

HONDA

SERVICE MANUAL



86-89

TRX 250R

FOURTRAX®

250R

HOW TO USE THIS MANUAL

Sections 1 and 2 apply to the whole FOURTRAX, while sections 3 through 15 describe parts of the FOURTRAX, grouped according to location.

Find the section you want on this page, then turn to the table of contents on page 1 of that section.

Most sections start with an assembly or system illustration, general instructions, specifications, torque values, tools and troubleshooting for the section. The subsequent pages give detailed procedures.

If you don't know the source of a problem, see section 16, TROUBLESHOOTING.

All information, illustrations, directions and specifications included in this publication are based on the latest product information available at the time of approval for printing.

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CONTENTS

	GENERAL INFORMATION	1
	MAINTENANCE	2
ENGINE	FUEL SYSTEM	3
	ENGINE REMOVAL/INSTALLATION	4
	CYLINDER HEAD/CYLINDER/PISTON	5
	ALTERNATOR	6
	CLUTCH/BALANCER/GEARSHIFT LINKAGE/ KICK STARTER	7
	TRANSMISSION/CRANKSHAFT	8
	COOLING SYSTEM	9
	CHASSIS	FRONT WHEEL/SUSPENSION/STEERING
REAR WHEEL/DRIVE MECHANISM		11
REAR SUSPENSION		12
HYDRAULIC DISC BRAKES		13
FENDERS/EXHAUST SYSTEM		14
ELECTRICAL SYSTEM		15
TROUBLESHOOTING		16
INDEX	17	

1. GENERAL INFORMATION

GENERAL SAFETY	1-1	TORQUE VALUES	1-5
SERVICE RULES	1-1	TOOLS	1-7
MODEL IDENTIFICATION	1-2	CABLE & HARNESS ROUTING	1-9
SPECIFICATIONS	1-3	OPTIONAL PARTS LIST	1-15

GENERAL SAFETY

⚠ WARNING

If the engine must be running to do some work, make sure the area is well-ventilated. Never run the engine in a closed area. The exhaust contains poisonous carbon monoxide gas that can cause loss of consciousness and may lead to death.

CAUTION

Used engine oil may cause skin cancer if repeatedly left in contact with the skin for prolonged periods. Although this is unlikely unless you handle used oil on a daily basis, it is still advisable to thoroughly wash your hands with soap and water as soon as possible after handling used oil.

⚠ WARNING

Gasoline is extremely flammable and is explosive under certain conditions. Do not smoke or allow flames or sparks in your working area or where gasoline is stored.

⚠ WARNING

Inhaled asbestos fibers have been found to cause respiratory disease and cancer. Never use an air hose or dry brush to clean brake or clutch assemblies. In the United States, Use an OSHA-approved vacuum cleaner or alternate method approved by OSHA designed to minimize the hazard caused by airborne asbestos fibers.

SERVICE RULES

1. Use genuine HONDA or HONDA-recommended parts and lubricants or their equivalent. Parts that do not meet HONDA's design specifications may damage the Fourtrax.
2. Use the special tools designed for this product to avoid damage and incorrect assembly.
3. Install new gaskets, O-rings, cotter pins, lock plates, etc. when reassembling.
4. When torquing a series of bolts or nuts, begin with larger-diameter or inner bolts first, and tighten to the specified torque diagonally, in incremental steps, unless a particular sequence is specified.
5. Clean parts in non-flammable or high flash point solvent upon disassembly. Lubricate any sliding surfaces before re-assembly.
6. When installing a new oil seal, make sure that the sealing lip is lubricated with grease. If an oil seal and related parts have been washed, apply proper grease to the lip of the oil seal.
7. After reassembly, check all parts for proper installation and operation.
8. Use only metric tools when servicing this Fourtrax. Metric bolts, nuts, and screws are not interchangeable with English fasteners. The use of incorrect tools and fasteners may damage the Fourtrax.
9. Route all electrical wires and control cables as shown on page 1-9 through 1-14 Cable and Harness Routing.

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MODEL IDENTIFICATION

'86 shown: '87 similar

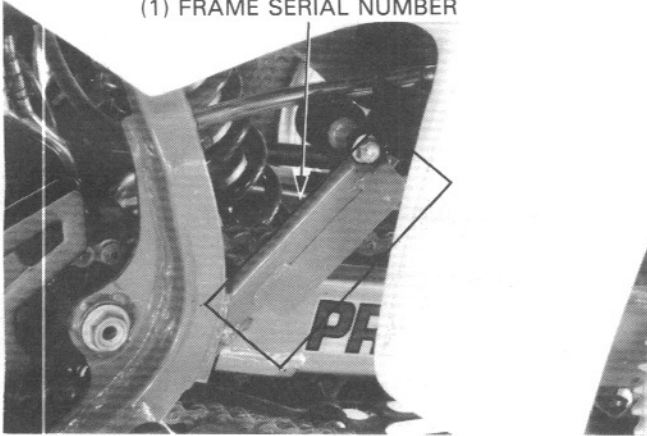


After '87:



'86, '87:

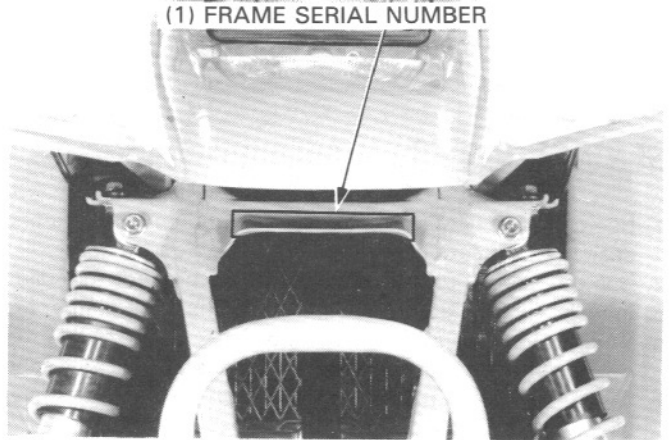
(1) FRAME SERIAL NUMBER



The frame serial number is stamped on the frame left side.

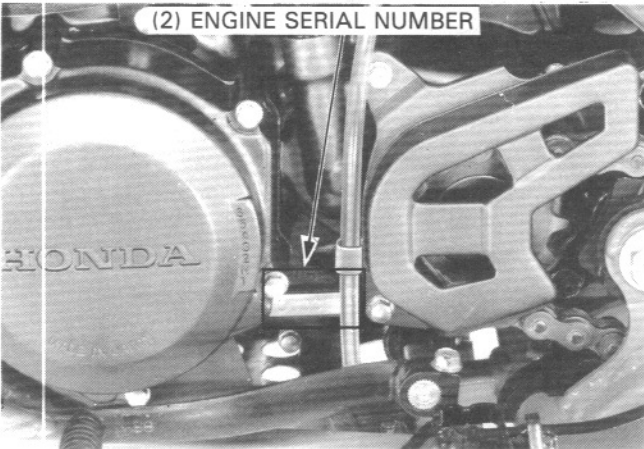
After '87:

(1) FRAME SERIAL NUMBER



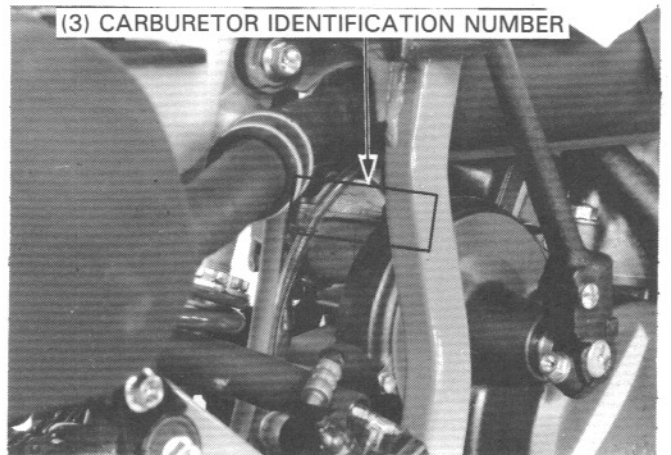
The frame serial number is stamped on the frame front side.

(2) ENGINE SERIAL NUMBER



The engine serial number is stamped on the crankcase lower left side.

(3) CARBURETOR IDENTIFICATION NUMBER



The carburetor identification number is stamped on the carburetor body right side.

SPECIFICATIONS

DIMENSIONS	Overall length	'86, '87:	1,825 mm (71.9 in)	
		After '87:	1,840 mm (72.4 in)	
	Overall width	'86, '87:	1,130 mm (44.5 in)	
		After '87:	1,160 mm (45.7 in)	
	Overall height	'86, '87:	1,070 mm (42.1 in)	
		After '87:	1,080 mm (42.5 in)	
	Wheelbase	'86, '87:	1,295 mm (51.0 in)	
		After '87:	1,265 mm (49.8 in)	
	Seat height	'86, '87:	775 mm (30.5 in)	
		After '87:	790 mm (31.1 in)	
	Foot peg height	'86, '87:	330 mm (13.0 in)	
		After '87:	340 mm (13.4 in)	
	Ground clearance		110 mm (4.3 in)	
	Dry weight	Front	'86, '87:	75 kg (165.3 lb)
		After '87:	73 kg (160.9 lb)	
	Rear		74 kg (163.1 lb)	
Weight distribution	Front	'86, '87:	106 kg (233.7 lb)	
		After '87:	101 kg (222.7 lb)	
	Rear	'86, '87:	131 kg (288.8 lb)	
		After '87:	133 kg (293.2 lb)	
FRAME	Type		Cradle	
	Front suspension, travel		Double wish-bone, 200 mm (7.9 in)	
	Rear suspension, travel		Swingarm, Pro-link, 230 mm (9.1 in)	
	Rim size	Front		10 x 5.5
		Rear		9 x 8.0 AT
	Tire size	Front	'86, '87:	21 x 7.00-10
			After '87:	AT22 x 7.00-10 ☆ ☆
		Rear	'86, '87:	20 x 10.00-9
			After '87:	AT20 X 10.00-9 ☆
	Tire pressure	Front		4.0 psi (0.275 kg/cm ² , 27.5 kPa)
		Rear	'86, '87:	2.9 psi (0.2 kg/cm ² , 20 kPa)
			After '87:	3.3 psi (0.225 kg/cm ² , 22.5 kPa)
	Front brake, lining swept area			Single disc (twin piston), 392.9 cm ² (60.9 sq-in) x 2
	Rear brake, lining swept area			Single disc (twin piston), 259.8 cm ² (40.3 sq-in)
	Fuel capacity			10.0 ℓ (2.64 U.S. gal., 2.20 Imp. gal.)
	Fuel reserve capacity			2.0 ℓ (0.53 U.S. gal., 0.44 Imp. gal.)
	Toe-in			10 mm (0.4 in)
	Caster angle		'86, '87:	6°
			After '87:	4°40'
Camber			0°	
Trail length		'86, '87:	27 mm (1.06 in)	
		After '87:	21 mm (0.83 in)	
Tread	Front		910 mm (35.8 in)	
	Rear	'86, '87:	870 mm (34.3 in)	
		After '87:	900 mm (35.4 in)	
ENGINE	Type		Liquid cooled 2-stroke	
	Cylinder arrangement		7° inclined from vertical, single	
	Engine dry weight		26.0 kg (57.3 lb)	
	Bore x stroke		66.0 x 72.0 mm (2.60 x 2.83 in)	
	Displacement		246 cm ³ (15.01 cu-in)	
	Compression ratio		'86:	7.5 : 1
			After '86:	7.7 : 1
	Transmission oil capacity			0.7 ℓ (0.74 U.S. qt., 0.62 Imp. qt.) at disassembly
				0.6 ℓ (0.63 U.S. qt., 0.53 Imp. qt.) after draining
	Lubrication system			Gasoline/oil mixture
	Fuel required			Gasoline-oil ratio 20 : 1 (pre-mixed) (RON, 92-100)
Air filtration			Oiled polyurethane foam	
Idle speed			1,500 ± 150 rpm	

GENERAL INFORMATION

<p>CARBURETOR</p>	<p>Type Identification number '86: '87: '88: After '88: Main Jet '86: '87: '88: After '88: Venturi diameter Slow jet '86, '87: '88: After '88: Float level Air screw initial opening '86, 87: '88: After '88: Jet needle '86, After 88: '87, '88:</p>	<p>Piston valve PJ 05A PJ 07A PJ07B PJ07C # 150 # 152 # 158 # 155 34 mm (1.3 in) # 48 # 45 # 42 16 mm (0.63 in) 1-7/8 turns out 1-3/4 turns out 1-1/2 turns out 4th groove 3rd groove</p>
<p>DRIVE TRAIN</p>	<p>Clutch Transmission Primary reduction ratio Gear ratios I II III IV V '86: After '86: VI '86: After '86: Final reduction ratio '86, '87: After '87: Gearshift pattern</p>	<p>Wet multi-plate type 6-speed, constant mesh 2.652 (61/23) 2.570 (36/14) 2.062 (33/16) 1.667 (30/18) 1.333 (28/21) 1.083 (26/24) 1.087 (25/23) 0.884 (23/26) 0.920 (23/25) 3.000 (39/13) 2.923 (38/13) Left foot operated return system, 1-N-2-3-4-5-6</p>
<p>ELECTRICAL</p>	<p>Ignition system Ignition timing "F" mark '86, '87: After '87: Starting system Alternator '86-'88: After '88: Spark plug '86, After '88: (STD) '87, '88: (STD) Spark plug Taillight '86: After '86: Headlight</p>	<p>CDI 19° BTDC/1,500±150 rpm 21° BTDC/1,500±150 rpm Primary kick starter 0.159 kW/5,000 rpm 0.154 kW/5,000 rpm BR8ES (NGK) RN3C (CHAMPION) BR9ES (NGK) RN2C (CHAMPION) 0.7-0.8 mm (0.028-0.031 in) 12 V-8 W 12 V-5 W 12 V-55/60 W</p>

TORQUE VALUES

ENGINE

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kg·m, ft·lb)	REMARKS
Cylinder head nut	6	8	24-29 (2.4-2.9, 17-21)	
Cylinder base nut	4	10	38-48 (3.8-4.8, 27-35)	
Clutch center lock nut	1	18	55-65 (5.5-6.5, 40-47)	
Primary drive gear bolt	1	10	40-50 (4.0-5.0, 29-36)	
Shift drum center pin	1	8	20-24 (2.0-2.4, 14-17)	
Transmission drain bolt	1	12	25-35 (2.5-3.5, 18-25)	
Countershaft bearing holder screw	2	6	8-12 (0.8-1.2, 6-9)	
Shift drum stopper arm bolt	1	6	10-14 (1.0-1.4, 7-10)	
Alternator rotor nut	1	12	65-75 (6.5-7.5, 47-54)	
Drive sprocket bolt	1	8	30-34 (3.0-3.4, 22-24)	
Water pump impeller nut '86-'88:	1	6	8-12 (0.8-1.2, 6-9)	
Water pump impeller After '88:	1	6	10-14 (1.0-1.4, 7-10)	
Spark plug	1	14	15-20 (1.5-2.0, 11-14)	
Coolant drain bolt	2	6	8-12 (0.8-1.2, 6-9)	

CHASSIS

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kg·m, ft·lb)	REMARKS
Gearshift pedal bolt	1	6	10-14 (1.0-1.4, 7-10)	
Kick starter pedal pinch bolt	1	8	20-35 (2.0-3.5, 14-25)	
Parking brake adjust bolt lock nut	1	8	15-20 (1.5-2.0, 11-14)	
Front wheel hub nut '86, '87:	2	18	80-120 (8.0-12.0, 58-72)	
After '87:	2	14	60-80 (6.0-8.0, 43-58)	
Tie-rod ball joint nut	4	10	40-50 (4.0-5.0, 29-36)	
Tie-rod lock nut	4	12	50-60 (5.0-6.0, 36-43)	
Front arm ball joint nut ('86, '87 only:)	2	14	60-80 (6.0-8.0, 43-58)	
Knuckle arm nut ('86, '87 only:)	4	10	60-70 (6.0-7.0, 43-51)	
Front arm nut	4	12	50-60 (5.0-6.0, 36-43)	
Front arm mounting bolt '86, After '87:	8	10	35-45 (3.5-4.5, 25-33)	
'87:	8	10	50-60 (5.0-6.0, 36-43)	
Front shock absorber mounting bolt	4	10	40-50 (4.0-5.0, 29-36)	
Steering shaft nut	1	14	60-80 (6.0-8.0, 43-58)	
Handlebar lower holder mounting nut	2	10	40-50 (4.0-5.0, 29-36)	
Steering shaft holder bolt	4	8	25-30 (2.5-3.0, 18-22)	
Rear axle outer lock nut	1	48	80-100 (8.0-10.0, 58-72)	left hand threads
Rear axle inner lock nut	1	48	120-140 (12.0-14.0, 87-101)	left hand threads
Rear wheel hub nut	2	20	120-170 (12.0-17.0, 87-123)	apply oil or grease to threads tapered nut
Front, rear wheel nut	16	10	60-70 (6.0-7.0, 43-51)	
Handlebar upper holder bolt	4	8	24-30 (2.4-3.0, 17-22)	

GENERAL INFORMATION

ITEM	Q'TY (After '87)	THREAD DIA. (mm)	TORQUE N·m (kg·m, ft·lb)	REMARKS
Front disc socket bolt	8(6)	6	14-16 (1.4-1.6, 10-12)	
Front brake caliper mounting bolt	4	8	20-30 (2.0-3.0, 14-22)	
Brake hose oil bolt	5	10	25-35 (2.5-3.5, 18-25)	
Bleed valve	3	7	4-7 (0.4-0.7, 3-5)	
Rear disc socket bolt	4	8	35-40 (3.5-4.0, 25-29)	
Pad pin bolt	4	8	15-20 (1.5-2.0, 10-14)	
Pad pin bolt plug	4	8	10-20 (1.0-2.0, 7-14)	
Rear caliper bracket mounting bolt	2	8	28-34 (2.8-3.4, 20-25)	
Rear caliper mounting bolt	1	8	20-25 (2.0-2.5, 14-18)	
Front brake pipe nut	2	10	15-20 (1.5-2.0, 11-14)	
Brake hose joint				
(hose side) ('86, '87 only:)	2	10	12-15 (1.2-1.5, 9-11)	
(joint side) ('86, '87 only:)	2	10	30-40 (3.0-4.0, 22-29)	
Three-way joint mounting bolt	2 (1)	6	10-14 (1.0-1.4, 7-10 ft-lb)	
Front master cylinder holder	2	6	10-14 (1.0-1.4, 7-10 ft-lb)	
Master cylinder cover screw	4	4	1-2 (0.1-0.2, 0.7-1.4)	
Parking brake attaching bolt	2	8	20-25 (2.0-2.5, 14-18)	
Shock absorber hose oil bolt	2	10	28-32 (2.8-3.2, 20-23)	
Compression damping valve	1	—	15-20 (1.5-2.0, 11-14)	
Rear shock absorber mounting bolt				
(upper)	1	10	45-55 (4.5-5.5, 33-40)	
(lower)	1	12	70-80 (7.0-8.0, 51-58)	
Shock arm pivot bolt	1	12	70-80 (7.0-8.0, 51-58)	
Shock link pivot bolt	1	12	70-80 (7.0-8.0, 51-58)	
Swingarm pivot nut	1	14	70-110 (7.0-11.0, 51-80)	
Swingarm bearing holder socket bolt	2 (4)	8	19-23 (1.9-2.3, 14-17)	Apply oil or grease to threads
Driven sprocket bolt	4	10	47-55 (4.7-5.5, 34-40)	Apply locking agent to threads
Engine hanger plate and pipe bolt	8	8	25-35 (2.5-3.5, 18-25)	
Engine mounting bolt	5 (4)	10	50-60 (5.0-6.0, 36-43)	
Foot peg mounting bolt				
('86, '87 only:)	4	10	50-60 (5.0-6.0, 36-43)	
Shock absorber spring lock nut	1	—	80-100 (8.0-10.0, 58-72)	
Skid plate	4	8	28-34 (2.8-3.4, 20-25)	
Radiator hose band	6	—	0.7-1.0 (0.07-0.1, 0.5-0.7)	
Rear brake torque bolt (After '87:)	1	12	50-60 (5.0-6.0, 36-43)	Apply locking agent

Torque specifications listed above are for important fasteners. Others should be tightened to standard torque values listed below.

STANDARD TORQUE VALUES

ITEM	TORQUE N·m (kg·m, ft·lb)	ITEM	TORQUE N·m (kg·m, ft·lb)
5 mm bolt and nut	4.5-6 (0.45-0.6, 3-4)	5 mm screw	3.5-5 (0.35-0.5, 2-4)
6 mm bolt and nut	8-12 (0.8-1.2, 6-9)	6 mm screw and 6mm bolt with 8 mm head	7-11 (0.7-1.1, 5-8)
3 mm bolt and nut	18-25 (1.8-2.5, 13-18)	6 mm flange bolt and nut	10-14 (1.0-1.4, 7-10)
10 mm bolt and nut	30-40 (3.0-4.0, 22-29)	8 mm flange bolt and nut	24-30 (2.4-3.0, 17-22)
12 mm bolt and nut	50-60 (5.0-6.0, 36-43)	10 mm flange bolt and nut	35-45 (3.5-4.5, 25-33)



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TOOLS

SPECIAL

DESCRIPTION	TOOL NUMBER	ALTERNATE TOOL	TOOL NUMBER	REF. SECT.
Camber/caster gauge attachment	07910—MJ30100	Not available in U.S.A.		3
Crankcase puller	07973—4300000			8
Bearing remover, 17mm	07936—3710300			6, 8
Remover handle	07936—3710100			6, 8
Remover weight	07741—0010201	Remover weight	07936—3710200	6, 8
Assembly bolt	07965—1660200			8
Thread adapter	07965—KA30000			8
Driveshaft dis/assembly tool (B)	07964—MB00200			8
Mechanical seal driver attachment	07945—4150400	Mechanical seal installer	GH—AH—065—415 (U.S.A. only)	9
Attachment, 28 x 30 mm	07946—1870100			9 12 (After '87:)
Bearing remover set, 12 mm	07936—1660001	Not available in U.S.A.		9
— Remover weight	07741—0010201	Remover weight	07936—3710200	9
— Bearing spindle assy, 12 mm	07936—1660100			9
Universal bead breaker	GN—AH—958—BB1	(U.S.A only)		10
Ball joint remover	07941—6920003			10
Shock absorber compressor attachment	07959—MB10000			10
Shock absorber compressor attachment	07967—KC10100	Not available in U.S.A.		10
Lock nut wrench, 56mm	07916—HA20000	Lock nut wrench, 56 mm	07916—HA2010A (U.S.A. only)	11
Lock nut wrench, 45 mm	07916—1870101	Equivalent commercially available in U.S.A.		11
Valve wrench	07920—KA30001	Not available in U.S.A.		12
Needle bearing remover	07946—KA50000			12
Snap ring pliers	07914—3230001			13
Circuit tester (SANWA)	07308—0020000	Circuit tester (KOWA)	TH—5H	15
Digital multimeter	07411—0020000	Digital multimeter	KS—AHM—32—002 (U.S.A. only)	15
Spherical bearing driver	07HMF—HC00100			10
Bearing remover (After '87:)	07931—MA70000			12

GENERAL INFORMATION

COMMON

DESCRIPTION	TOOL NUMBER	ALTERNATE TOOL	TOOL NUMBER	REF. SECT.
Float level gauge	07401-0010000			3
Rotor puller	07733-0010000	Rotor puller	07933-0010000	6
Universal holder	07725-0030000			6
Clutch center holder	07724-0050001	Equivalent commercially available in U.S.A.		7
Gear holder	07724-0010100	Not available in U.S.A.		7
Driver	07749-0010000			6,8,9,10,11,12
Attachment, 37 x 40 mm	07746-0010200			6,8,10
Pilot, 17 mm	07746-0040400			6,10
Attachment, 62 x 68 mm	07746-0010500			8,11
Pilot, 28 mm	07746-0041100			8
Attachment, 52 x 55 mm	07746-0010400			8
Pilot, 25 mm	07746-0040600			8
Pilot, 22 mm	07746-0041000			8
Pilot, 12 mm	07746-0040200			9
Bearing remover shaft	07746-0050100	Equivalent commercially available in U.S.A.		10
Bearing remover head, 20 mm	07746-0050600			10
Attachment, 42 x 47 mm	07746-0010300			12 (After '87)
Pilot, 20 mm	07746-0040500			10
Bearing remover shaft (After '87:)	07GGD-0010100			12 (After '87)
Tire bead breaker set	07772-0050001	Not available in U.S.A.		12
-Ereker arm	07772-0050200			
-Breaker arm compressor	07772-0050101			
Shock absorber compressor	07959-3290001	Shock absorber compressor	07GME-0010000	10
		-Compressor screw assembly	07GME-0010100	10
Pilot, 40 mm	07746-0040900			11
Attachment, 32 x 35 mm (After '87:)	07746-0010100			10
Pilct, 15 mm (After '87:)	07746-0040300			10

OPTIONAL TOOLS

DESCRIPTION	TOOL NUMBER	ALTERNATE TOOL	TOOL NUMBER	REF. SECT.
Pin spanner	89201-KA4-810			12
Pin spanner	89202-KA4-810			12

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