	1728	cu. in.
	0.037037	cu. yd.
	7.481	U.S. gal.
	28.32	l
cubic feet per minute (cu. ft./min.)	0.472	l/sec.
	0.028317	m^3/min.
cubic inches (cu. in.)	16.39	cm^3
	1.639×10^{-5}	m^3
	5.787×10^{-4}	cu. ft.
	0.5541	fl. oz.
	0.01639	l
	4.329×10^{-3}	U.S. gal.
	0.01732	U.S. qt.
cubic meters (m^3)	61024	cu. in.
	1.308	cu. yd.
	35.3147	cu. ft.
	264.2	U.S. gal.
cubic meters per minute (m^3/min.)	35.3147	cu. ft./min.
cubic yards (cu. yd.)	27	cu. ft.
	0.7646	m^3
	202	U.S. gal.
degrees (arc)	0.01745	radians
degrees per second (deg./ sec.)	0.01745	radians/sec.
drams, fluid (dr. fl.)	0.125	fl. oz.
drams, avdp.(dr. avdp.)	0.0625	oz. avdp.

MULTIPLY	BY	TO OBTAIN
feet (ft.)	30.48	cm
	0.3048	m
	12	in.
	0.33333	yd.
	0.0606061	rod
	1.894×10^{-4}	mi.
	1.645×10^{-4}	NM
feet per minute (ft./min.)	0.01136	mph
	0.01829	km/hr.
	0.508	cm/sec.
	0.00508	m/sec.
feet per second (ft./ sec.)	0.6818	mph
	1.097	km/hr.
	30.48	cm/sec.
	0.5921	kts.
foot-pounds (ft.-lb.)	0.138255	m-kg
	3.24×10^{-4}	kg-cal
foot-pounds per minute (ft.-lb./min.)	3.030×10^{-5}	hp
foot-pounds per second (ft.-lb./sec.)	1.818×10^{-5}	hp
gallons, Imperial (Imperial gal.)	277.4	cu. in.
	1.201	U.S. gal.
	4.546	l
gallons, U.S. dry (U.S. gal. dry)	268.8	cu. in
	1.556×10^{-1}	cu. ft.
	1.164	U.S. gal.
	4.405	l

MULTIPLY	BY	TO OBTAIN
gallons, U.S. liquid (U.S. gal.)	231	cu. in.
	0.1337	cu. ft.
	4.951×10^{-3}	cu. yd.
	3785.4	cm^3
	3.785×10^{-3}	m^3
	3.785	l
	0.83268	Imperial gal.
	128	fl. oz.
gallons per acre (gal./acre)	9.353	l/ha
grams (g)	0.001	kg
	0.3527	oz. avdp.
	2.205×10^{-3}	lb.
grams per centimeter (g/cm)	0.1	kg/m
	6.721×10^{-2}	lb./ft.
	5.601×10^{-3}	lb./in.
grams per cubic centimeter (g/cm^3)	1000	kg/m^3
	0.03613	lb./cu. in.
	62.43	lb./cu. ft.
hectares (ha)	2.471	acres
	107639	sq. ft.
	10000	m^2
horsepower (hp)	33000	ft.lb./min.
	550	ft.-lb./sec.
	76.04	m-kg/sec.
	1.014	metric hp
horsepower, metric	75	m-kg/sec.
	0.9863	hp
inches (in.)	25.40	mm
	2.540	cm
	0.0254	m
	0.08333	ft.
	0.027777	yd.

MULTIPLY	BY	TO OBTAIN
inches of mercury at 0°C (in. Hg)	0.033421	atm
	0.4912	lb./sq. in.
	70.73	lb./sq. ft.
	345.3	kg/m ^{2}
	2.540	cm Hg
	25.40	mm Hg
inch-pounds (in.-lb.)	0.011521	m-kg
kilograms (kg)	2.204622	lb.
	35.27	oz. avdp.
	1000	g
kilogram-calories (kg-cal)	3.9683	BTU
	3087	ft.-lb.
	426.9	m-kg
kilograms per cubic meter (kg/m ^{3})	0.06243	lb./cu. ft.
	0.001	g/cm ^{3}
kilograms per hectare (kg/ha)	0.892	lb./acre
kilograms per square centimeter (kg/cm ^{2})	0.9678	atm
	28.96	in. Hg
	14.22	lb./sq. in.
	2048	lb./ sq. ft.
kilograms per square meter (kg/m ^{2})	2.896 x 10 $^{-3}$	in. Hg
	1.422 x 10 $^{-3}$	lb./sq. in.
	0.2048	lb./sq. ft
kilometers (km)	1 x 10 $^{-5}$	cm
	3280.8	ft.
	0.6214	mi.
	0.53996	NM

MULTIPLY	BY	TO OBTAIN
kilometers per hour (km/ hr.)	0.9113	ft./sec.
	58.68	ft./min.
	0.53996	kt
	0.6214	mph
	0.27778	m/sec.
	16.67	m/min.
knots (kt)	1	nautical mph
	1.689	ft./sec.
	1.1516	statute mph
	1.852	km/hr.
	51.48	m/sec.
liters (1)	1000	cm^3
	61.02	cu. in.
	0.03531	cu. ft.
	33.814	fl. oz.
	0.264172	U.S. gal.
	0.2200	Imperial gal.
	1.05669	qt.
liters per hectare (1/ha)	13.69	ft. oz./acre
	0.107	gal./acre
liters per second (1/sec.)	2.12	cu. ft./min.
meters (m)	39.37	in.
	3.280840	ft.
	1.0936	yd.
	0.198838	rod
	6.214×10^{-4}	mi.
	5.3996×10^{-4}	NM
meter-kilogram (m-kg)	7.23301	ft.-lb.
	86.798	in.-lb.
meters per minute (m/min.)	0.06	km/hr.

MULTIPLY	BY	TO OBTAIN
meters per second (m/sec.)	3.280840	ft./sec.
	196.8504	ft./min.
	2.237	mph
	3.6	km/hr.
microns	3.937×10^{-5}	in.
miles, statute (mi.)	5280	ft.
	1.6093	km
	1609.3	m
	0.8684	NM
miles per hour (mph)	44.7041	cm/sec.
	4.470×10^{-1}	m/sec.
	1.467	ft./sec.
	88	ft./min.
	1.6093	km/hr.
	0.8684	kt
miles per hour square (m/hr. sq.)	2.151	ft./sec. sq.
millibars	2.953×10^{-2}	in. Hg
millimeters (mm)	0.03937	in.
millimeters of mercury at 0°C (mm Hg)	0.03937	in. Hg
nautical miles (NM)	6080	ft.
	1.1516	statute mi.
	1852	m
	1.852	km
ounces, avdp. (oz. avdp.)	28.35	g
	16	dr. avdp.

MULTIPLY	BY	TO OBTAIN
ounces, fluid (fl. oz.)	8	dr. fl.
	29.57	cm^3
	1.805	cu. in.
	0.0296	l
	0.0078	U.S. gal.
ounces, fluid per acre (fl. oz./acre)	0.073	l/ha
pounds (lb.)	0.453592	kg
	453.6	g
	3.108×10^{-2}	slug
pounds per acre (lb./acre)	1.121	kg/ha
pounds per cubic foot (lb./cu. ft.)	16.02	kg/m^3
pounds per cubic inch (lb./cu. in.)	1728	lb./cu. ft.
	27.68	g/cm^3
pounds per square foot (lb./sq. ft.)	0.1414	in. Hg
	4.88243	kg/m^2
	4.725×10^{-4}	atm
pounds per square inch (psi or lb./sq. in.)	5.1715	cm Hg
	2.036	in. Hg
	0.06804	atm
	0.0689476	bar
	703.1	kg/m^2
quart, U.S. (qt.)	0.94635	l
	57.749	cu. in.
radians	57.30	deg. (arc)
	0.1592	rev.
radians per second (radians/sec.)	57.30	deg./sec.
	0.1592	rev./sec.
	9.549	rpm

MULTIPLY	BY	TO OBTAIN
revolutions (rev.)	6.283	radians
revolutions per minute (rpm or rev./min.)	0.1047	radians/sec.
revolutions per second (rev./sec.)	6.283	radians/sec.
rod	16.5	ft.
	5.5	yd.
	5.029	m
slug	32.174	lb.
square centimeters (cm^2)	0.1550	sq. in.
	0.001076	sq. ft.
square feet (sq. ft.)	929	cm^2
	0.092903	m^2
	144	sq. in.
	0.1111	sq. yd.
	2.296×10^{-5}	acres
square inches (sq. in.)	6.4516	cm^2
	6.944×10^{-3}	sq. ft.
square kilometers (km^2)	0.3861	sq. mi.
square meters (m^2)	10.76391	sq. ft.
	1.196	sq. yd.
	0.0001	ha
square miles (sq. mi.)	2.590	km^2
	640	acres
square rods (sq. rods)	30.25	sq. yd.
square yards (sq. yd.)	0.8361	m^2
	9	sq. ft.
	0.0330579	sq. rods

MULTIPLY	BY	TO OBTAIN
yards (yd.)	0.9144	m
	3	ft.
	36	in.
	0.181818	rod