

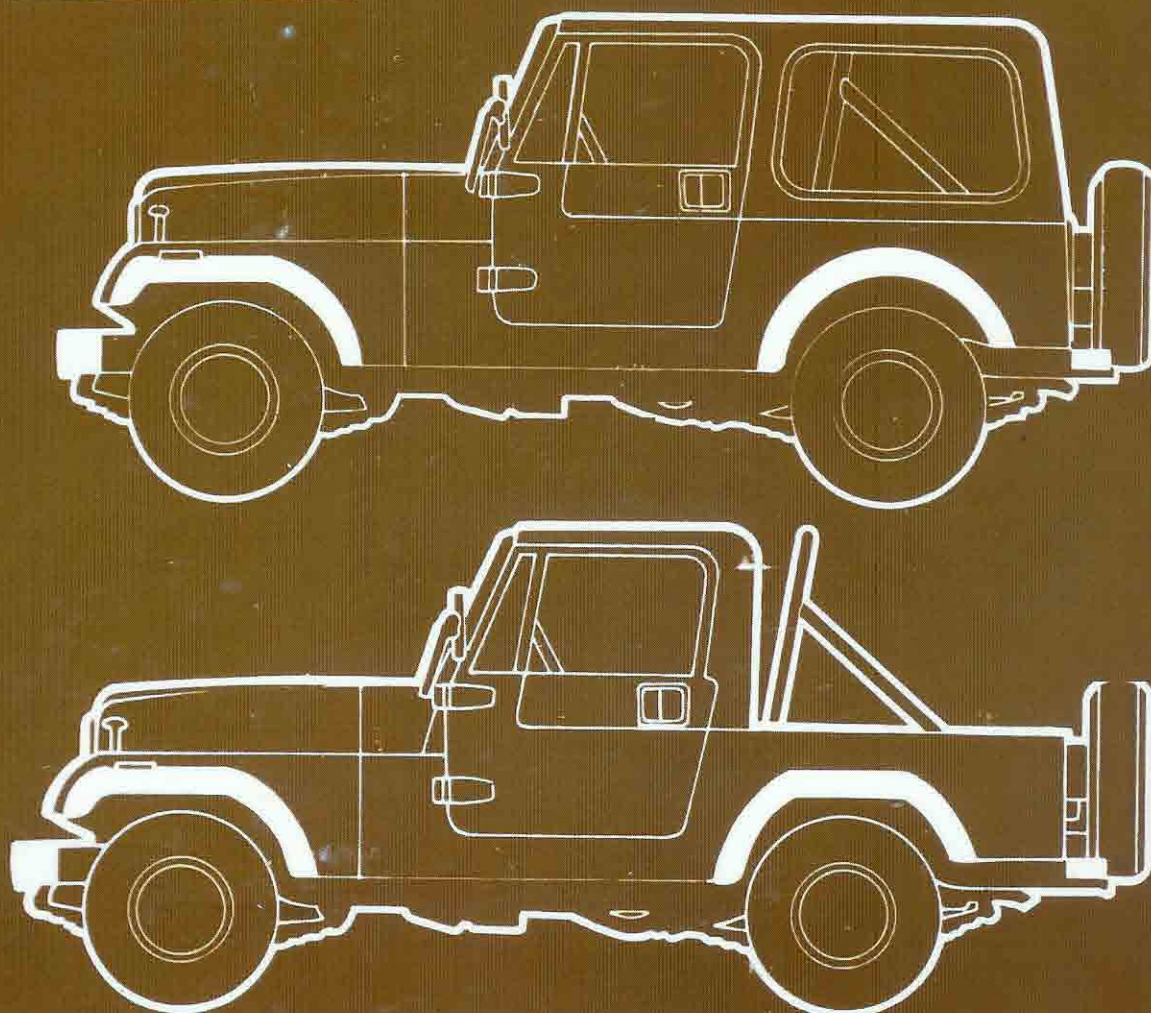
1984 - 1986

M.R.252



8981 320 374 U.S.A./Canada Edition

Includes I.S. Notes
1E - 9E



Jeep[®]

CJ-7/Scrambler

Jeep[®]

CJ-7/Scrambler

Workshop manual

M.R.252

MECHANICAL

JANUARY 1984

U.S.A./Canada Edition

8981 320 374

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SEE
I.S.
N
O
T
E
S

CONTENTS

(There is a more detailed contents page at the beginning of every chapter.)

A — GENERAL

Specifications And Identification	A-1
Towing — Breakdown Recovery	A-9
Lifting Methods	A-13
Driveline Lubrication	A-14
Conversion Tables	A-16

B — ENGINES

General Information	B-1
General Service And Diagnosis	B-4
Tune-Up Procedures	B-22
2.46 Liter (150 CID) Four-Cylinder Engine	B-42
4.2 Liter (258 CID) Six-Cylinder Engine	B-106
Cooling Systems	B-168
Fuel Systems	B-205
Exhaust Gas Recirculation System	B-252
Positive Crankcase Ventilation (PCV) System	B-258
TAC System	B-261
Fuel Feedback Systems	B-268
Exhaust Systems	B-339
Pulse Air System	B-349
Catalytic Converter Systems	B-352

C — ELECTRICAL

General Information	C-1
Batteries	C-4
Charging System	C-16
Starting System	C-35
Ignition System	C-58
Cruise Command Engine Instrumentation	C-93
Lighting Systems	C-124
Chassis Wiring Harness	C-139
Horn Systems	C-143
Windshield Wipers	C-146

D — CLUTCH

General Information	D-1
Service Diagnosis	D-4
Clutch Service — Six-Cylinder Models	D-12
Clutch Service — Four-Cylinder Models	D-20

E — GEARBOXES

General Information	E-1
Model T4 And T5 Transmissions	E-12
Model T-176 Transmission	E-19
Model 300 Transfer Case	E-35

F — AUTOMATIC TRANSMISSION

General Information	F-1
Diagnostic And Test Procedures	F-6
In-Vehicle Service And Adjustment	F-27
Oil Filter	F-31
Valve Body	F-32
Governor Valve	F-35
Park Lock Component	F-38
Neutral Start And Backup Lamp Switch	F-39
Out-Of-Vehicle Service	F-40

G — STEERING AND FRONT AXLE

General Information	G-1
Steering Columns	G-6
Manual Steering Gear	G-52
Power Steering Gear	G-70
Power Steering Pump	G-107
Steering Linkage	G-129
Front Axle	G-136
Front Drive Hubs	G-170

H — REAR AXLE

General Description	H-1
Standard Differential Overhaul	H-17
Trac-Lok Differential	H-35
Propeller Shaft	H-46

J — SUSPENSION

General Information	J-1
Wheels And Tires	J-3
Suspension	J-19

K — BRAKE SYSTEM

General Description	K-1
Diagnosis	K-6
Brakelamp Switch	K-15
Brake Pedal	K-16
Master Cylinder	K-17
Brake Booster	K-22
Front Brake Pads	K-24
Front Brake Rotor	K-27
Front Brake Caliper	K-31
Rear Brakeshoes	K-36
Rear Wheel Cylinder	K-39
Combination Valve	K-43
Parking Brake	K-44
Bleeding	K-47

L — HEATING AND AIR CONDITIONING

Heating System	L-1
Air Conditioner System	L-10

M — ACCESSORIES

Spare Tire Carriers	M-1
Roll Bars	M-3
Soft Top With Metal Doors	M-5
Storage Compartment	M-6
Wooden Rails — Scrambler	M-8
Radio Sound Systems	M-9



Service Information (IS):

Three boxes have been provided near the black tabs (squares) marking the chapter; these enable you to enter IS Note numbers which refer to a particular modification on the page concerned.

SEE
I.S.
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Special Tools:

Special tools needed for the various operations mentioned in this manual may be found at the beginning of each chapter in which they are used, and also under the appropriate section within the chapter.

Electrical:

Wiring diagrams feature an easy-to-understand format which makes them valuable reference sources when performing electrical service. Each diagram provides information about:

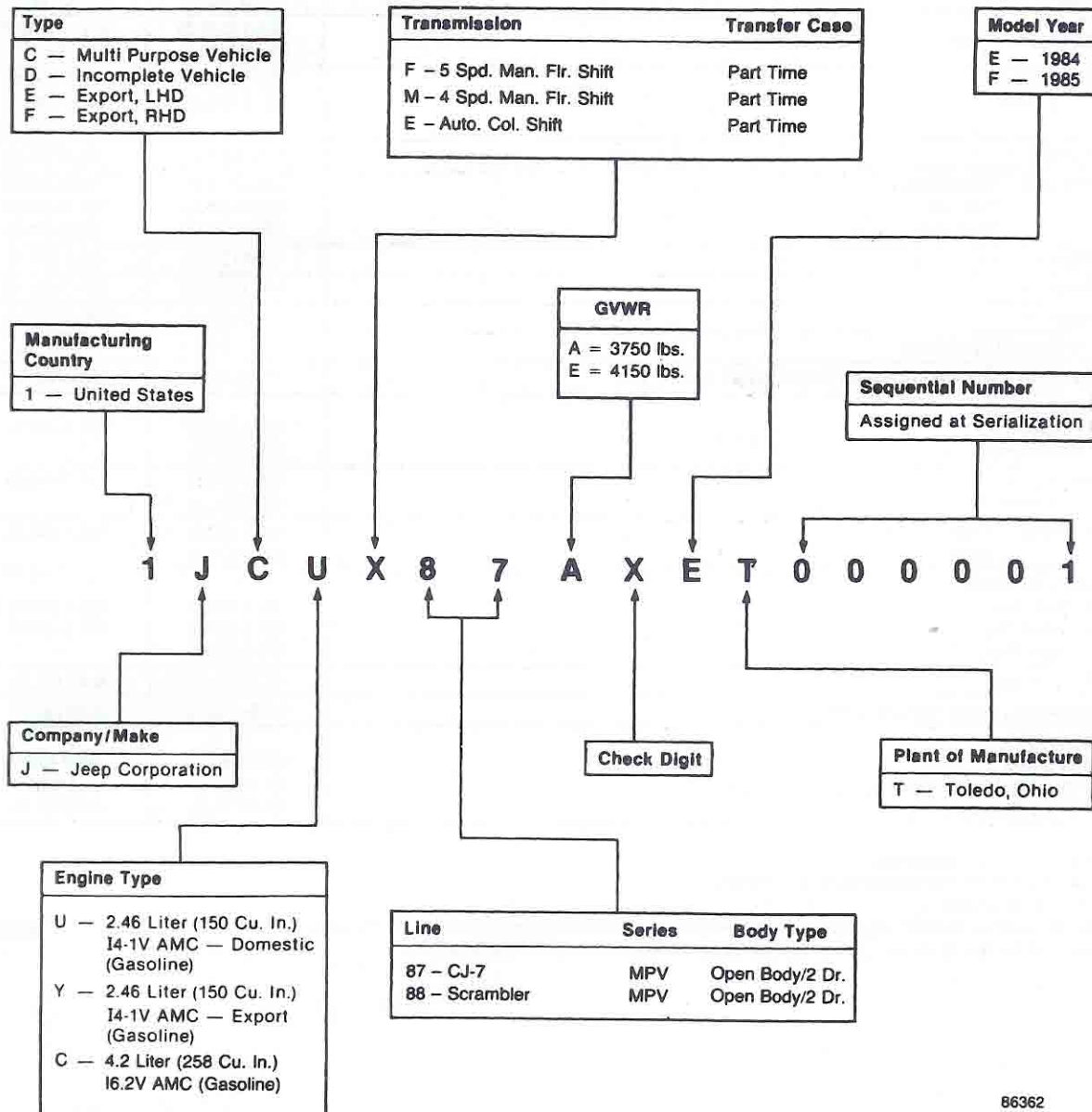
- the location of electrical components on the vehicle
- how each component is wired
- the function of each electrical component
- how to diagnose an electrical malfunction

Wiring diagrams are printed separately and should be filed in the pocket at the back of the plastic cover.

SEE I.S. NOTES

VEHICLE IDENTIFICATION NUMBER (VIN)

The vehicle identification number (VIN) is located on the left side of the instrument panel at the base of the windshield. The VIN chart explains the code characters.



86362

GENERAL DIMENSIONS

General Dimensions Centimeters (Inches)

SEE I.S. NOTES

	CJ-7	Scrambler
Wheelbase	237.2 (93.4)	262.6 (103.4)
Overall Length – Body	389.1 (153.2)	422.1 ¹ (166.2)
	389.1 (153.2)	450.1 ² (177.2)
Overhang – Front	59.7 (23.5)	59.7 (23.5)
– Rear	92.2 (36.3)	99.8 ¹ (39.3)
		127.8 ² (50.3)
Overall Width	165.9 (65.3)	165.9 (65.3)
Overall Height – Open Body	180.1 (70.9)	179.8 (70.8)
– Soft Top	182.6 (71.9)	181.6 (71.5)
– Hard Top	180.3 (71.0)	181.9 (71.6)
Step Height – Front	68.8 (27.1)	69.6 (27.4)
Front Tread	141.7 (55.8)	141.7 (55.8)
Rear Tread	140.0 (55.1)	140.0 (55.1)
Minimum Ground Clearance	19.1 (7.5)	19.1 (7.5)
Minimum Turning Diameter-meters (feet) curb to curb	10.9 (35.8)	11.8 (38.8)
Effective Leg Room		
Front (Accelerator)	99.3 (39.1)	99.3 (39.1)
Rear (Minimum)	88.9 (35.0)	—
Hip Room – Front	136.7 (53.8)	136.7 (53.8)
– Rear	91.4 (36.0)	—
Shoulder Room – Front	136.7 (53.8)	136.7 (53.8)
– Rear	143.0 (56.3)	—
Effective Head Room		
Front – Soft Top	103.1 (40.6)	103.1 (40.6)
Front – Hard Top	101.3 (39.9)	101.3 (39.9)
Rear – Hard Top	100.6 (39.6)	—
Cargo Floor Height	67.8 (26.7)	0.45 (16.0)
Cargo Capacity – cubic meters (feet)	0.45 ³ (16.0)	0.86 (30.4)
Cargo Space		
Length at Floor	118.9 (46.8)	156.2 (61.5)
Width at Wheelhouse/Floor	91.4 (36.0)	91.4 (36.0)
Width of Tailgate Opening	87.6 (34.5)	87.6 (34.5)

1. With roll bar mounted spare tire.
2. With rear mounted swing-away spare tire carrier.
3. With rear seat removed.

NOTE: Length, width and overhang dimensions reflect rear mounted spare tire standard on CJ-7.
Height dimensions reflect roll bar as standard, which affects open body heights.

86363

MODEL IDENTIFICATION

Series	Model Number	Wheelbase (Inches)	Gross Vehicle Weight Rating (GVWR)	
			With Standard Suspension	With H.D. Suspension or Hardtop
CJ-7	87	93.4	3750	4150
Scrambler	88	103.4	4150	4150

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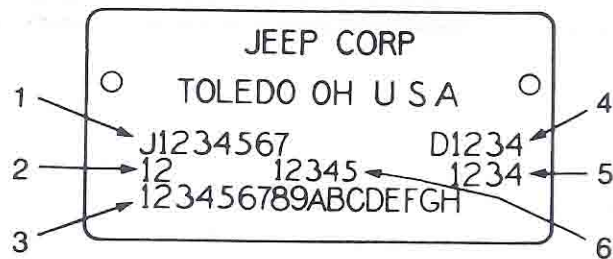
SEE I.S. NOTES

VEHICLE IDENTIFICATION PLATE

A metal identification plate is riveted to the driver side of the dash panel in the engine compartment.

The following information is shown on the plate:

- order number (1)
- paint gun number (2)
- vehicle identification number (VIN) (3)
- vehicle deviation or special sales request and order (SSR & O) (4)
- trim option number (5)
- paint option number (6)



86365


SAFETY CERTIFICATION LABEL

SEE I.S. NOTES

A safety certification label is attached to all vehicles to certify that they conform to Federal Motor Vehicle Safety Certification Standards.

The label is located on the driver side door pillar, and lists:

- the month and year of manufacture
- gross vehicle weight rating (GVWR)
- gross axle weight rating (GAWR)

 MFD. BY JEEP CORPORATION		DATE <input style="width: 100px;" type="text"/>	<p>THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE</p>						
GVWR.	<input style="width: 100%;" type="text"/>								
GAWR. FRT.	<table style="width: 100%; border: none;"> <tr> <td style="border: none;">WITH</td> <td style="border: none;">TIRES</td> </tr> <tr> <td style="border: none;">RIMS AT</td> <td style="border: none;"><input style="width: 100%;" type="text"/></td> </tr> <tr> <td style="border: none;">P.S.I. COLD</td> <td style="border: none;"><input style="width: 100%;" type="text"/></td> </tr> </table>	WITH		TIRES	RIMS AT	<input style="width: 100%;" type="text"/>	P.S.I. COLD	<input style="width: 100%;" type="text"/>	
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SPECIAL SALES REQUEST AND ORDER (SSR & O) NUMBER

Certain Jeep vehicles are built for special orders with other than standard parts or equipment. To assist the dealer in ordering correct replacement parts, an SSR & O number is assigned and a permanent record of the deviation is maintained by the factory.

The SSR & O number is embossed on the Vehicle Identification Plate.



The parts ordering procedure for SSR & O parts is detailed in the Jeep Parts Microfiche.

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POWERTRAIN – DRIVELINE COMBINATIONS

Model	Engine	Transmission	Axle Ratio (Std./Opt.)	Transfer Case
CJ-7 and Scrambler Models	I4-1V 2.46L (150 C.I.D.)	4-Spd. Man. (T4)	3.54/4.10	300
		5-Spd. Man. (T5)	3.54/4.10	300
	I6-2V 4.2L (258 C.I.D.)	4-Spd. Man. (T4)	2.73/3.31	300
		4-Spd. Man. (T176)	2.73/3.31	300
		5-Spd. Man. (T5)	2.73/3.31	300
		3-Spd. Auto. (999)	2.73/3.31	300

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	<h1 style="margin: 0;">GENERAL</h1> <h2 style="margin: 0;">SPECIFICATIONS – IDENTIFICATION</h2>	
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FLUIDS – LUBRICANTS – CAPACITIES

SEE I.S. NOTES

Engine	I4-1V 2.46 liter (150 cu. in.) I6-2V 4.2 liter (258 cu. in.)	API "SF" Classification 10W-30; 10W-40, 20W-40 Above ± 32°F (0°C) 10W-30, 10W-40 Above 0°F (-18°C) 5W-30* Below 0°F (-18°C) *Must not be used above 60°F (15.5°C)
Transmission	999 Auto	Use AMC/Jeep/Renault automatic transmission fluid or equivalent Dexron II® fluid.
	T4-T5	Use only AMC/Jeep/Renault transmission lubricant, part number 89 83 000 000.
	T-176	Use AMC/Jeep/Renault gear lubricant, or equivalent 75W-90 (API GL-5) lubricant.
Transfer Case	300	Use only AMC/Jeep/Renault lubricant, part number 89 83 000 000.
Axle	Front/Rear	Use AMC/Jeep/Renault gear lubricant or equivalent SAE 75W-90, API GL-5 quality gear lubricant. NOTE: Use SAE 80W-140, API GL-5 quality gear lubricant for trailer towing and in Trac-Lok rear axles.
Brake Fluid	All	Use AMC/Jeep/Renault brake fluid or equivalent identified as FMVSS 116 DOT-3 and SAE J-17034. CAUTION: Use recommended brake fluid only.
Engine Coolant	All	Use AMC/Jeep/Renault all season antifreeze (or equivalent ethylene glycol-based antifreeze) containing Alugard 340-2™ and clean water in a 50/50 mixture.
Fuel	All	Unleaded with AKI octane rating of at least 87.
Clutch Hydraulic Reservoir		Use AMC/Jeep/Renault brake fluid or equivalent identified as FMVSS 116 DOT-3 and SAE J-1703. CAUTION: Use recommended brake fluids only.
Power Steering Pump		Use AMC/Jeep/Renault power steering fluid or equivalent.
Steering Linkage, Ball Joints, Propeller Shafts, Cardan Joints, Wheel Bearings		Use AMC/Jeep/Renault all purpose lubricant or equivalent lithium base chassis lubricant.
Parking Brake Pedal Mechanism		Use AMC/Jeep/Renault white spray grease or equivalent.
Manual Steering Gear		Use AMC/Jeep/Renault all purpose lubricant or an equivalent lithium base chassis lubricant.

FLUIDS – LUBRICANTS – CAPACITIES (Cont'd)

SEE I.S. NOTES

Capacities (Approximate Refill)	U.S. Measure	Imperial Measure	Metric Measure
Engine Oil: 2.46 liter I4 (with or without filter change)	4.0 quarts	3.33 quarts	3.78 liters
	6.0 quarts	5.0 quarts	5.7 liters
Cooling System: (includes coolant overflow bottle) 2.46 liter I4	9.0 quarts	7.5 quarts	8.5 liters
	10.5 quarts	8.7 quarts	9.9 liters
Transmission: T176	3.5 pints	2.9 pints	1.7 liters
	3.5 pints	2.9 pints	1.7 liters
	4.0 pints	3.3 pints	1.9 liters
	8.5 pints	7.1 pints	4.0 liters
Transfer Case: Model 300	4.0 pints	3.3 pints	1.9 liters
Axles: Front	2.5 pints	2.1 pints	1.2 liters
	4.8 pints	4.0 pints	2.3 liters
Fuel Tank (approx. cap.) Standard Tank	14.8 gallons	12.3 gallons	56.0 liters
	20.0 gallons	16.8 gallons	75.5 liters

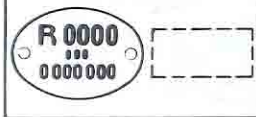
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ADHESIVES – SEALERS – CLEANERS

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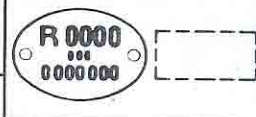
Adhesives/Sealers/Cleaners	Purpose
Loctite 242 (Medium strength)	Prevents loosening of bolts, nuts, screws. Does not require re-application every time fasteners are loosened and tightened.
Loctite 271 (High strength)	Locks bolts, nuts, screws. Must be reapplied if fastener is loosened.
Loctite 290 or Wick n' Lock (Medium strength, penetrating)	Prevents loosening of fasteners, adjustment screws, etc. Can be applied after fastener is seated.
Loctite Superbonder	For quick bonding of non-porous materials (glass, metal, rubber, vinyl and plastics).
Permatex Gasket Remover	For removal of gaskets and cleaning gasket surfaces.
AMC/Jeep Gasket-In-A-Tube or Perfect Seal RTV Sealant	For use wherever RTV-Type sealant is specified.

84107



GENERAL

TOWING – BREAKDOWN RECOVERY



TOWING PROCEDURES

Safety Precautions

- secure loose or protruding parts of a damaged vehicle
- the end of the vehicle being towed should be lifted a minimum of 100 mm (4 in) off the ground; check the opposite end for adequate ground clearance
- always use a safety chain system that is independent of the lifting and towing attachment
- do not allow any of the towing equipment to bear on the fuel tank
- do not go under the vehicle while it is lifted by the towing equipment
- do not allow passengers to ride in a towed vehicle
- always observe all state and local laws regarding such items as warning signals, night illumination, speed, etc.
- do not attempt a towing operation that could jeopardize the operator, any bystanders or other motorists

CAUTION: To prevent driveline damage, shift the transmission and transfer case into the positions outlined in the general towing instructions.

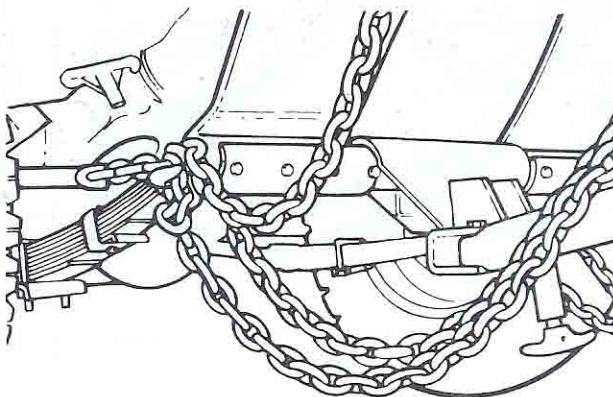
Front Towing – Front End Raised

Attach J-hooks over the axle outboard of the springs.

Tow hooks or chains must not be attached to the bumper or to the constant velocity (CV) joints.

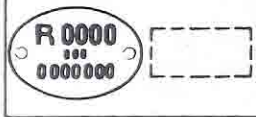
Place a tow bar under the spring shackles.

Attach safety chains around the spring shackles.

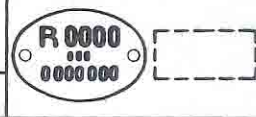


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SEE I.S. NOTES



GENERAL



TOWING – BREAKDOWN RECOVERY

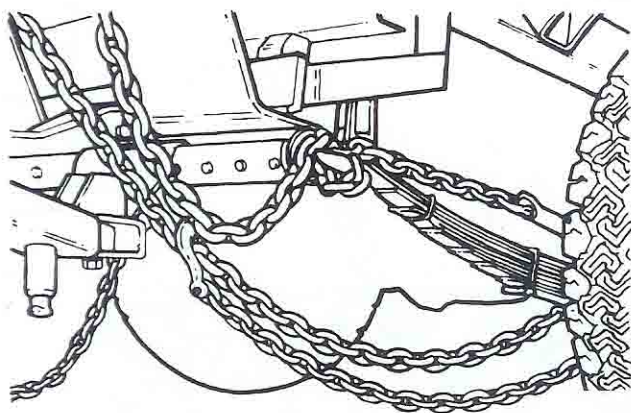
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Rear Towing – Rear End Raised

Attach J-hooks around the axle outboard of the springs.

Place a tow bar under the bumper plate.

Attach safety chains to the spring shackles.



86369

EMERGENCY TOWING

If the vehicle is disabled and is to be towed with the front or rear wheels off the ground, the towing speed should be limited to 48 km/h (30 mph) for a distance no greater than 24 km (15 mi).

Towing Vehicles with Manual Transmission and the Model 300 Transfer Case

Ignition Key Available

Shift the transmission and transfer case into the Neutral position and tow the vehicle with either all four wheels on the road or with the front or rear wheels raised.

Turn the front drive hubs to the 4 x 4 or Lock position.

Turn the ignition key to the OFF position to unlock the steering column.

Ignition Key Not Available and Vehicle is Unlocked

Shift the transmission and transfer case into the Neutral position and tow the vehicle with the front wheels raised.

Ignition Key Not Available and Vehicle is Locked

Place a dolly under the rear wheels and tow the vehicle with the front end raised or disconnect the rear propeller shaft at the rear axle yoke (be sure to mark the shaft and yoke for proper alignment at reassembly), secure the shaft to the underside of the vehicle, and tow with the front end raised.

NOTE: When towing the vehicle over 300 km (200 mi), stop every 300 km (200 mi), leave the transfer case in the Neutral position, and shift the transmission into gear. Then start and run the engine for about one minute to circulate oil in the transfer case.

SEE I.S. NOTES

Towing Vehicles with Automatic Transmission and the Model 300 Transfer Case

Ignition Key Available

Turn the ignition key to the OFF position to unlock the steering column and gearshift selector linkage.

Move the gearshift lever to the Park position and the transfer case shift lever to the Neutral position.

Ignition Key Not Available

Place a dolly under the rear wheels and tow the vehicle with the front end raised or disconnect the rear propeller shaft at the rear axle yoke (index mark yoke for correct assembly), secure the shaft to the underside of the vehicle, and tow it with the front wheels raised.

NOTE: When towing the vehicle over 300 km (200 mi), stop every 300 km (200 mi), leave the transfer case in the Neutral position, start the engine, place the automatic transmission in the Drive position and run the engine for about one minute to circulate the oil in the transfer case.

RECREATIONAL TOWING

Jeep vehicles can be towed behind a recreational vehicle such as a motor home, but the following instructions must be observed to avoid damaging driveline components.

Be sure to check and comply with federal, state and local laws or ordinances regarding this type of towing.

Vehicles with Manual Transmission and the Model 300 Transfer Case

Turn the ignition switch to the OFF position to unlock the steering wheel.

Shift the transmission into gear and the transfer case into the Neutral position.

Turn the selective drive hubs to the 4 x 4 or Lock position for axle lubrication.

Vehicles with Automatic Transmission and the Model 300 Transfer Case

Turn the ignition switch to the OFF position to unlock the steering wheel.

Shift the automatic transmission into the Park position.

Shift the transfer case into the Neutral position.

Turn the selective drive hubs to the 4 x 4 or Lock position for axle lubrication.

TRAILER TOWING AND CAMPERS

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The Jeep Corporation New Vehicle Warranty includes conditions and limitations for vehicles used in towing trailers or campers. The requirements and recommendations in this manual and other factory literature must be followed in order to maintain this coverage.

In addition to the vehicle maintenance and servicing requirements referred to, the GVW and GAW ratings are of special significance. When a Jeep vehicle is to be used for trailer or camper towing, it is extremely important that the GVW or GAW ratings not be exceeded by the addition of:

- the tongue weight of a trailer
- the weight of any other type of vehicle put in or on the towing vehicle

Remember that additional items placed in or on the trailer or mounted camper will add to the load.

CAUTION: Jeep Corporation will not be responsible for brake performance if the Jeep vehicle and trailer hydraulic brake systems are interconnected in any way. A separate brake system is recommended and actually required in some states for all trailers weighing 454 kg (1,000 lbs) or more.

FLOOR JACK – SAFETY STANDS

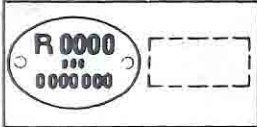
The vehicle can be raised with a floor jack and supported with jack stands at the front and rear ends of the frame rails.

Do not attempt to raise the vehicle with a floor jack positioned under the axle tubes or body side sills. Use the frame rail lift points only.

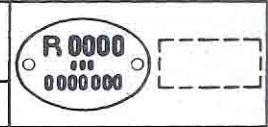
HOIST

The vehicle can be raised on a twin-post, swivelling arm or ramp-type drive hoist.

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GENERAL



DRIVELINE LUBRICATION

ENGINE

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I.S.
NOTES

Change the oil after the first 8 000 km (5,000 mi) and at 12 000 km (7,500 mi) intervals afterward, or as indicated in the Jeep Engine Maintenance Schedule.

Refer to the Fluids – Lubricants – Capacities Chart in this chapter for the recommended lubricant grade and viscosity.

Check the engine oil level at every fuel fill. Add recommended oils only if the oil level is low. Do not overfill.

MANUAL TRANSMISSION

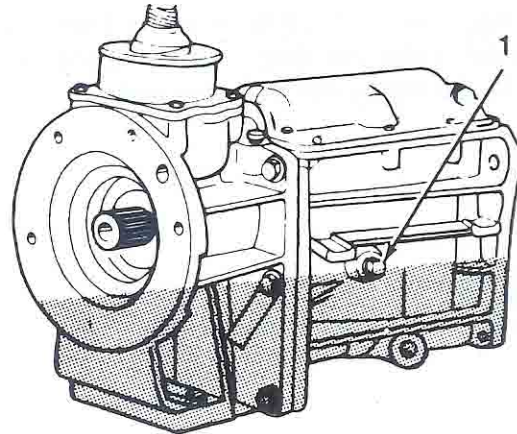
Change the lubricant at the intervals recommended in the Jeep Chassis Maintenance Schedule.

Use recommended lubricants only. Refer to the Fluids – Lubricants – Capacities Chart in this chapter for the recommended lubricant grade and viscosity.

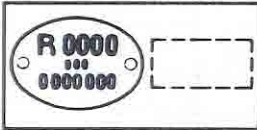
Refilling

Fill the transmission to the bottom edge of the fill plug hole when filling or adding lubricant.

The fill plug (1) is on the passenger side of the manual transmission for all models.

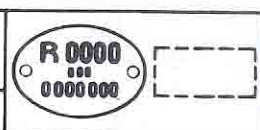


86331



GENERAL

DRIVELINE LUBRICATION



AUTOMATIC TRANSMISSION

Change the fluid and filter at the intervals recommended in the Jeep Chassis Maintenance Schedule.

Use AMC/Jeep/Renault automatic transmission fluid or an equivalent identified as Dexron II® only.

Check the fluid level with the engine running and the transmission in the Park position.

The transmission fluid should be at the normal operating temperature to ensure an accurate level indication.

Refilling

Do not overfill when refilling or adding fluid.

TRANSFER CASE 300

Change the transfer case lubricant at the intervals recommended in the Jeep Chassis Maintenance Schedule.

Use only AMC/Jeep/Renault transmission lubricant part number 8983 000 000.

Refilling

Fill the transfer case to the edge of the fill plug hole.

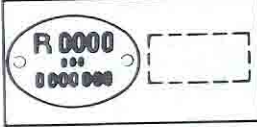
Do not overfill.

AXLES

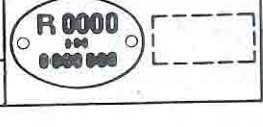
Change the front/rear axle lubricant at 48 000 km (30,000 mi) intervals.

Use AMC/Jeep/Renault gear lubricant or an equivalent SAE 75W-90 (A.P.I. GL-5) lubricant.

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GENERAL CONVERSION TABLES



SEE I.S. NOTES

Inch-pounds to newton meters

lb in	N*m	lb in	N*m	lb in	N*m	lb in	N*m	lb in	N*m
2	2260	42	4 745.3	82	9 264.6	122	13 783.9	162	18 303.2
4	4519	44	4 971.3	84	9 490.6	124	14 009.9	164	18 529.2
6	6779	46	5 197.2	86	9 716.5	126	14 235.9	166	18 755.2
8	9039	48	5 423.2	88	9 942.5	128	14 461.8	168	18 981.1
10	1 1298	50	5 649.2	90	10 168.5	130	14 687.8	170	19 207.1
12	1 3558	52	5 875.1	92	10 394.4	132	14 913.8	172	19 433.1
14	1 5818	54	6 101.1	94	10 620.4	134	15 139.7	174	19 659.0
16	1 8077	56	6 327.0	96	10 846.4	136	15 365.7	176	19 885.0
18	2 0337	58	6 553.0	98	11 072.3	138	15 591.7	178	20 111.0
20	2 2597	60	6 779.0	100	11 298.3	140	15 817.6	180	20 336.9
22	2 4856	62	7 004.9	102	11 524.3	142	16 043.6	182	20 562.9
24	2 7116	64	7 230.9	104	11 750.2	144	16 269.6	184	20 788.9
26	2 9376	66	7 456.9	106	11 976.2	146	16 495.5	186	21 014.8
28	3 1635	68	7 682.8	108	12 202.2	148	16 721.5	188	21 240.8
30	3 3895	70	7 908.8	110	12 428.1	150	16 947.5	190	21 466.8
32	3 6155	72	8 134.8	112	12 654.1	152	17 173.4	192	21 692.7
34	3 8414	74	8 360.7	114	12 880.1	154	17 399.4	194	21 918.7
36	4 0674	76	8 586.7	116	13 106.0	156	17 625.3	196	22 144.7
38	4 2934	78	8 812.7	118	13 332.0	158	17 851.3	198	22 370.6
40	4 5193	80	9 038.6	120	13 558.0	160	18 077.3	200	22 596.6

newton meters to inch-pounds

N*m	lb in	N*m	lb in	N*m	lb in	N*m	lb in	N*m	lb in
2	1 770.2	4.2	37 174.7	8.2	72 579.2	12.2	107 983.7	16.2	143 388.2
4	3 540.4	4.4	38 944.9	8.4	74 349.4	12.4	109 753.9	16.4	145 158.4
6	5 310.7	4.6	40 715.2	8.6	76 119.7	12.6	111 524.2	16.6	146 928.7
8	7 080.9	4.8	42 485.4	8.8	77 889.9	12.8	113 294.4	16.8	148 698.9
1	8 851.1	5	44 255.6	9	79 660.1	13	115 064.6	17	150 469.1
1.2	10 621.3	5.2	46 025.8	9.2	81 430.3	13.2	116 834.8	17.2	152 239.3
1.4	12 391.6	5.4	47 796.1	9.4	83 200.6	13.4	118 605.1	17.4	154 009.6
1.6	14 161.8	5.6	49 566.3	9.6	84 970.8	13.6	120 375.3	17.6	155 779.8
1.8	15 932.0	5.8	51 336.5	9.8	86 741.0	13.8	122 145.5	17.8	157 550.0
2	17 702.2	6	53 106.7	10	88 511.2	14	123 915.7	18	159 320.2
2.2	19 472.5	6.2	54 877.0	10.2	90 281.5	14.2	125 686.0	18.2	161 090.4
2.4	21 242.7	6.4	56 647.2	10.4	92 051.7	14.4	127 456.2	18.4	162 860.6
2.6	23 012.9	6.6	58 417.4	10.6	93 821.9	14.6	129 226.4	18.6	164 630.8
2.8	24 783.1	6.8	60 187.6	10.8	95 592.1	14.8	130 996.6	18.8	166 401.0
3	26 553.4	7	61 957.9	11	97 362.4	15	132 766.9	19	168 171.2
3.2	28 323.6	7.2	63 728.1	11.2	99 132.6	15.2	134 537.1	19.2	169 941.4
3.4	30 093.8	7.4	65 498.3	11.4	100 902.8	15.4	136 307.3	19.4	171 711.6
3.6	31 864.0	7.6	67 268.5	11.6	102 673.0	15.6	138 077.5	19.6	173 481.8
3.8	33 634.2	7.8	69 038.8	11.8	104 443.3	15.8	139 847.7	19.8	175 252.0
4	35 404.5	8	70 809.0	12	106 213.5	16	141 618.0	20	177 022.2

foot-pounds to newton meters

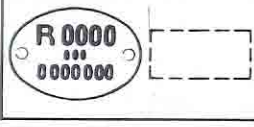
lb ft	N*m	lb ft	N*m	lb ft	N*m	lb ft	N*m	lb ft	N*m
1	1.3558	21	28 472.2	41	55 588.5	61	82 704.9	81	109 821.2
2	2.7116	22	29 828.0	42	56 944.4	62	84 060.7	82	111 177.0
3	4.0675	23	31 183.8	43	58 300.2	63	85 416.5	83	112 532.8
4	5 423.3	24	32 539.6	44	59 656.0	64	86 772.3	84	113 888.6
5	6 779.1	25	33 895.4	45	61 011.8	65	88 128.1	85	115 244.4
6	8 134.9	26	35 251.3	46	62 367.6	66	89 484.0	86	116 600.2
7	9 490.7	27	36 607.1	47	63 723.4	67	90 839.8	87	117 956.0
8	10 846.5	28	37 962.9	48	65 079.3	68	92 195.6	88	119 311.8
9	12 202.3	29	39 318.7	49	66 435.1	69	93 551.4	89	120 667.6
10	13 558.2	30	40 674.5	50	67 790.9	70	94 907.3	90	122 023.4
11	14 914.0	31	42 030.4	51	69 146.7	71	96 263.1	91	123 379.2
12	16 269.8	32	43 386.2	52	70 502.5	72	97 618.9	92	124 735.0
13	17 625.6	33	44 742.0	53	71 858.3	73	98 974.7	93	126 090.8
14	18 981.5	34	46 097.8	54	73 214.2	74	100 330.6	94	127 446.6
15	20 337.3	35	47 453.6	55	74 570.0	75	101 686.2	95	128 802.4
16	21 693.1	36	48 809.4	56	75 925.8	76	103 042.0	96	130 158.2
17	23 048.9	37	50 165.3	57	77 281.6	77	104 397.8	97	131 514.0
18	24 404.7	38	51 521.1	58	78 637.4	78	105 753.6	98	132 869.8
19	25 760.5	39	52 876.9	59	79 993.3	79	107 109.4	99	134 225.6
20	27 116.4	40	54 232.7	60	81 349.1	80	108 465.2	100	135 581.4

newton meters to foot-pounds

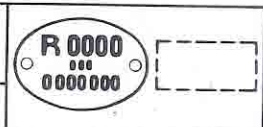
N*m	lb ft	N*m	lb ft	N*m	lb ft	N*m	lb ft	N*m	lb ft
1	737.6	21	15 988.8	41	30 240.0	61	44 991.3	81	59 742.5
2	1 475.1	22	16 226.4	42	30 977.6	62	45 728.9	82	60 480.1
3	2 212.7	23	16 963.9	43	31 715.2	63	46 466.4	83	61 217.7
4	2 950.2	24	17 701.5	44	32 452.7	64	47 204.0	84	61 955.2
5	3 687.8	25	18 439.1	45	33 190.3	65	47 941.5	85	62 692.8
6	4 425.4	26	19 176.6	46	33 927.9	66	48 679.1	86	63 430.3
7	5 162.9	27	19 914.2	47	34 665.4	67	49 416.7	87	64 167.9
8	5 900.5	28	20 651.7	48	35 403.0	68	50 154.2	88	64 905.4
9	6 638.1	29	21 389.3	49	36 140.5	69	50 891.8	89	65 643.0
10	7 375.6	30	22 126.9	50	36 878.1	70	51 629.3	90	66 380.6
11	8 113.2	31	22 864.4	51	37 615.7	71	52 366.9	91	67 118.1
12	8 850.7	32	23 602.0	52	38 353.2	72	53 104.5	92	67 855.7
13	9 588.3	33	24 339.5	53	39 090.8	73	53 842.0	93	68 593.3
14	10 325.9	34	25 077.1	54	39 828.4	74	54 579.6	94	69 330.8
15	11 063.4	35	25 814.7	55	40 565.9	75	55 317.2	95	70 068.4
16	11 801.0	36	26 552.2	56	41 303.5	76	56 054.7	96	70 806.0
17	12 538.6	37	27 289.8	57	42 041.0	77	56 792.3	97	71 543.5
18	13 276.1	38	28 027.4	58	42 778.6	78	57 529.8	98	72 281.1
19	14 013.7	39	28 764.9	59	43 516.2	79	58 267.4	99	73 018.7
20	14 751.2	40	29 502.5	60	44 253.7	80	59 005.0	100	73 756.2

100	135 581.8	300	406 745.4	500	677 909.0	700	949 072.6	900	1 220 236.2
110	149 140.0	310	420 303.6	510	691 467.2	710	962 630.8	910	1 233 794.3
120	162 698.2	320	433 861.8	520	705 025.4	720	976 190.0	920	1 247 352.5
130	176 256.3	330	447 419.9	530	718 583.5	730	989 747.1	930	1 260 910.7
140	189 814.5	340	460 978.1	540	732 141.7	740	1 003 305.3	940	1 274 468.9
150	203 372.7	350	474 536.3	550	745 699.9	750	1 016 863.5	950	1 288 027.1
160	216 930.9	360	488 094.5	560	759 258.1	760	1 030 421.6	960	1 301 585.3
170	230 489.1	370	501 652.7	570	772 816.3	770	1 043 979.8	970	1 315 143.5
180	244 047.2	380	515 210.9	580	786 374.4	780	1 057 538.0	980	1 328 701.6
190	257 605.4	390	528 769.0	590	799 932.6	790	1 071 096.2	990	1 342 259.8
200	271 163.6	400	542 327.2	600	813 490.8	800	1 084 654.4	1 000	1 355 818.0
210	284 721.8	410	555 885.4	610	827 049.0	810	1 098 212.5	1 050	1 423 608.9
220	298 280.0	420	569 443.6	620	840 607.2	820	1 111 770.7	1 100	1 491 399.8
230	311 838.1	430	583 001.7	630	854 165.3	830	1 125 328.9	1 150	1 559 190.7
240	325 396.3	440	596 559.9	640	867 723.5	840	1 138 887.1	1 200	1 626 981.6
250	338 954.5	450	610 118.1	650	881 281.7	850	1 152 445.3	1 250	1 694 772.5
260	352 512.7	460	623 676.3	660	894 839.9	860	1 166 003.4	1 300	1 762 563.4
270	366 070.9	470	637 234.5	670	908 398.1	870	1 179 561.6	1 350	1 830 354.3
280	379 629.1	480	650 792.6	680	921 956.2	880	1 193 119.8	1 400	1 898 145.2
290	393 187.2	490	664 350.8	690	935 514.4	890	1 206 678.0	1 500	2 033 727.0

100	73 756.2	300	221 268.6	500	368 781.0	700	516 293.5	900	663 805.9
110	81 131.8	310	228 644.3	510	376 156.7	710	523 669.1	910	671 181.5
120	88 507.5	320	236 019.9	520	383 532.3	720	531 044.7	920	678 557.1
130	95 883.1	330	243 395.5	530	390 907.9	730	538 420.3	930	685 932.8
140	103 258.7	340	250 771.1	540	398 283.5	740	5		



GENERAL CONVERSION TABLES



Inch to mm

in	mm	in	mm	in	mm	in	mm	in	mm
01	.254	.21	5.334	.41	10.414	.61	15.494	.81	20.574
02	.508	.22	5.588	.42	10.668	.62	15.748	.82	20.828
03	.762	.23	5.842	.43	10.922	.63	16.002	.83	21.082
04	1.016	.24	6.096	.44	11.176	.64	16.256	.84	21.336
05	1.270	.25	6.350	.45	11.430	.65	16.510	.85	21.590
06	1.524	.26	6.604	.46	11.684	.66	16.764	.86	21.844
07	1.778	.27	6.858	.47	11.938	.67	17.018	.87	22.098
08	2.032	.28	7.112	.48	12.192	.68	17.272	.88	22.352
09	2.286	.29	7.366	.49	12.446	.69	17.526	.89	22.606
10	2.540	.30	7.620	.50	12.700	.70	17.780	.90	22.860
11	2.794	.31	7.874	.51	12.954	.71	18.034	.91	23.114
12	3.048	.32	8.128	.52	13.208	.72	18.288	.92	23.368
13	3.302	.33	8.382	.53	13.462	.73	18.542	.93	23.622
14	3.556	.34	8.636	.54	13.716	.74	18.796	.94	23.876
15	3.810	.35	8.890	.55	13.970	.75	19.050	.95	24.130
16	4.064	.36	9.144	.56	14.224	.76	19.304	.96	24.384
17	4.318	.37	9.398	.57	14.478	.77	19.558	.97	24.638
18	4.572	.38	9.652	.58	14.732	.78	19.812	.98	24.892
19	4.826	.39	9.906	.59	14.986	.79	20.066	.99	25.146
20	5.080	.40	10.160	.60	15.240	.80	20.320	1.00	25.400

mm to inch

mm	in	mm	in	mm	in	mm	in	mm	in
01	0.0039	21	0.0827	41	0.1614	.61	0.2402	.81	0.3189
02	0.0079	22	0.0866	42	0.1654	.62	0.2441	.82	0.3228
03	0.0118	23	0.0906	43	0.1693	.63	0.2480	.83	0.3268
04	0.0157	24	0.0945	44	0.1732	.64	0.2520	.84	0.3307
05	0.0197	25	0.0984	45	0.1772	.65	0.2559	.85	0.3346
06	0.0236	26	0.1024	46	0.1811	.66	0.2598	.86	0.3386
07	0.0276	27	0.1063	47	0.1850	.67	0.2638	.87	0.3425
08	0.0315	28	0.1102	48	0.1890	.68	0.2677	.88	0.3465
09	0.0354	29	0.1142	49	0.1929	.69	0.2717	.89	0.3504
10	0.0394	30	0.1181	50	0.1969	.70	0.2756	.90	0.3543
11	0.0433	31	0.1220	51	0.2008	.71	0.2795	.91	0.3583
12	0.0472	32	0.1260	52	0.2047	.72	0.2835	.92	0.3622
13	0.0512	33	0.1299	53	0.2087	.73	0.2874	.93	0.3661
14	0.0551	34	0.1339	54	0.2126	.74	0.2913	.94	0.3701
15	0.0591	35	0.1378	55	0.2165	.75	0.2953	.95	0.3740
16	0.0630	36	0.1417	56	0.2205	.76	0.2992	.96	0.3780
17	0.0669	37	0.1457	57	0.2244	.77	0.3032	.97	0.3819
18	0.0709	38	0.1496	58	0.2283	.78	0.3071	.98	0.3858
19	0.0748	39	0.1535	59	0.2323	.79	0.3110	.99	0.3898
20	0.0787	40	0.1575	60	0.2362	.80	0.3150	1.00	0.3937

fraction to decimal Inch to mm

Frac	Inches	Dec	mm	Frac	Inches	Dec	mm
1/64		0.15625	.3969	33/64		0.515625	13.0969
1/32		0.31250	.7938	17/32		0.531250	13.4938
3/64		0.46875	1.1906	35/64		0.546875	13.8906
1/16		0.62500	1.5875	9/16		0.562500	14.2875
5/64		0.78125	1.9844	37/64		0.578125	14.6844
3/32		0.93750	2.3812	19/32		0.593750	15.0812
7/64		1.09375	2.7781	39/64		0.609375	15.4781
1/8		1.25000	3.1750	5/8		0.625000	15.8750
9/64		1.40625	3.5719	41/64		0.640625	16.2719
5/32		1.56250	3.9688	21/32		0.656250	16.6688
11/64		1.71875	4.3656	43/64		0.671875	17.0656
3/16		1.87500	4.7625	11/16		0.687500	17.4625
13/64		2.03125	5.1594	45/64		0.703125	17.8594
7/32		2.18750	5.5562	23/32		0.718750	18.2562
15/64		2.34375	5.9531	47/64		0.734375	18.6531
1/4		2.50000	6.3500	3/4		0.750000	19.0500
17/64		2.65625	6.7469	49/64		0.765625	19.4469
9/32		2.81250	7.1438	25/32		0.781250	19.8437
19/64		2.96875	7.5406	51/64		0.796875	20.2406
5/16		3.12500	7.9375	13/16		0.812500	20.6375
21/64		3.28125	8.3344	53/64		0.828125	21.0344
11/32		3.43750	8.7312	27/32		0.843750	21.4312
23/64		3.59375	9.1281	55/64		0.859375	21.8281
3/8		3.75000	9.5250	7/8		0.875000	22.2250
25/64		3.90625	9.9219	57/64		0.890625	22.6219
13/32		4.06250	10.3188	29/32		0.906250	23.0188
27/64		4.21875	10.7156	59/64		0.921875	23.4156
7/16		4.37500	11.1125	15/16		0.937500	23.8125
29/64		4.53125	11.5094	61/64		0.953125	24.2094
15/32		4.68750	11.9062	31/32		0.968750	24.6062
31/64		4.84375	12.3031	63/64		0.984375	25.0031
1/2		5.00000	12.7000	1		1.000000	25.4000

1	.03937	21	82677	41	1.61417	61	2.40157	81	3.18897
2	.07874	22	86614	42	1.65354	62	2.44094	82	3.22834
3	.11811	23	90551	43	1.69291	63	2.48031	83	3.26771
4	.15748	24	94488	44	1.73228	64	2.51968	84	3.30708
5	.19685	25	98425	45	1.77165	65	2.55905	85	3.34645
6	.23622	26	1.02362	46	1.81102	66	2.59842	86	3.38582
7	.27559	27	1.06299	47	1.85039	67	2.63779	87	3.42519
8	.31496	28	1.10236	48	1.88976	68	2.67716	88	3.46456
9	.35433	29	1.14173	49	1.92913	69	2.71653	89	3.50393
10	.39370	30	1.18110	50	1.96850	70	2.75590	90	3.54330
11	.43307	31	1.22047	51	2.00787	71	2.79527	91	3.58267
12	.47244	32	1.25984	52	2.04724	72	2.83464	92	3.62204
13	.51181	33	1.29921	53	2.08661	73	2.87401	93	3.66141
14	.55118	34	1.33858	54	2.12598	74	2.91338	94	3.70078
15	.59055	35	1.37795	55	2.16535	75	2.95275	95	3.74015
16	.62992	36	1.41732	56	2.20472	76	2.99212	96	3.77952
17	.66929	37	1.45669	57	2.24409	77	3.03149	97	3.81889
18	.70866	38	1.49606	58	2.28346	78	3.07086	98	3.85826
19	.74803	39	1.53543	59	2.32283	79	3.11023	99	3.89763
20	.78740	40	1.57480	60	2.36220	80	3.14960	100	3.93700

SEE I.S. NOTES