# HONDA CX500

## HOW TO USE THIS MANUAL

This shop manual covers emission controlled CX500's manufactured after December 31, 1977. Some procedures may not apply to earlier units.

This shop manual uses the 1978 CX500 as the basis for all service procedures and data. The manual is kept up-to-date with subsequent addendums beginning with section 21.

Follow the applicable Maintenance Schedule recommendations to ensure that the vehicle is in peak operating condition and the emission levels are within U.S. Environmental Protection Agency standards. Performing the first scheduled maintenance is very important. It compensates for the initial wear that occurs during break-in.

Sections 1 through 3 apply to the whole motorcycle, while sections 4 through 18 describe parts of the motorcycle, 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 and all the required specifications, torque values, working practices, tools and materials required for the section. The subsequent pages give detailed procedures for the section.

If you are not familiar with this motorcycle, read through the TECHNICAL FEATURES in section 19.

If you don't know the source of the trouble, go to section 20 TROUBLESHOOTING.



HONDA MOTOR CO., LTD.
Service Publications Office

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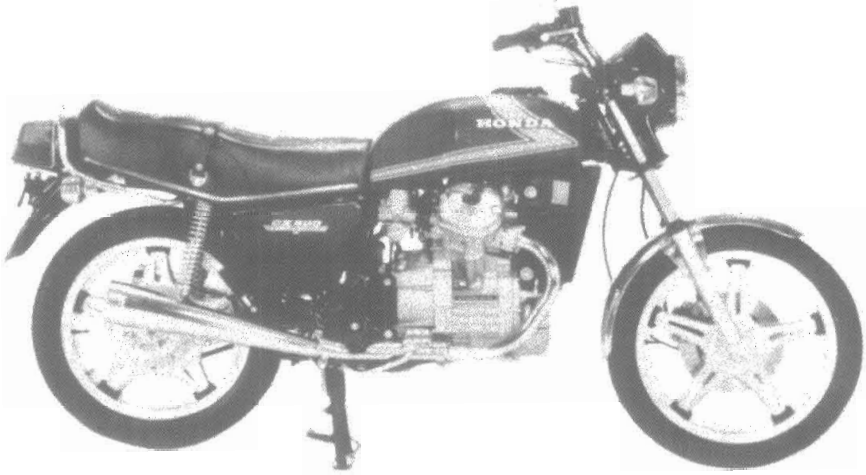
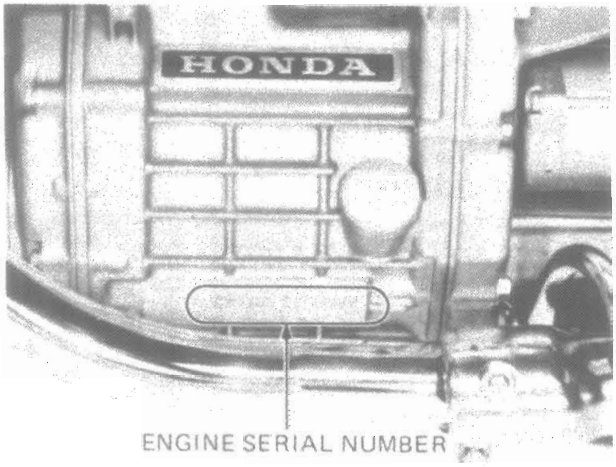
# MODEL IDENTIFICATION



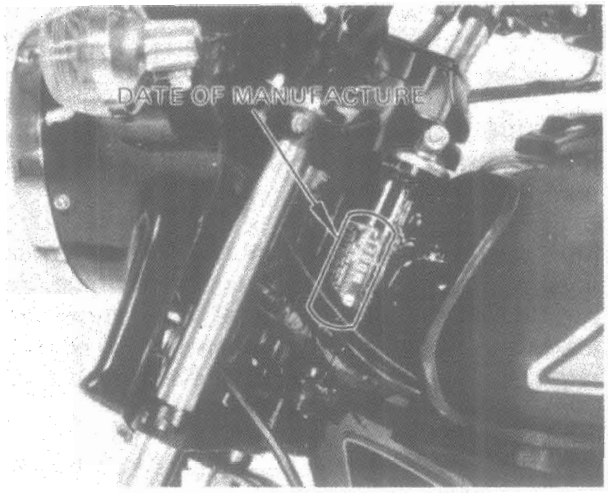
BEGINNING WITH F/N 2000001

The frame serial number is stamped on the right side of the steering head.

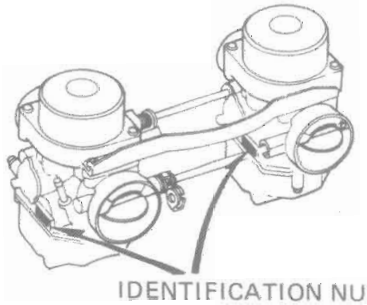

The engine serial number is stamped on the lower left side of the engine case.




The legal vehicle identification number is on the left side of the steering head.




The carburetor identification number is on the left side of the carburetor body.



IDENTIFICATION NUMBER

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# HONDA CX500 1. GENERAL INFORMATION



## 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.*

*WARNING*

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

*WARNING*

- *The battery electrolyte contains sulfuric acid. Protect your eyes, skin and clothing. In case of contact, flush thoroughly with water and call a doctor if your eyes were exposed.*

*WARNING*

- *The battery generates hydrogen gas which can be highly explosive. Do not smoke or allow flames or sparks near the battery, especially while charging it.*

## SERVICE RULES

1. Use geniune HONDA or HONDA-recommended parts and lubricants or their equivalent. Parts that do not meet HONDA's design specifications may damage the motorcycle.
2. Use the special tools designed for this product.
3. Install new gaskets, O-rings, cotter pins, lock plates, etc. when reassembling.
4. When torquing bolts or nuts, begin with larger-diameter or inner bolt first, and tighten to the specified torque diagonally, unless a particular sequence is specified.
5. Clean parts in cleaning solvent upon disassembly. Lubricate any sliding surfaces before reassembly.
6. After reassembly, check all parts for proper installation and operation.
7. Use only metric tools when servicing this motorcycle. Metric bolts, nuts, and screws are not interchangeable with English fasteners. The use of incorrect tools and fasteners may damage the motorcycle.

Date of Issue: January, 1978

# SPECIFICATIONS

| | Item | | Metric | English |
|---|---|---|---|---|
| DIMENSIONS | Overall length | | 2,185 mm | 86.0 in |
| | Overall width | | 865 mm | 34.1 in |
| | Overall height | | 1,175 mm | 46.3 in |
| | Wheel base | | 1,455 mm | 57.3 in |
| | Seat height | | 810 mm | 31.9 in |
| | Foot peg height | | 335 mm | 13.2 in |
| | Ground clearance | | 150 mm | 5.9 in |
| | Dry weight | | 200 kg | 441 lbs |
| FRAME | Type | | Diamond | |
| | F. suspension and travel | | Telescopic fork, 139.5 mm (5.5 in) | |
| | R. suspension and travel | | Swing arm, 85 mm (3.3 in) | |
| | F. tire size and air pressure | | 3.25S19-4PR 1.75 kg/cm² (24 psi) | |
| | R. tire size and air pressure | | 3.75S18-4PR 2.0/2.5 kg/cm² (28/36 psi) | |
| | F. brake | | Disc brake | |
| | R. brake | | Internal expanding shoes | |
| | Fuel capacity | | 17 lit. | 4.5 US gal 3.7 Imp gal |
| | Fuel reserve capacity | | 3.5 lit. | 0.9 US gal 0.8 Imp gal |
| | Caster angle | | 63° 30' | |
| | Trail length | | 100 mm | 3.9 in |
| | Front fork oil capacity | | 135 cc (to fill if dry) | 4.7 oz |
| ENGINE | Type | | Liquid cooled 4 stroke OHV engine | |
| | Cylinder arrangement | | 2 cylinder transverse V | |
| | Bore and stroke | | 78 x 52 mm | 3.071 x 2.047 in |
| | Displacement | | 496 cc | 30.3 cu. in |
| | Compression ratio | | 10:1 | |
| | Valve train | | Chain driven camshaft and push rod | |
| | Oil capacity | | 3.0 lit. | 3.2 US qt 2.6 Imp qt |
| | Lubrication system | | Forced pressure and wet sump | |
| | Cooling system capacity | | 2.0 lit. | 0.52 US gal |
| | Cylinder compression | | 12 kg/cm² | 171 psi |
| | Intake valve | Opens | 6° BTDC (at 1 mm lift), 75° BTDC (at 0 lift) | |
| | | Closes | 46° ABDC (at 1 mm lift), 115° ABDC (at 0 lift) | |
| | Exhaust valve | Opens | 46° BBDC (at 1 mm lift), 111° BBDC (at 0 lift) | |
| | | Closes | 6° ATDC (at 1 mm lift), 71° ATDC (at 0 lift) | |
| | Valve clearance | IN. | 0.08 mm | 0.003 in |
| | | EX. | 0.10 mm | 0.004 in |
| | Idle speed | | 1,100 ± 100 rpm | |
| CARBURETION | Carburetor type | | CV type, 35 mm (1.38 in) venturi bore | |
| | Setting number | | VB26A | |
| | Pilot screw initial setting | | See page 4–10 | |
| | Float level | | 15.5 mm | 0.61 in |


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| | Item | | Metric | English |
|---|---|---|---|---|
| DRIVE TRAIN | Clutch | | Wet, multi-plate | |
| | Transmission | | 5-speed, constant mesh | |
| | Primary reduction ratio | | 2.242 (74/33) | |
| | Gear ratio I | | 2.733 (41/15) | |
| | Gear ratio II | | 1.850 (37/20) | |
| | Gear ratio III | | 1.416 (34/24) | |
| | Gear ratio IV | | 1.148 (31/27) | |
| | Gear ratio V | | 0.931 (27/29) | |
| | Final reduction ratio | | 3.091 (34/11) | |
| | Gear shift pattern | | Left foot operated return system | |
| | Final gear oil capacity | | 170 ± 10 cc | 5.7 ± 0.3 US oz |
| ELECTRICAL | Ignition | | C.D.I. | |
| | Ignition advance | "F" mark | 15° BTDC | |
| | | Maximum advance | 37° ± 3° BTDC | |
| | | RPM from "F" to max. advance | 1,750 ~ 6,000 rpm | |
| | Starting system | | Starter motor | |
| | Alternator | | Three phase A.C.G. 12 V 0.17 kw/5,000 rpm | |
| | Battery capacity | | 12 V – 14 AH | |
| | Spark plug (STD) | USA model | ND X24ES-U NGK D8EA | |
| | | Canadian model | ND X24ESR-U NGK DR8ES-L | |
| | Spark plug gap | | 0.6 ~ 0.7 mm | 0.024 ~ 0.028 in. |
| LIGHTS | Headlight (low/high beam) | | 40/50 watt | |
| | Tail/stop light | | 8/27 watt 3/32 cp SAE No. 1157 | |
| | Turn signal light | Front | 23/23 watt 32/32 cp SAE No. FRONT 1034 REAR 1073 | |
| | | Rear | | |
| | Meter light | Speedometer | 3.4 watt 2 cp SAE No. 57 | |
| | | Tachometer | | |
| | Neutral indicator light | | 3.4 watt 2 cp SAE No. 57 | |
| | Turn signal indicator light | | 3.4 watt 2 cp SAE No. 57 | |
| | High beam indicator light | | 3.4 watt 2 cp SAE No. 57 | |
| | Oil pressure warning light | | 3.4 watt 2 cp SAE No. 57 | |
| | Parking light | | 8 watt 3 cp SAE No. 1034 | |

# TORQUE VALUES

<ENGINE>

| Item | Q'ty | Thread Dia. (mm) | Torque Values | |
|---|---|---|---|---|
| | | | kg-m | ft-lb |
| Crankshaft cap | 7 | 8 | 2.0 – 2.4 | 14 – 17 |
| Connecting rod cap | 4 | 8 | 2.8 – 3.2 | 20 – 23 |
| Cylinder head | 8 | 12 | 5.0 – 5.5 | 36 – 40 |
| Valve adjusting nut | 8 | 6 | 1.5 – 1.8 | 11 – 13 |
| Flywheel | 1 | 12 | 8.0 –10.0 | 58 – 72 |
| Clutch center | 1 | 20 | 8.0 –10.0 | 58 – 72 |
| Primary drive gear | 1 | 12 | 8.0 – 9.5 | 58 – 69 |
| Starting clutch outer | 3 | 8 | 1.8 – 2.5 | 13 – 18 |
| Cooling fan | 1 | 8 | 2.0 – 2.5 | 14 – 18 |
| Cam sprocket boss | 1 | 20 | 8.0 –10.0 | 58 – 72 |
| Cam sprocket | 2 | 7 | 1.6 – 2.0 | 12 – 14 |
| Change pedal | 1 | 6 | 1.0 – 1.4 | 7 – 10 |
| Radiator drain bolt | 1 | 12 | 0.15– 0.30 | 1.1– 2.2 |

<FRAME>

| Item | Q'ty | Thread Dia. (mm) | Torque Values | |
|---|---|---|---|---|
| | | | kg-m | ft-lb |
| Steering stem nut | 1 | 24 | 9.0 –12.0 | 65 – 87 |
| Handlebar top bridge | 2 | 7 | 0.9 – 1.3 | 7 – 9 |
| Handlebar lock | 2 | 6 | 1.0 – 1.4 | 7 – 10 |
| Handlebar holder | 4 | 8 | 2.5 – 3.0 | 18 – 22 |
| Front fork bottom bridge | 2 | 8 | 1.8 – 2.5 | 13 – 18 |
| Front and rear axles | 1 | 14 | 5.5 – 6.5 | 40 – 47 |
| Front axle holder | 4 | 8 | 1.8 – 2.5 | 13 – 18 |
| Engine hanger bolt | 4 | 10 | 3.5 – 4.5 | 25 – 33 |
| Engine hanger bolt | 1 | 12 | 6.0 – 7.0 | 43 – 51 |
| Final drive flange nut | 3 | 10 | 3.5 – 4.5 | 25 – 33 |
| Rear brake torque link | 1 | 8 | 1.5 – 2.3 | 11 – 17 |
| Rear shock absorber | 4 | 10 | 3.0 – 4.0 | 22 – 29 |
| Foot peg | 2 | 10 | 3.0 – 4.0 | 22 – 29 |
| Swing arm pivot nut | 1 | 23 | 8.0 –12.0 | 58 – 87 |
| Front brake disc | 5 | 8 | 2.7 – 3.3 | 20 – 24 |
| Gear case rear fork | 3 | 10 | 3.5 – 4.5 | 25 – 33 |
| Swing arm pivot bolt | 1 | 23 | 0.8 – 1.2 | 6 – 9 |
| Front caliper | 2 | 10 | 3.0 – 4.0 | 22 – 29 |

Torque specifications listed above are important tightening points. Others should be torqued to standard torques below.

• STANDARD TORQUE VALUES

| Item | Torque Values kg-m (ft-lb) | Item | Torque Values kg-m (ft-lb) |
|---|---|---|---|
| 5 mm bolt and nut | 0.45–0.6 ( 3– 4) | 5 mm screw | 0.35–0.5 ( 3– 4) |
| 6 mm bolt and nut | 0.8 –1.2 ( 6– 9) | 6 mm screw | 0.7 –1.1 ( 5– 8) |
| 8 mm bolt and nut | 1.8 –2.5 (13–18) | 6 mm flange bolt and nut | 1.0 –1.4 ( 7–10) |
| 10 mm bolt and nut | 3.0 –4.0 (22–29) | 8 mm flange bolt and nut | 2.0 –3.0 (14–21) |
| 12 mm bolt and nut | 5.0 –6.0 (36–43) | 10 mm flange bolt and nut | 3.0 –4.0 (22–29) |


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# SPECIAL TOOLS/COMMON TOOLS

## • SPECIAL TOOLS

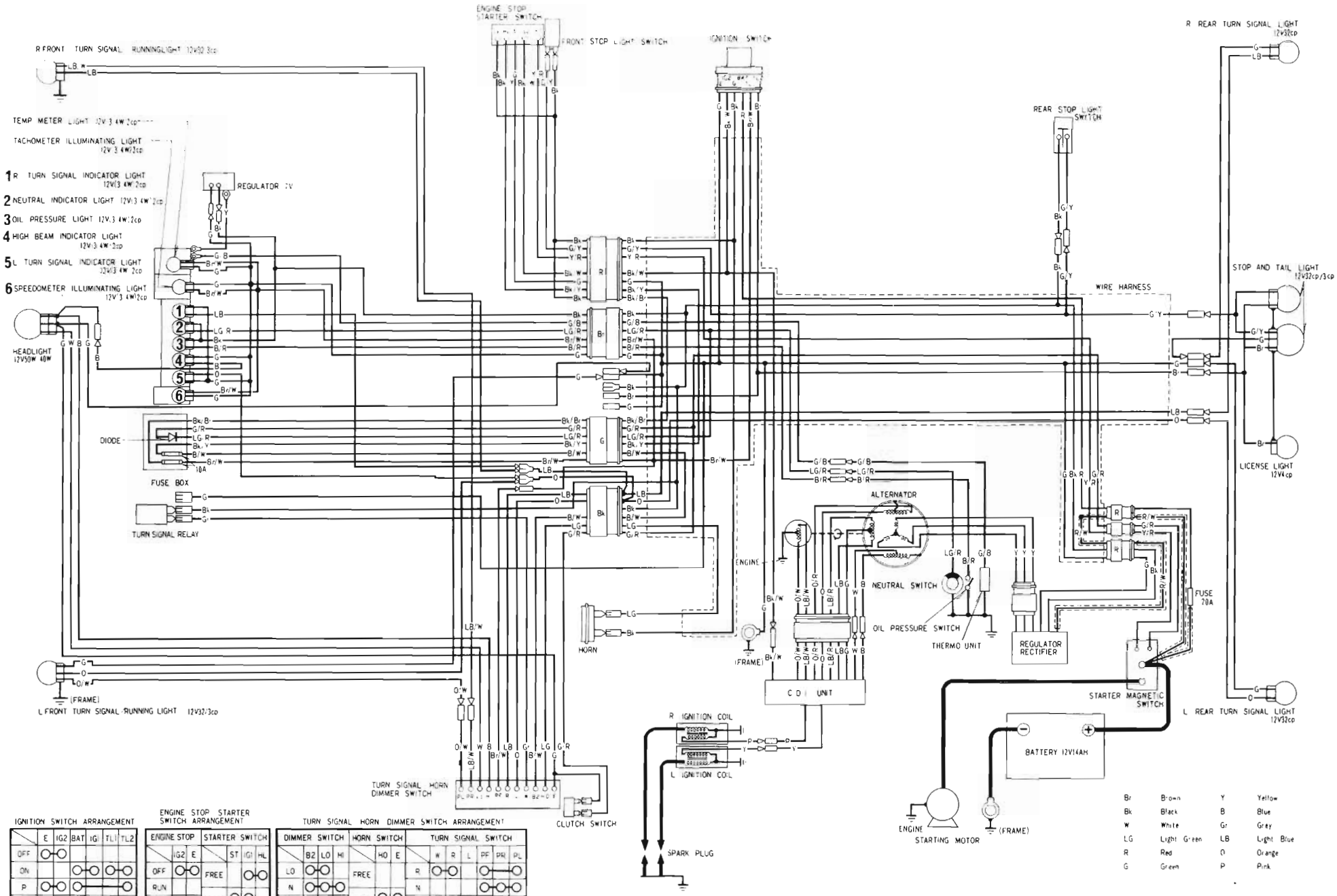
| Tool Name | Tool No. | Appropriation List (Common Tool – Special Tool) | |
|---|---|---|---|
| Torx driver bit | 07703-0010100 | Local purchase item T40 torx bit or socket | |
| Piston slider | 07755-0010000 | Local purchase item ratchet type | |
| * Socket wrench (27 x 17 mm) | 07907-4150000 | | |
| Final retainer wrench | 07910-3710100 | | |
| * Retainer B wrench | 07910-4150000 | | |
| Snap ring pliers | 07914-3230001 | | |
| Hollow set wrench (6 mm) | 07917-3230000 | Local purchase item | |
| Socket bit (10 mm) | 07917-3710000 | Local purchase item | |
| * Clutch center holder | 07923-4150000 | | |
| * Gear holder | 07924-4150000 | | |
| * Crank cap puller | 07935-4150000 | | |
| Bearing remover head (20 mm) | 07936-3710600 | | |
| (Bearing remover handle) | (07936-3710100) | | |
| (Bearing remover weight) | (07936-3710200) | | |
| Bearing remover head | 07936-3710600 | | |
| * Pivot bearing outer remover | 07936-4150000 | | |
| * Piston remover | 07941-4150000 | | |
| * Valve guide driver attachment | 07943-4150000 | | |
| Ball race driver (BOTTOM) | 07945-3330300 | | |
| * Crank cap driver | 07945-4150100 | | |
| * Mechanical seal driver attachment | 07945-4150200 | | |
| * Mechanical seal pilot | 07945-4150301 | | |
| Ball race driver (TOP) | 07946-3290000 | Ball race remover/installer | 07946-3710400 |
| Steering stem driver | 07946-3710600 | | |
| Ball race remover | 07953-3330000 | Ball race/cone driver | 07946-3710600 |
| * Ring gear Dis/Assembly tool set | 07965-4150000 | | |
| * (Ring gear center guide) | (07965-4150100) | | |
| * (Dis/Assembly tool A) | (07965-4150200) | | |
| (Dis/Assembly tool B) | (07965-3710200) | | |
| (Dis/Assembly tool C) | (07965-3710300) | | |
| * Main bearing Dis/Assembly tool | 07973-4150000 | | |
| Valve guide reamer (6.6 mm) | 07984-6110000 | | |
| * Preload inspection tool | 07998-4150000 | | |
| * Inspection plug | 07999-4150000 | | |
| Special tool case | 07797-2920300 | | |
| Vacuum gauge tester | 07404-0020000 | | |
| (Vacuum gauge attachment) | (07510-3000100) | | |
| ★ Tire lever set (for comstar wheel) | 07772-0020000 | | |
| (Tire lever) | (07772-0020100) | | |
| (Rim protector) | (07772-0020200) | | |

- The tools asterisked (*) are included in the "SPECIAL TOOL SET B 07900-4150101" and these are new for CX500.
- The tools starred (★) are designed for comstar wheels.

## • COMMON TOOLS

| Tool Name | Tool No. | Appropriation List (Common Tool – Special Tool) | |
|---|---|---|---|
| Float level gauge | 07401-0010000 | ← | |
| Pin spanner | 07702-0010000 | Pin spanner (46 mm) | 07902-2400000 |
| | | Tappet adjusting wrench set | 07908-3640000 |
| Tappet adjusting wrench (10 x 12 mm) | 07708-0030200 | (Tappet adjusting wrench (10 mm) | 07908-3640100) |
| Tappet adjusting (B) | 07708-0030400 | (Tappet adjusting (A) | 07908-3290100) |
| Retainer wrench B | 07710-0010200 | Retainer wrench | 07910-3230101 |
| Retainer wrench body | 07710-0010401 | | |
| Lock nut wrench socket (26 x 29 mm) | 07716-0020201 | * | |
| Lock nut wrench socket (30 x 32 mm) | 07716-0020400 | * Local purchase item | |
| Extension bar & handle | 07716-0020500 | * Local purchase item | |
| Flywheel & rotor puller | 07733-0010000 | Flywheel puller | 07933-0010000 |
| Rotor puller | 07733-0020000 | Rotor puller | 07933-2000000 |
| Valve guide remover (6.6 mm) | 07742-0010200 | Valve guide driver | 07942-6110000 |
| Pin driver (3.5 mm) | 07744-0010300 | Pin driver (3.5 mm) | 07944-6340100 |
| Bearing driver outer (42 x 47 mm) | 07746-0010300 | Bearing driver | 07945-3330100 |
| Bearing driver outer (52 x 55 mm) | 07746-0010400 | Bearing driver | 07946-3710200 |
| Bearing driver pilot (15 mm) | 07746-0040300 | * Not applicable to special tool | |
| Bearing driver pilot (20 mm) | 07746-0040500 | * Not applicable to special tool | |
| Bearing driver pilot (22 mm) | 07746-0041000 | * Not applicable to special tool | |
| Bearing driver pilot (25 mm) | 07746-0040600 | * Not applicable to special tool | |
| Bearing driver pilot (30 mm) | 07746-0040700 | * Not applicable to special tool | |
| Front fork oil seal driver body | 07747-0010100 | Fork seal driver | 07947-3330000 |
| Front fork oil seal attachment (D) | 07747-0010500 | Driver handle attachment | |
| Bearing driver handle (A) | 07749-0010000 | (Not to be used with common tools) | 07949-6110000 |
| Valve spring compressor | 07757-0010000 | Valve spring compressor | 07957-3290001 |
| Rear shock absorber compressor | 07759-3290001 | ← | |

- The tools asterisked (*) indicate those which are not found in special tools.
- See the "NEW MOTORCYCLE COMMON TOOL LIST" at the back of this manual.

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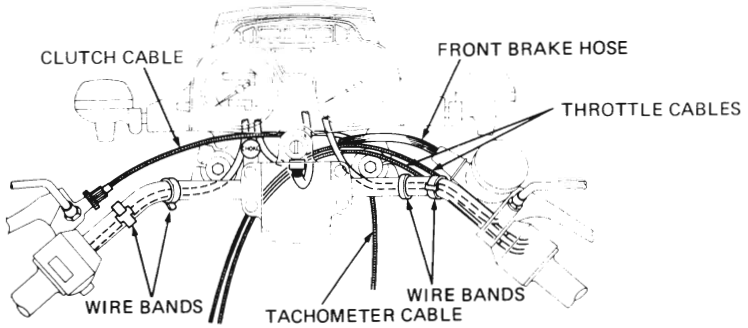
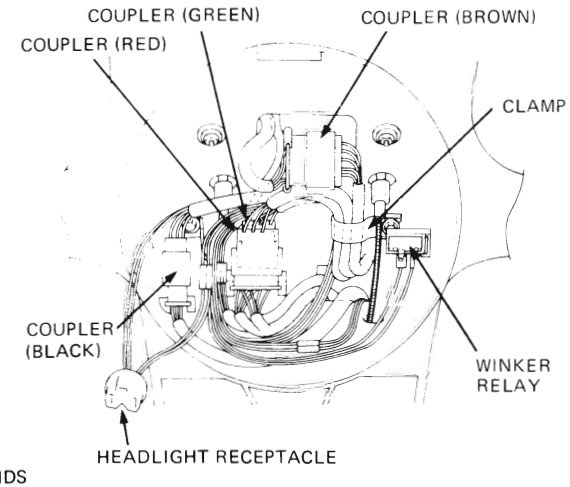
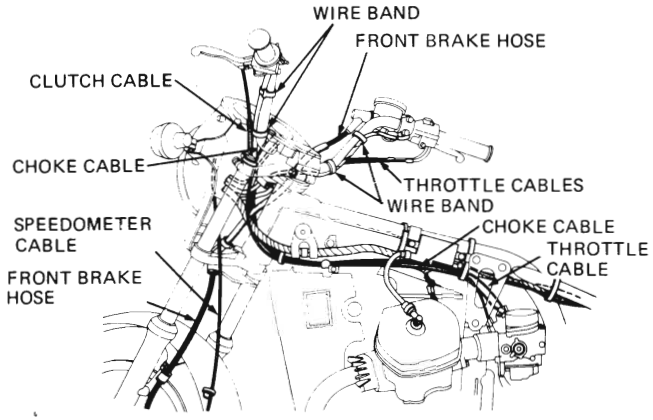
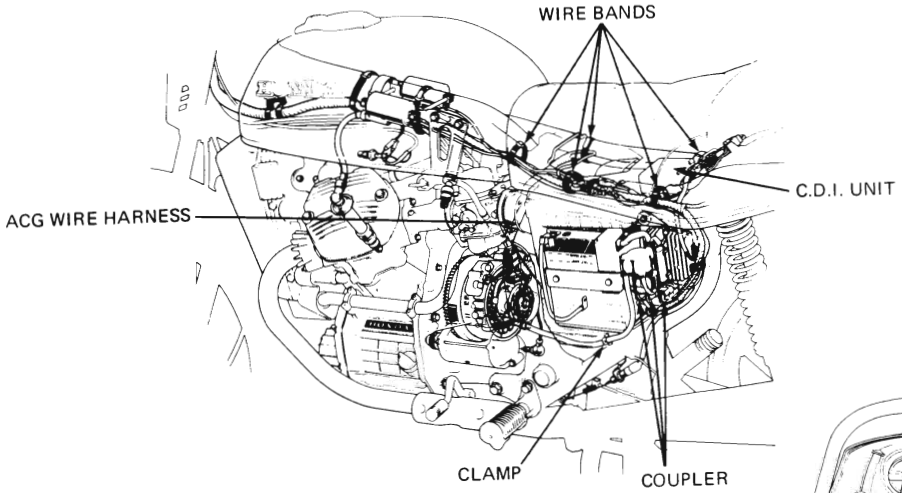
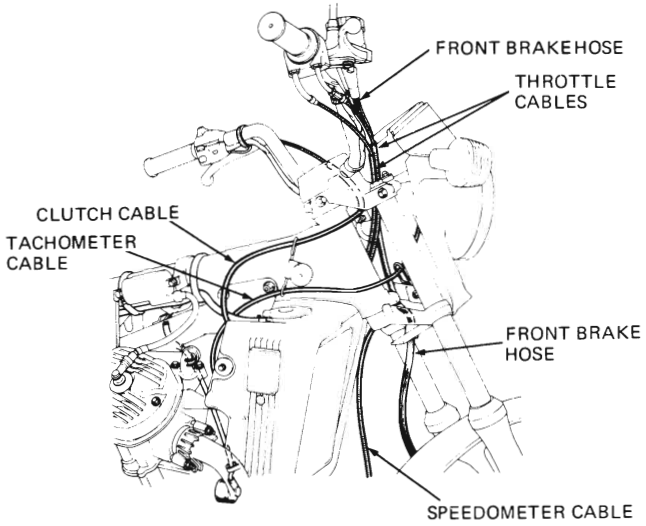
# CABLE & HARNESS ROUTING

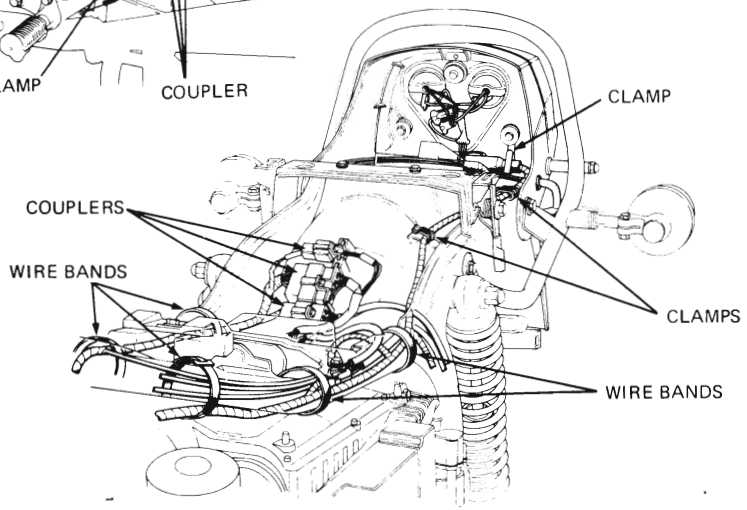


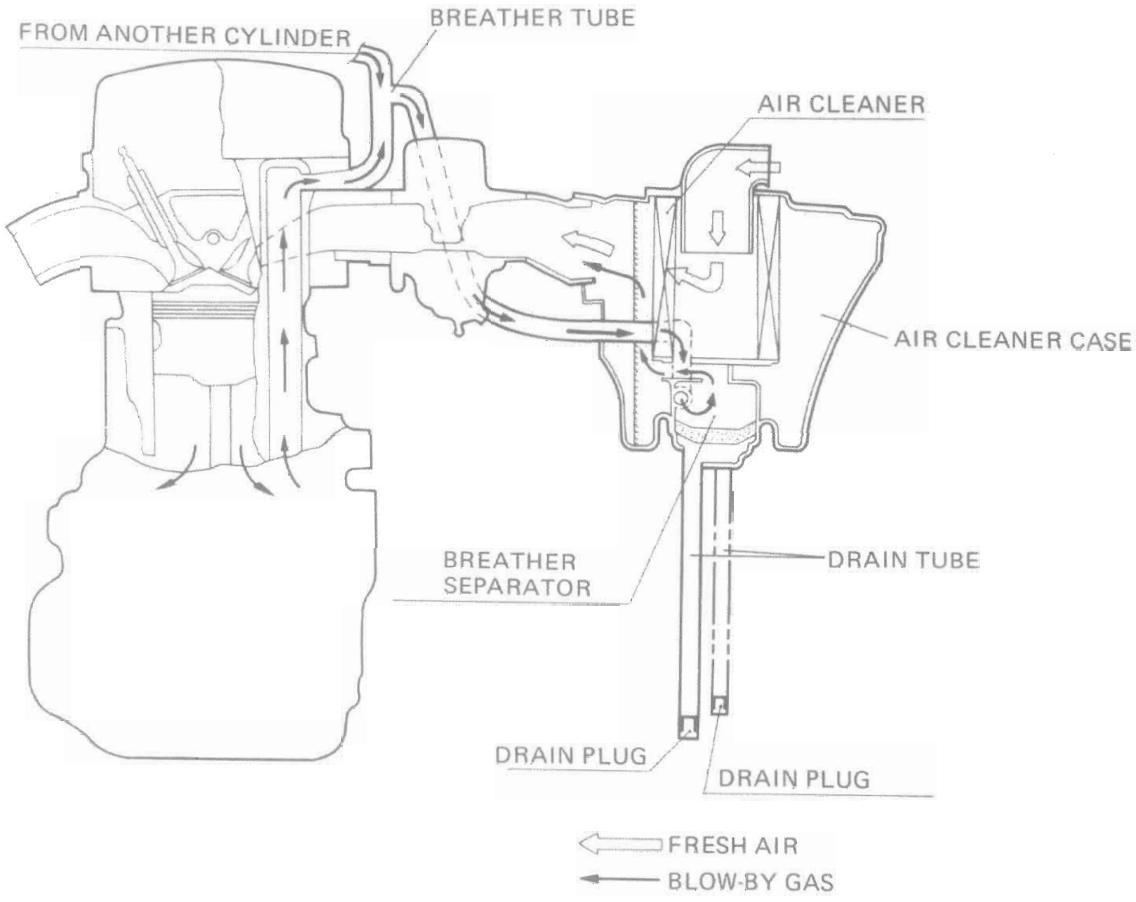
# EMISSION CONTROL SYSTEM

The CX500 is equipped with two emission control systems.

- EXHAUST EMISSION CONTROL SYSTEM
  The exhaust emission control system is composed of a factory pre-set carburetor. No adjustment should be made except to the idle speed with the throttle stop screw.

- CRANKCASE EMISSION CONTROL SYSTEM
  The engine is equipped with a "Closed System" to prevent crankcase emission from entering the atmosphere. Blow-by gas is returned to the combustion chamber through the breather tube, separator and intake pipe.

CRANKCASE EMISSION CONTROL SYSTEM



# EMISSION CONTROL INFORMATION LABEL

CX500's manufactured after December 31, 1977 have an Emission Control Information label on the frame as shown. It contains basic tune-up specifications for CX500's manufactured after December 31, 1977. Refer to this Shop Manual for more details.


EMISSION CONTROL INFORMATION LABEL


Date of Issue: January, 1978

# MAINTENANCE SCHEDULE

Perform the PRE-RIDE INSPECTION in the Owner's Manual at every maintenance period.

I : INSPECT, CLEAN, ADJUST, LUBRICATE OR REPLACE IF NECESSARY.
C: CLEAN
R: REPLACE
A: ADJUST
L: LUBRICATE

| | | ITEM / FREQUENCY | WHICHEVER ➡ OCCURS FIRST ⬇ EVERY | ODOMETER READING [NOTE (3)] 600 mi. (1,000 km) | 3,600 mi. (6,000 km) | 7,200 mi. (12,000 km) | 10,800 mi. (18,000 km) | 14,400 mi. (24,000 km) | 18,000 mi. (30,000 km) | 21,600 mi. (36,000 km) | REFER TO |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EMISSION RELATED ITEMS | | ENGINE OIL | YEAR | R | | R | | R | | R | Page 2– 2 |
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** IN THE INTEREST OF SAFETY, WE RECOMMEND THESE ITEMS BE SERVICED **ONLY** BY AN AUTHORIZED HONDA DEALER.
* SHOULD BE SERVICED BY AN AUTHORIZED HONDA DEALER, UNLESS THE OWNER HAS PROPER TOOLS AND IS MECHANICALLY QUALIFIED.

NOTES: (1) More frequent service may be required when ridden in rain, ridden at full throttle openings, dropped or washed often. Service if deposit level can be seen in the transparent section of drain tubes.
(2) More frequent service may be required when riding in dusty areas.
(3) For higher odometer readings, repeat at the frequency interval established here.