

# SHOP MANUAL

**HONDA**

**HR194·HR214·HRA214**



# HONDA

HR194·HR214·HRA214

## PREFACE

This manual covers the construction, function and servicing procedures of HR194, HR214 and HRA214 LAWNMOWERS. Careful observance of these instructions will result in better, safer service work.

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**MEMO**

1. SPECIFICATIONS

2. DIMENSIONAL DRAWINGS

## 1. SPECIFICATIONS

### DIMENSIONS AND WEIGHTS

	HR194		HR214		HRA214	
	PXA	PXA	SXA	PXA	SXA	
Overall length	1,590 mm (62.6 in)	1,700 mm (66.9 in)	←	1,635 mm (64.4 in)	1,660 mm (65.4 in)	
Overall width	510 mm (20.1 in)	570 mm (22.4 in)	←	565 mm (22.2 in)	←	
Overall height	1,030 mm (40.6 in)	1,070 mm (42.1 in)	←	1,035 mm (40.7 in)	←	
Handle width	447 mm (17.6 in)	463 mm (18.2 in)	←	463 mm (18.2 in)	←	
Tread	Front	414 mm (16.3 in)	470 mm (18.5 in)	←	480 mm (18.9 in)	←
	Rear	450 mm (17.7 in)	500 mm (19.7 in)	←	500 mm (19.7 in)	←
Wheel base	578 mm (22.8 in)	620 mm (24.4 in)	←	624 mm (24.6 in)	644 mm (25.4 in)	
Dry weight	34.0 kg (75.0 lb)	40.0 kg (88.2 lb)	43.5 kg (95.9 lb)	38.5 kg (84.9 lb)	41.5 kg (91.5 lb)	
Operating weight	35.0 kg (77.2 lb)	41.3 kg (91.1 lb)	44.8 kg (99.9 lb)	39.5 kg (87.1 lb)	42.5 kg (93.7 lb)	
Grass bag capacity	65 ℓ (17.2 US gal)	73 ℓ (19.3 US gal)	←	73 ℓ (19.3 US gal)	←	

### FRAME

Cutting width	470 mm (18.5 in)	530 mm (20.9 in)	←	530 mm (20.9 in)	←
Cutting height adjustable range	12.7–76.2 mm (1/2–3 in)	15.9–76.2 mm (5/8–3 in)	←	25.4–76.2 mm (1–3 in)	←
Tire size	200 mm (7.9 in)	←	←	←	←
Blade thickness	4.0 mm (0.16 in)	←	←	←	←
Brake and clutch	Dry single plate	←	←	←	←
Blade stopping system	Roto-stop	←	←	←	←
Drive wheel			Rear		Rear
Traction speed change			2-stage		2-stage
Traction speed (with engine speed at 3,100 rpm)			Lo ... 0.8 m/sec (2.6 ft/sec) Hi ... 1.2 m/sec (3.9 ft/sec)		Lo ... 0.8 m/sec (2.6 ft/sec) Hi ... 1.0 m/sec (3.3 ft/sec)
Differential			One way clutch		One way clutch
Transmission oil			Hypoid gear oil SAE 90		Hypoid gear oil SAE 90
Transmission oil capacity			130 cc (0.14 US qt)		130 cc (0.14 US qt)

### ENGINE

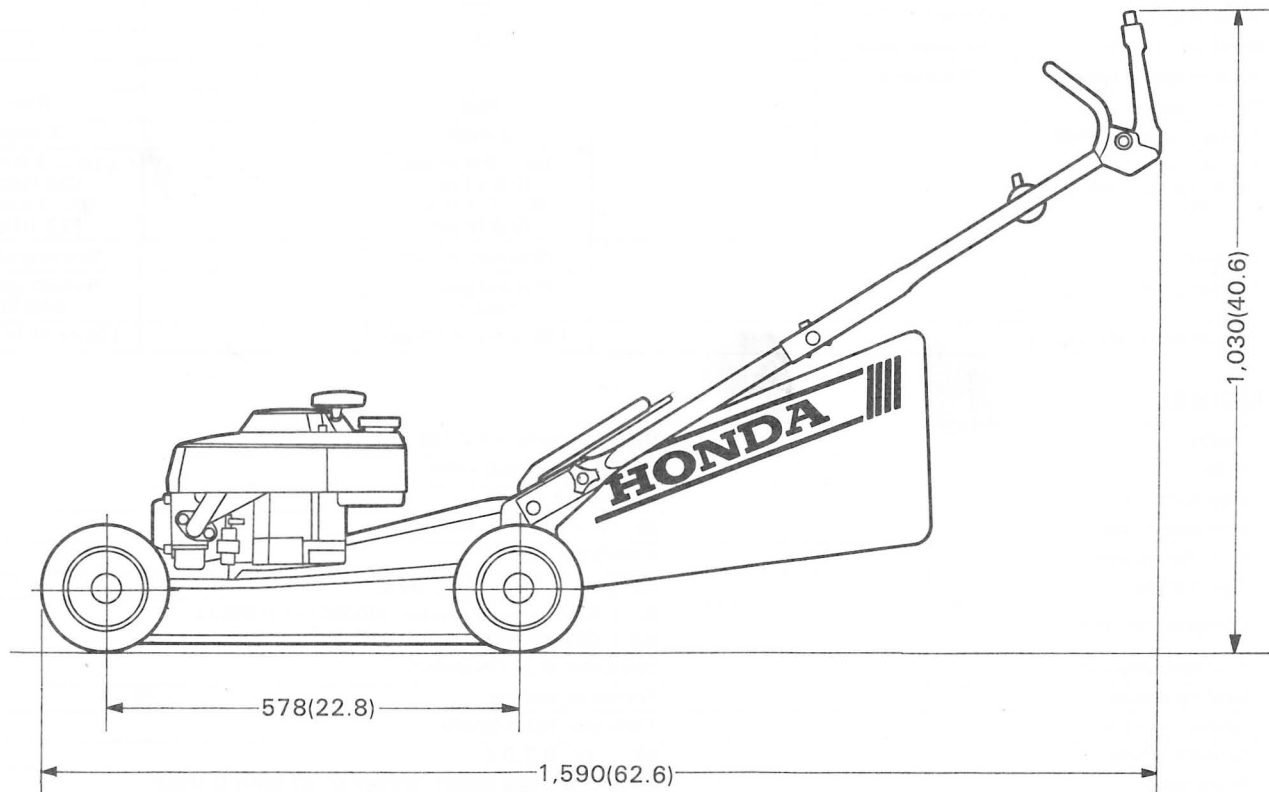
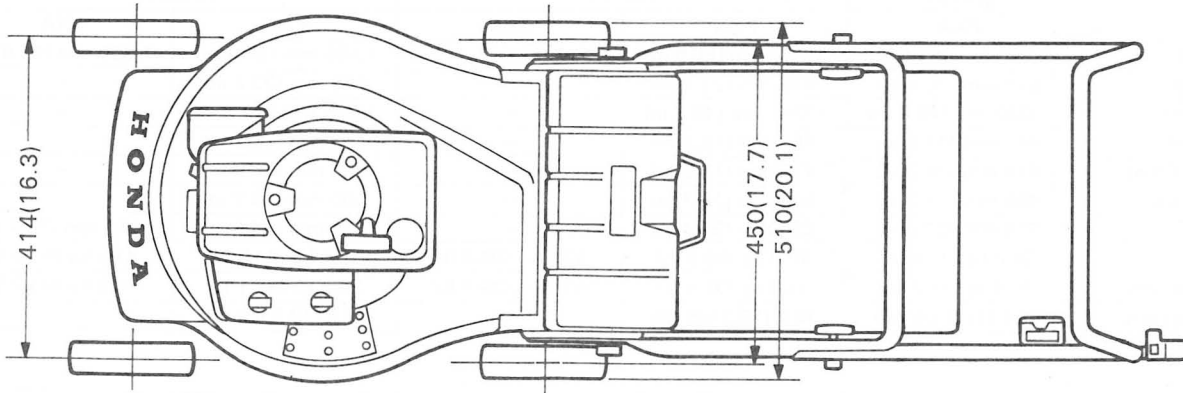
Model	HONDA engine GXV 120
Type	4-Stroke, overhead valve
Displacement	118 cc (7.2 cu in)
Bore and stroke	60 x 42 mm (2.4 x 1.7 in)
Max. horsepower	4 HP/3,600 rpm
Max. torque	82 kg-cm (5.92 ft-lb)/2,700 rpm
Compression ratio	8.7:1 (Engine serial number 1000001 ~ 1199574) 8.0:1 (Engine serial number 1199575 and subsequent)
Fuel consumption	250 g/Psh (0.36 US gal/hr)
Cooling system	Forced-air cooling
Ignition system	Transistorized magneto
Ignition timing	25° ~ 27° B.T.D.C.
Spark plug	BP5ES, BPR5ES (NGK), W16EP-U, W16EPR-U (ND)
Carburetor	Horizontal butterfly valve
Air cleaner	Dual element type
Governor	Centrifugal mechanical governor
Lubrication system	Forced splash type
Oil capacity	0.6 ℓ (0.65 US qt)
Starting system	Recoil starter
Stopping system	Primary circuit ground
Fuel tank capacity	1.0 ℓ (0.26 US gal)

NOTE: Specifications are subject to change without notice.

**2. DIMENSIONAL DRAWINGS**

HR194 PXA

UNIT: mm (in)

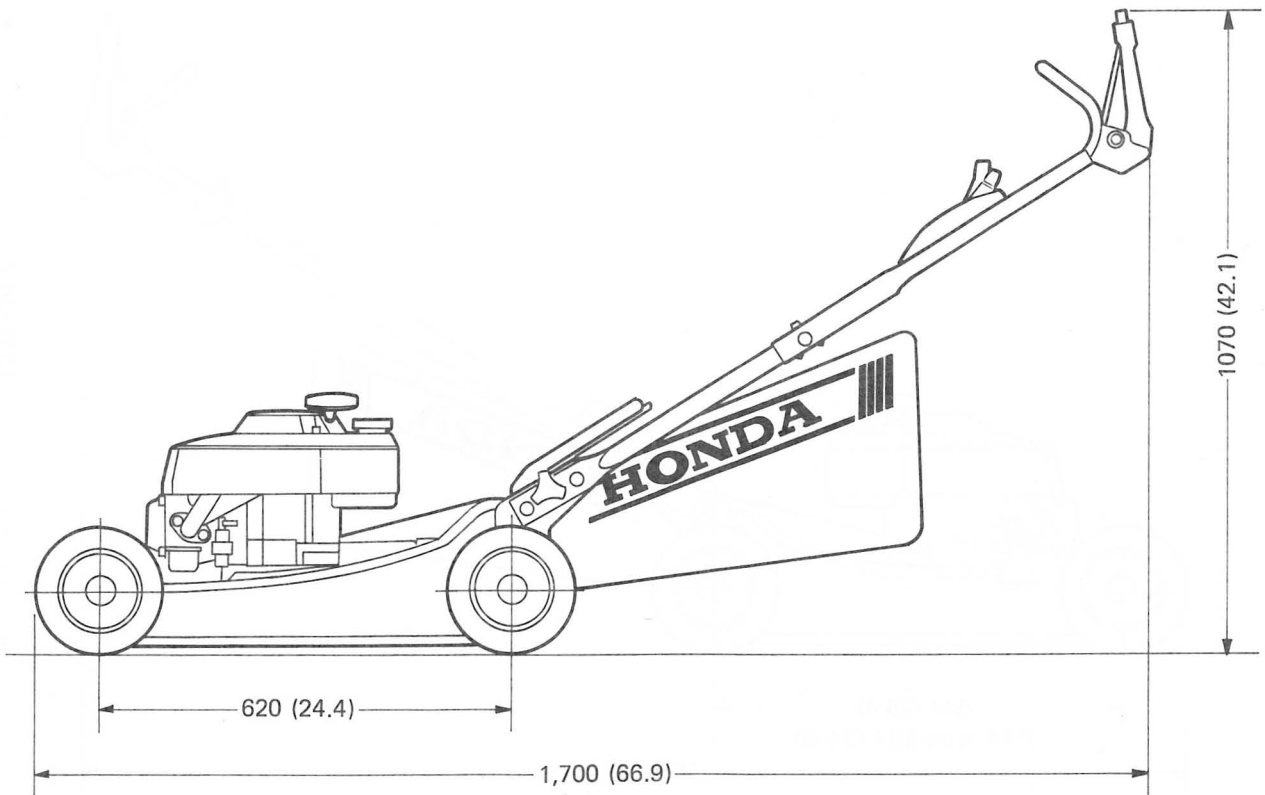
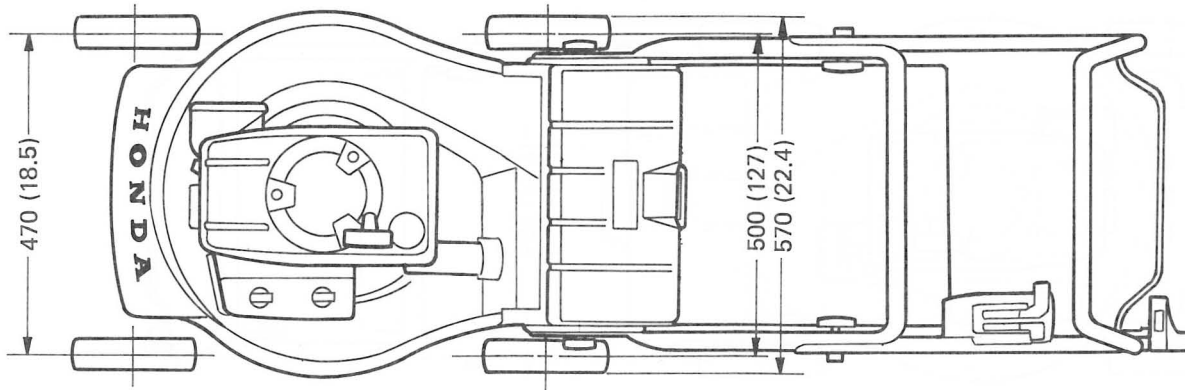


# HONDA

HR194·HR214·HRA214

HR214 (SXA-type shown)

UNIT: mm (in)

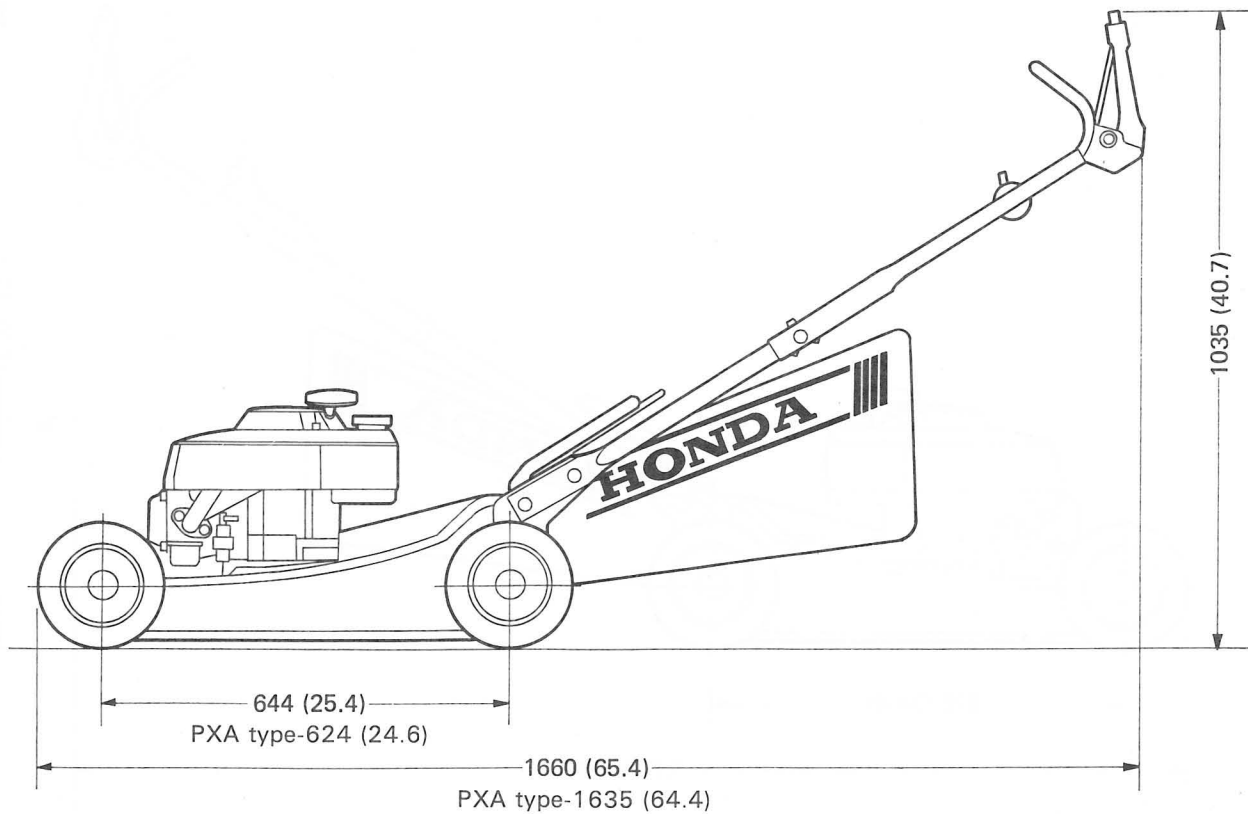
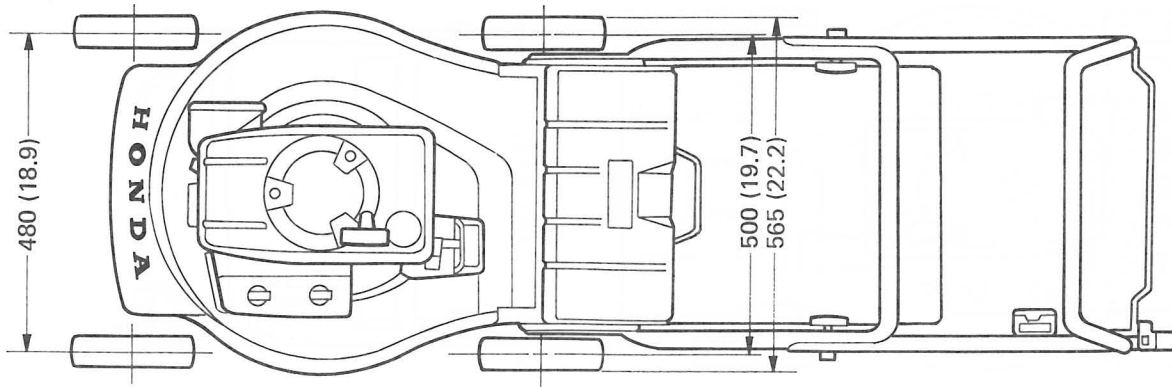


# HONDA

HR194·HR214·HRA214

HRA214 (SXA-type shown)

UNIT: mm (in)



- |                           |                         |
|---------------------------|-------------------------|
| 1. GENERAL SAFETY         | 5. TORQUE VALUES        |
| 2. SERVICE RULES          | 6. SPECIAL TOOLS        |
| 3. SERIAL NUMBER LOCATION | 7. TROUBLESHOOTING      |
| 4. MAINTENANCE STANDARDS  | 8. MAINTENANCE SCHEDULE |

## 1. GENERAL SAFETY

Pay attention to these symbols and their meaning:

**WARNING** Indicates a strong possibility of severe personal injury or loss of life if instructions are not followed.

**CAUTION:** Indicates a possibility of personal injury or equipment damage if instructions are not followed.

### WARNING

- Stop the engine and remove the spark plug cap before servicing mower.
- If the motor 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.
- Gasoline is extremely flammable and is explosive under certain conditions. Do not smoke or allow flames or sparks in your working area.

### CAUTION:

Keep away from rotating or hot parts and high voltage wires when the engine is run with its cover removed.

## 2. SERVICE RULES

1. Use genuine Honda or Honda-recommended parts and lubricants or their equivalents. Parts that do not meet Honda's design specifications may damage the unit.
2. Use the special tools designed for the product.
3. Install new gaskets, O-rings, etc. when reassembling.
4. When torquing bolts or nuts, begin with larger-diameter or inner bolts 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. Many screws used in this machine are self-tapping. Be aware that cross-threading or overtightening these screws will strip the female threads and ruin the hole.
8. Use only metric tools when servicing this unit. Metric bolts, nuts and screws are not interchangeable with nonmetric fasteners. The use of incorrect tools and fasteners may damage the unit.
9. Follow the instructions represented by these symbols when they are used:

 **GREASE** : Apply grease.

 **OIL** : Apply oil

 **S. TOOL** : Use special tool

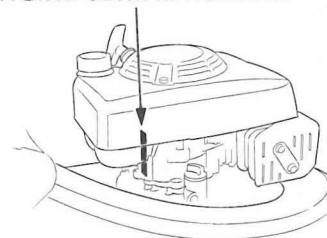
## 3. SERIAL NUMBER LOCATION

The engine serial number is stamped on the cylinder barrel and the frame serial number is on the right side of the cutter housing. Always specify this number when inquiring about the engine or ordering the parts in order to get correct parts for engine being serviced.

FRAME SERIAL NUMBER



ENGINE SERIAL NUMBER





## 4. MAINTENANCE STANDARDS

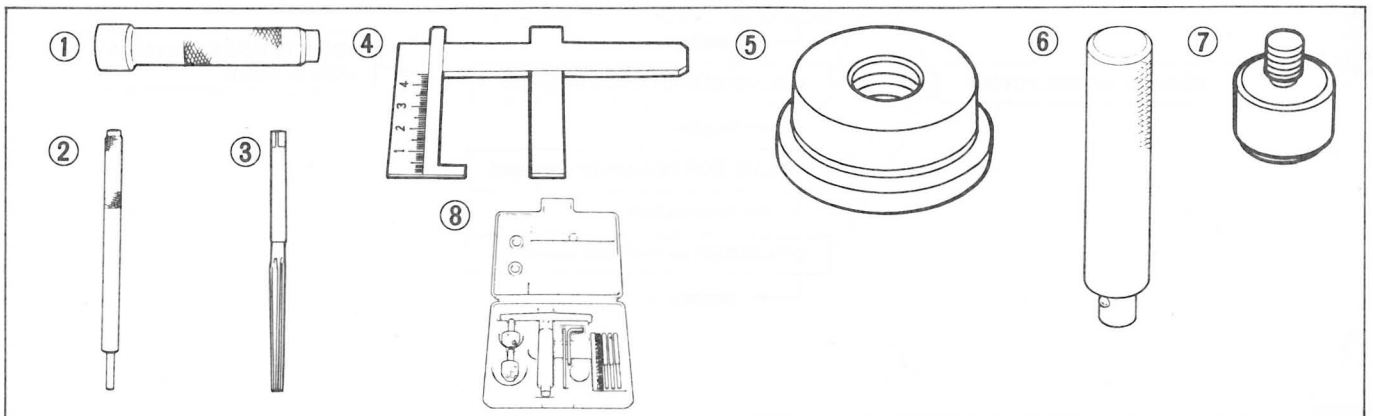
PART	ITEM	STANDARD	SERVICE LIMIT	
Engine	Idle speed	2,000 ± 150 rpm (blade disengaged)	—	
	Top speed	3,100 ± 150 rpm (blade engaged)	—	
	Cylinder compression	10 ± 2 kg/cm <sup>2</sup> (142 ± 28.4 psi) — 600 rpm	—	
Carburetor	Main jet	#65	—	
	Pilot screw	3 turns	—	
	Float height	12.2–15.2 mm (0.48–0.60 in)	—	
Spark plug	Gap	0.7–0.8 mm (0.028–0.031 in)	—	
Transistor unit	Primary side	1.2 Ω ± 0.2	—	
	Secondary side	12 kΩ ± 2 k	—	
	Air gap	0.4 mm ± 0.2 (0.016 in ± 0.008)	—	
Cylinder	ID	60 mm (2.36 in)	60.165 mm (2.37 in)	
Piston	Skirt OD	60 mm (2.36 in)	59.55 mm (2.34 in)	
	Piston-to-cylinder clearance	0.015–0.05 mm (0.0006–0.002 in)	0.12 mm (0.005 in)	
	Piston pin bore ID	13.002–13.008 mm (0.5118–0.5120 in)	13.048 mm (0.514 in)	
Piston ring	Width	Top/Second	1.5 mm (0.059 in)	1.37 mm (0.054 in)
		Oil	2.5 mm (0.098 in)	2.37 mm (0.098 in)
	Side clearance		0.015–0.045 mm (0.0006–0.0018 in)	0.15 mm (0.006 in)
	End gap	Top/Second	0.2–0.4 mm (0.008–0.016 in)	1.0 mm (0.039 in)
Oil		0.15–0.35 mm (0.006–0.014 in)	1.0 mm (0.039 in)	
Piston pin	OD	12.994–13.0 mm (0.5115–0.5118 in)	12.954 mm (0.510 in)	
	Pin-to-pin bore clearance	0.002–0.014 mm (0.0001–0.0006 in)	0.08 mm (0.003 in)	
Connecting rod	Small end ID	13.0 mm (0.512 in)	13.07 mm (0.519 in)	
	Big end radial clearance	0.04–0.063 mm (0.0015–0.0025 in)	0.12 mm (0.0047 in)	
	Big end axial clearance	0.1–0.7 mm (0.004–0.028 in)	1.1 mm (0.043 in)	
Crankshaft	Crank pin OD	26.0 mm (1.024 in)	25.92 mm (1.020 in)	
Camshaft	Cam height	IN	27.7 mm (1.091 in)	27.45 mm (1.081 in)
		EX	27.75 mm (1.093 in)	27.50 mm (1.083 in)
	Journal OD		14.0 mm (0.551 in)	13.916 mm (0.548 in)
Valve spring	Free length	34.0 mm (1.339 in)	32.5 mm (1.280 in)	
Valve	Valve clearance	IN	0.10 mm ± 0.03 (0.004 in ± 0.001)	—
		EX	0.15 mm ± 0.03 (0.006 in ± 0.001)	—
	Stem OD	IN	5.5 mm (0.217 in)	5.318 mm (0.209 in)
		EX	5.5 mm (0.217 in)	5.275 mm (0.208 in)
	Seat width	IN	0.8 mm (0.032 in)	2.0 mm (0.079 in)
		EX	0.8 mm (0.032 in)	2.0 mm (0.079 in)
Valve guide	ID	IN	5.5 mm (0.217 in)	5.562 mm (0.222 in)
		EX	5.5 mm (0.217 in)	5.562 mm (0.222 in)

### 5. TORQUE VALUES

Tightening points	Thread diameter	Torque
Cylinder head	8 mm bolt	220–260 kg-cm (15.9–18.8 ft-lb)
Oil drain plug	10 mm bolt	150–200 kg-cm (10.8–14.5 ft-lb)
Connecting rod lower cap	7 mm bolt	100–140 kg-cm (7.2–10.1 ft-lb)
Flywheel	14 mm special nut	700–800 kg-cm (50.6–57.9 ft-lb)
Muffler	6 mm nut	80–120 kg-cm (5.8–8.7 ft-lb)
Pivot adjusting nut	6 mm special nut	80–120 kg-cm (5.8–8.7 ft-lb)
Pivot bolt	8 mm special bolt	220–260 kg-cm (15.9–18.8 ft-lb)
Oil pan	6 mm bolt	100–140 kg-cm (7.2–10.1 ft-lb)
Air cleaner	6 mm nut	70–100 kg-cm (5.1–7.2 ft-lb)
Head cover	6 mm bolt	80–120 kg-cm (5.8–8.7 ft-lb)
Fuel tank	8 mm bolt	220–260 kg-cm (15.9–18.8 ft-lb)
Governor arm	6 mm bolt	80–110 kg-cm (5.8–8.0 ft-lb)
Blade	10 mm bolt	500–600 kg-cm (36.2–43.4 ft-lb)
Blade holder	10 mm bolt	500–600 kg-cm (36.2–43.4 ft-lb)
R.L. Handle stay	8 mm nut	200–300 kg-cm (14.5–21.7 ft-lb)
F.R. Adjuster arm	8 mm nut	200–300 kg-cm (14.5–21.7 ft-lb)
R.R. Adjuster arm	8 mm nut	200–300 kg-cm (14.5–21.7 ft-lb)
Standard torque	5 mm bolt (nut)	40–70 kg-cm (2.9–5.1 ft-lb)
	6 mm bolt (nut)	80–120 kg-cm (5.8–8.7 ft-lb)
	8 mm bolt (nut)	200–280 kg-cm (14.5–20.2 ft-lb)
	10 mm bolt (nut)	350–400 kg-cm (25.3–28.9 ft-lb)

### 6. SPECIAL TOOLS

Tool name	Tool number	Application
1. Timing gear driver	07945–8940000	Crankshaft timing gear installation
2. Valve guide driver	07942–8920000	Valve guide removal/installation
3. Valve guide reamer	07984–2000000 or 07984–4600000	Valve guide ID reaming
4. Float level gauge	07401–0010000	Carburetor float level inspection
5. Attachment, 42 x 47 mm	07746–0010300	Crankshaft oil seal and bearing replacement
6. Driver	07749–0010000	Crankshaft oil seal and bearing replacement
7. Pilot, 22 mm	07746–0041000	Crankshaft oil seal and bearing replacement
8. Power product valve seat cutter kit	07780–P02000A	Valve seat reconditioning

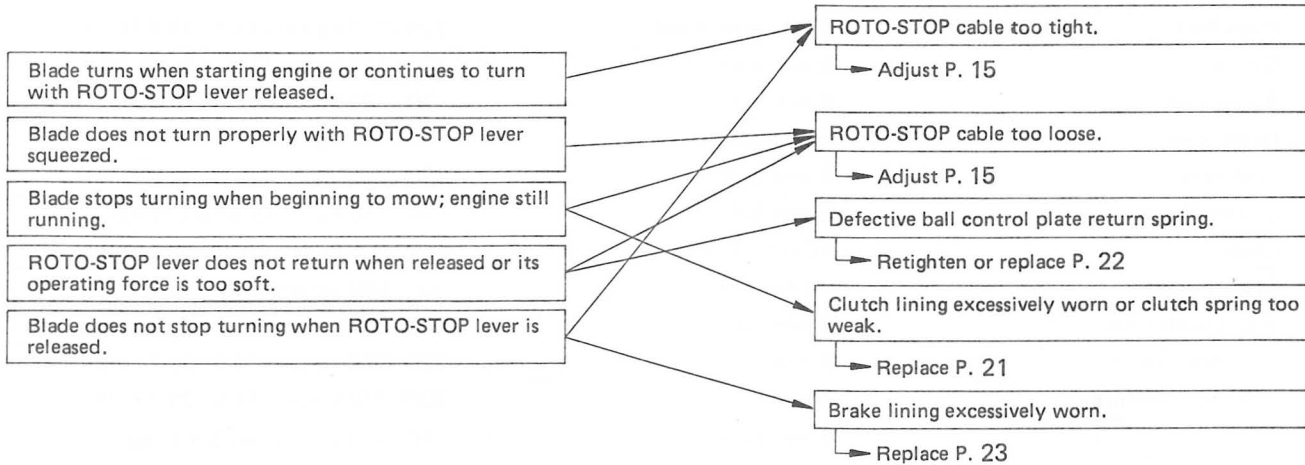


### 7. TROUBLESHOOTING FRAME

#### a. DRIVE CLUTCH (SXA type)

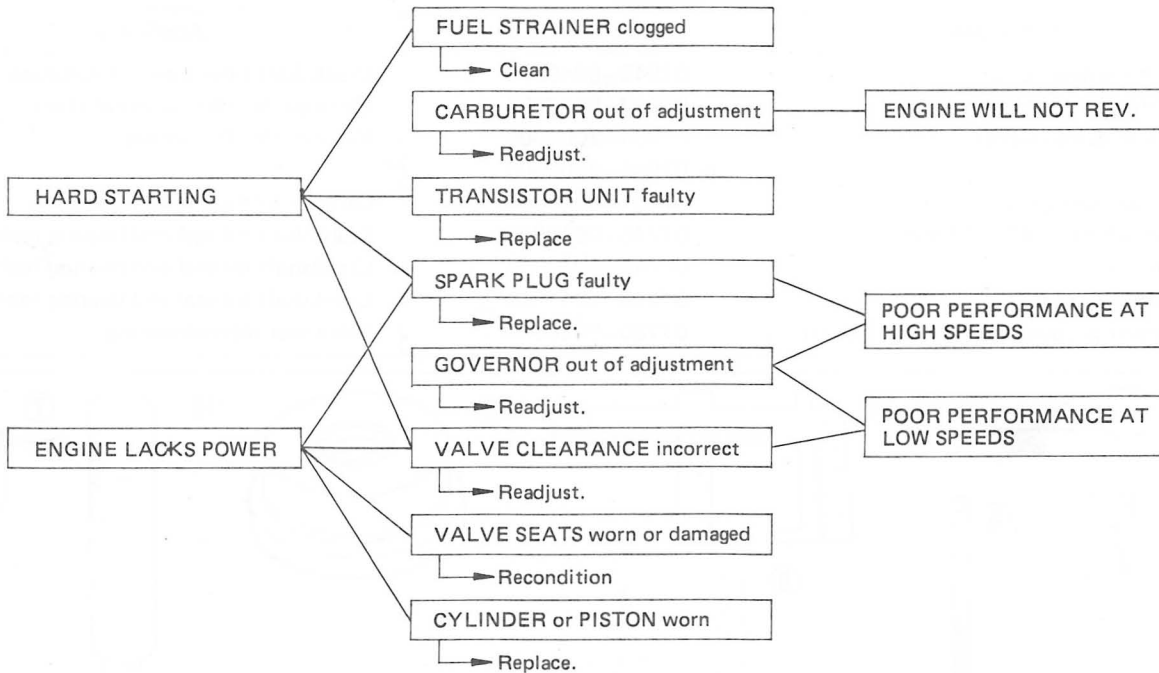
1. Mower does not move forward with clutch lever engaged. → Clutch cable too loose – Adjust P. 15
2. Mower does not stop when clutch lever is released. → Clutch cable too tight – Adjust P. 15

#### b. ROTO-STOP

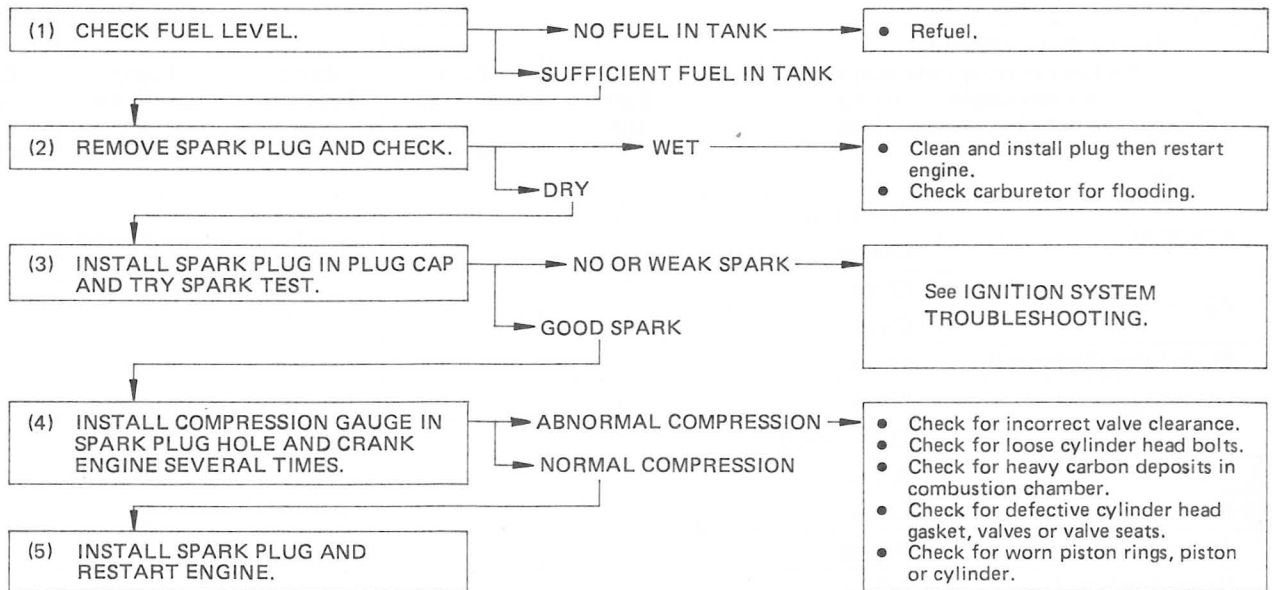


### ENGINE

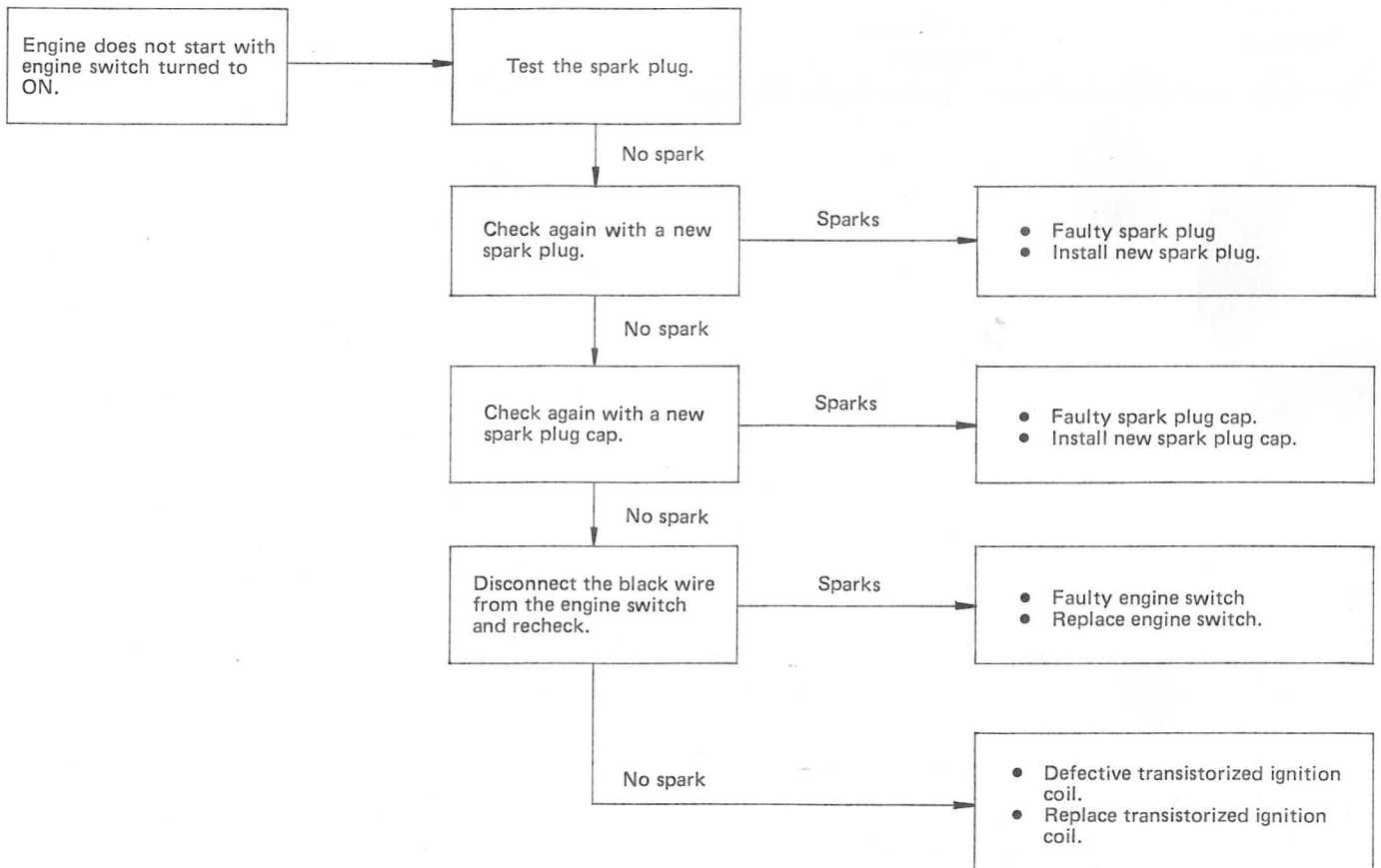
#### a. GENERAL SYMPTOMS AND POSSIBLE CAUSES



## b. HARD STARTING



## c. IGNITION SYSTEM TROUBLESHOOTING



### 8. MAINTENANCE SCHEDULE

Regular Service Period. Perform at every indicated month or operating hour interval whichever occurs first.		Each Use	First month or 20 Hrs.	Every 3 months or 50 Hrs.	Every 6 months or 100 Hrs.	Every year or 300 Hrs.
Item						
Engine oil	Check level	○				
	Change		○		○	
Air cleaner element	Check	○				
	Clean			○*		
Blade bolts (Tightness)	Check	○				
Grass bag	Check	○				
Spark plug	Clean-Adjust				○	
ROTO-STOP cable	Adjust				○	
ROTO-STOP	Check				○	
Throttle cable	Adjust					○
Drive clutch cable	Adjust					○
Gear shift cable (HR214 SXA)	Adjust				○	
Spark arrester (Optional part)	Clean				○	
Valve clearance	Check-Adjust					○
Combustion chamber	Clean-Lap valves					○
Fuel tank and Fuel strainer	Clean					○
Fuel tube	Check (Replace, if necessary)					○

\* Service the air cleaner more frequently when used in dusty areas.

- |                                  |                          |
|----------------------------------|--------------------------|
| 1. ENGINE OIL                    | 8. VALVE CLEARANCE       |
| 2. AIR CLEANER                   | 9. CARBURETOR            |
| 3. SPARK PLUG                    | 10. GOVERNOR             |
| 4. THROTTLE LEVER                | 11. CYLINDER COMPRESSION |
| 5. DRIVE CLUTCH LEVER (SXA type) | 12. SPARK PLUG TEST      |
| 6. ROTO-STOP LEVER               | 13. FUEL STRAINER        |
| 7. GEARSHIFT LEVER (HR214 SXA)   |                          |

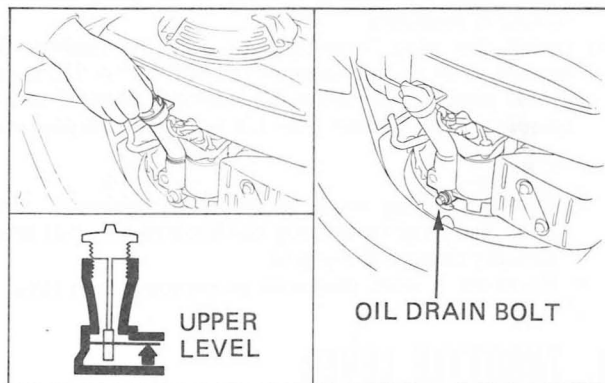
## 1. ENGINE OIL

**NOTE:**

Draining can be performed rapidly and completely when the engine is still warm.

- 1) Remove the oil filler cap and drain bolt. Tilt the engine toward the drain hole for complete draining.
- 2) Replace the drain bolt and add new oil up to the upper level on the filler cap/dipstick. Check the oil level with the dipstick fully inserted but not screwed in.

Engine oil capacity	0.6 l (0.63 US qt)
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## 2. AIR CLEANER

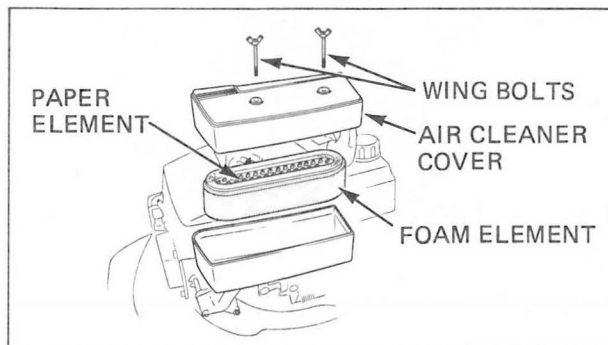
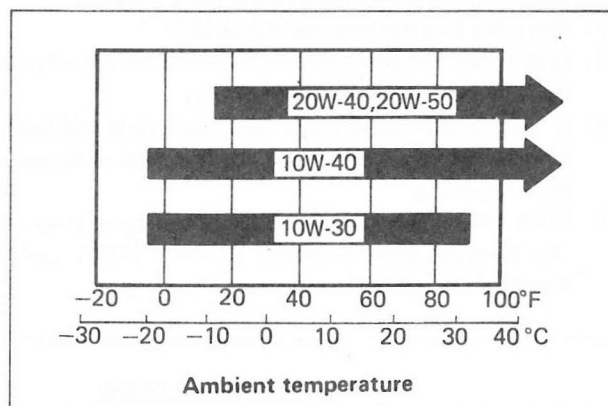
- 1) Remove the air cleaner cover by loosening the two wing bolts.
- 2) Take out the air cleaner elements and separate the foam and paper elements.
- 3) Foam element: Clean in warm soapy water, rinse and allow to dry thoroughly or clean in high flash-point solvent and allow to dry. Dip the element in clean engine oil and squeeze out all the excess. The engine will smoke during initial start-up if too much oil is left in the foam.
- 4) Paper element: Tap the element lightly several times on a hard surface to remove excess dirt, or blow compressed air through the filter from the inside out. Never try to brush the dirt off; brushing will force dirt into the fibers.

**CAUTION:**

Carefully check both elements for holes or tears and replace as required. Damaged elements will pass dirt into the system. Always clean the filter housing and air passages before installing clean elements.

**NOTE:**

The engine will run poorly when the air cleaner needs maintenance. If it runs better without the air cleaner than it does with clean elements, or if the length of time between cleanings keeps getting shorter, replace the elements. Under extremely dusty conditions such as volcanic ash, silt, etc., the system may need daily maintenance.



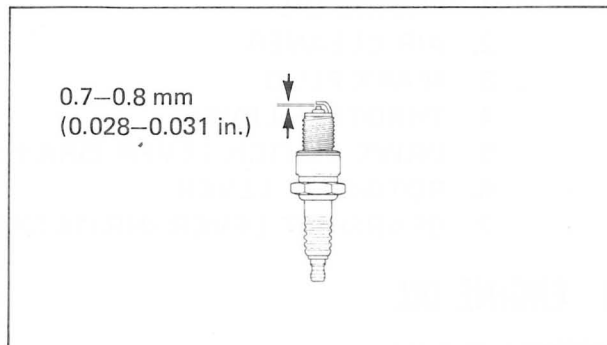
### 3. SPARK PLUG

- 1) Visually inspect the spark plug. Discard the plug if the insulator is cracked or chipped.
- 2) Remove carbon or other deposits with a stiff wire brush.
- 3) Measure the plug gap with a wire-type feeler gauge.

Spark plug gap	0.7–0.8 mm (0.028–0.031 in.)
----------------	------------------------------

If necessary, adjust the gap by bending the side electrode.

- 4) Make sure the sealing washer is in good condition; replace if necessary.
- 5) Install the plug fingertight to seat the washer, then tighten with a plug wrench (an additional 1/2 turn if a new plug) to compress the sealing washer. If you are reusing a plug, tighten 1/8–1/4 turn after the plug seats.

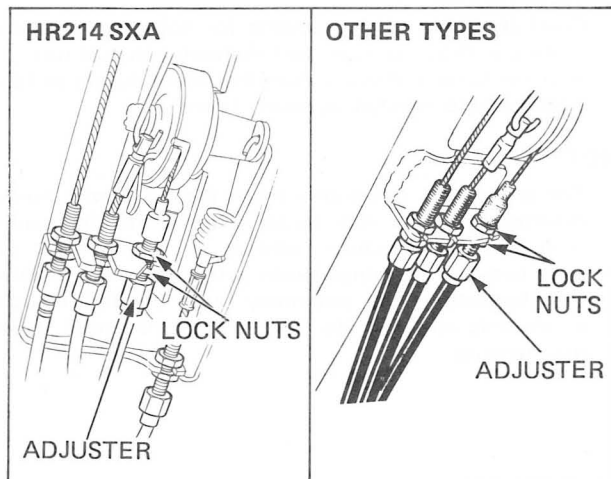
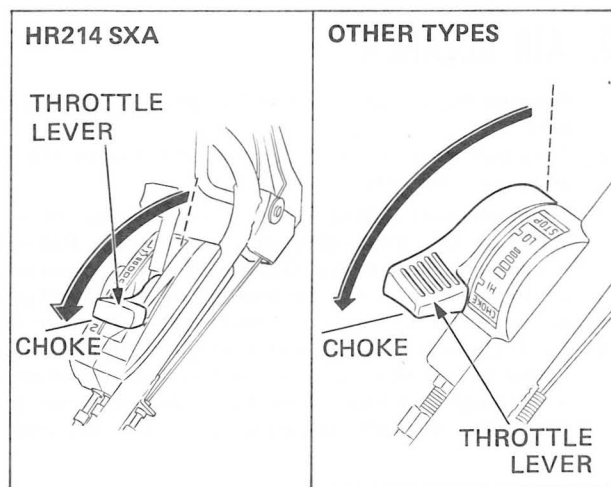
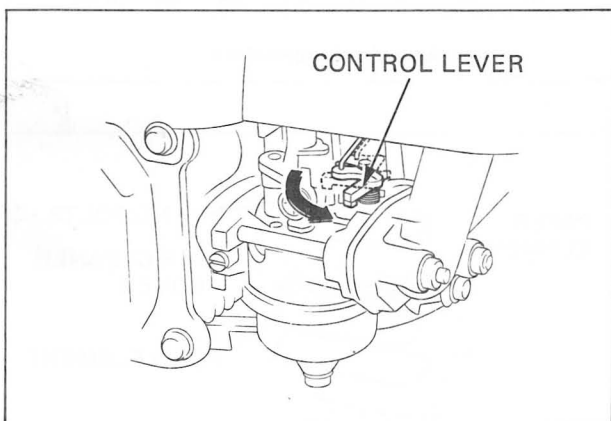


**CAUTION:**

- The spark plug must be securely tightened. An improperly tightened plug can become very hot and possibly damage the engine.
- Never use a spark plug with an improper heat range.

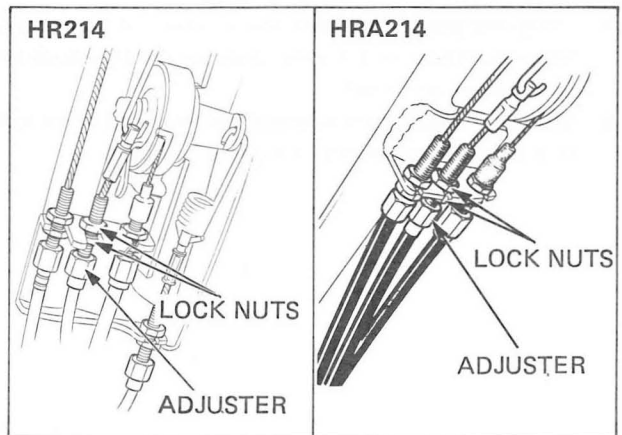
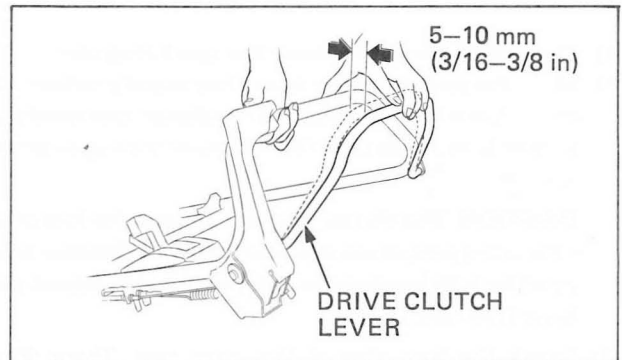
### 4. THROTTLE LEVER

- 1) Stop the engine and remove the spark plug cap.
- 2) Move the throttle lever to "CHOKE".
- 3) Check that the control lever is pulled all the way to the right by pushing it with your finger.
- 4) If not, loosen the throttle cable lock nuts and turn the adjuster as required. Retighten the lock nuts securely after adjusting.
- 5) Start the engine and make sure the engine stops when the throttle lever is moved to the "STOP" position. Readjust the cable if necessary.



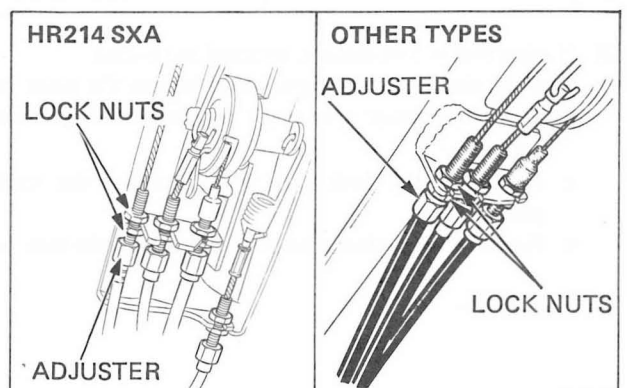
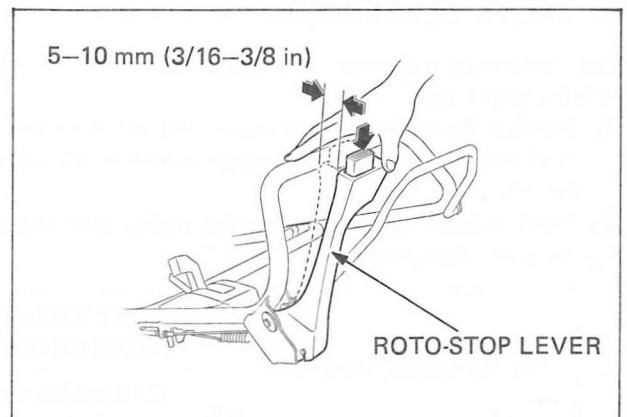
### 5. DRIVE CLUTCH LEVER (SXA type)

- 1) Stop the engine and remove the spark plug cap.
- 2) Check if the free play is 5–10 mm (3/16–3/8 in) from the fully released position at the lever end.
- 3) If not, loosen the drive clutch lock nuts and turn the adjuster as required. Retighten the lock nuts securely after adjusting.



### 6. ROTO-STOP LEVER

- 1) Stop the engine and remove the spark plug cap.
- 2) With the ball control plate arm in contact with the stopper (P. 18), check for 5–10 mm (3/16–3/8 in) free play at the lever tip.
- 3) If adjustment is necessary, loosen the ROTO-STOP cable lock nuts and turn the adjuster in or out. Retighten the lock nuts securely after adjusting.



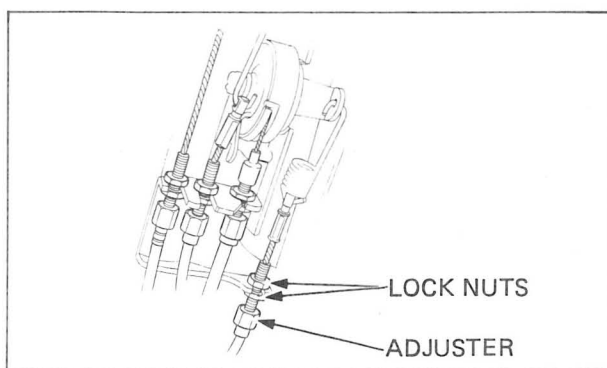
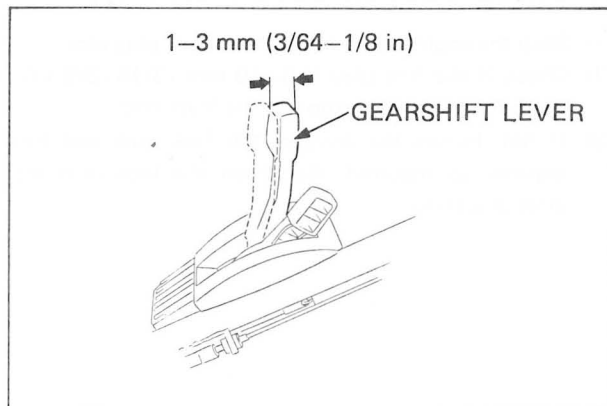


## 7. GEARSHIFT LEVER(HR214 SXA)

- 1) Stop the engine and remove the spark plug cap.
- 2) Move the gearshift lever to the low speed position. Hold the drive clutch lever against the handlebar, and gently pull the mower backwards until there is resistance against the drive wheels.

**CAUTION: The shifter may not engage the low drive gear unless the procedure above is followed. The low drive gear must be fully engaged in order to properly adjust gearshift lever free play.**

- 3) Check the free play at the lever end. There should be 1—3 mm (3/64—1/8 in) free play.
- 4) If the free play is incorrect, loosen the lock nuts and turn the adjuster as required. Tighten the lock nuts securely when the adjustment is correct.
- 5) Start the engine and operate the gearshift lever to be sure that the transmission shifts gears smoothly.



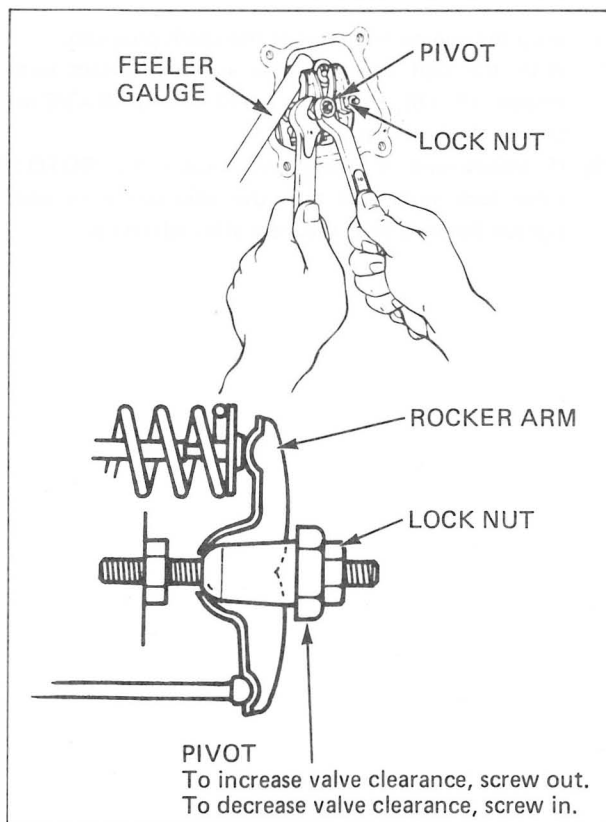
## 8. VALVE CLEARANCE

Valve clearance inspection and adjustment must be performed with the engine cold.

- 1) Remove the cylinder head cover, and set the piston at top dead center of the compression stroke (both valves fully closed).
- 2) Insert a feeler gauge between the rocker arm and valve to measure valve clearance.

Standard valve clearance	IN	0.10 ± 0.03 mm (0.003 ± 0.005 in)
	EX	0.15 ± 0.03 mm (0.005 ± 0.007 in)

- 3) If adjustment is necessary, proceed as follows:
  - a. Hold the rocker arm pivot and loosen the pivot lock nut.
  - b. Turn the rocker arm pivot to obtain the specified clearance.
  - c. Retighten the lock nut while holding the rocker arm pivot.
  - d. Recheck valve clearance after tightening the lock nut.



### 9. CARBURETOR

#### a. Idle speed

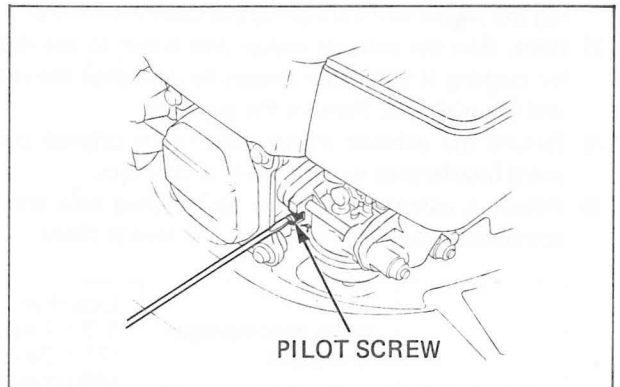
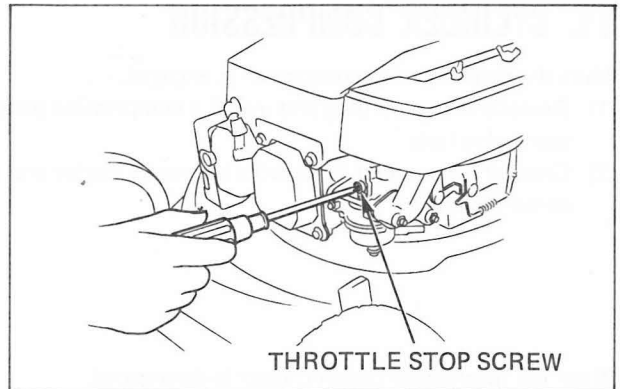
- 1) Run the engine at idle until it reaches normal operating temperature.
- 2) Turn the throttle stop screw in or out as necessary until the specified idle speed is obtained.

Specified idle speed	2,000 ± 150 rpm (blade disengaged)
----------------------	------------------------------------

#### b. Pilot screw

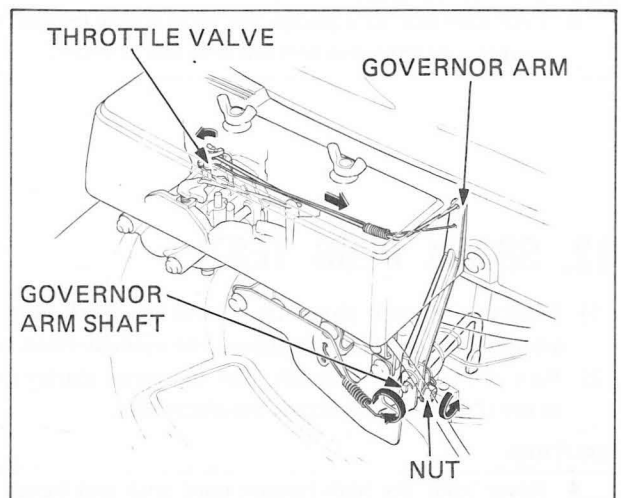
If the pilot screw setting needs adjustment:

- 1) Turn the pilot screw in or out until the engine runs at the highest idle rpm. If the pilot screw has been removed and replaced, start with an initial setting of 3 turns out from the fully closed position.
- 2) Turn the throttle stop screw to obtain the specified idle speed.



### 10. GOVERNOR

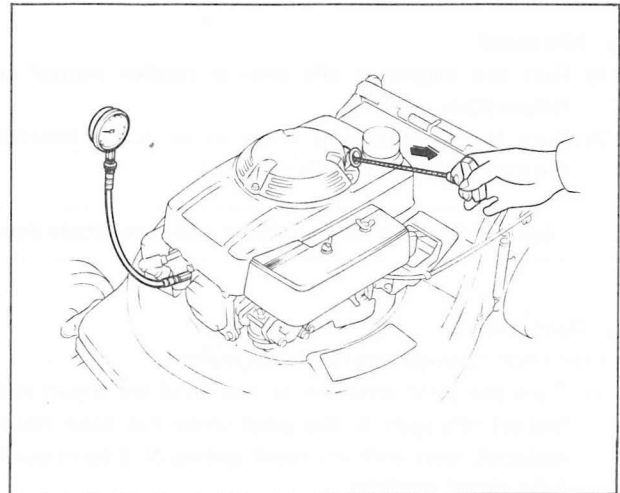
- 1) Loosen the governor arm pinch bolt, and move the governor arm to fully open the throttle valve.
- 2) With the governor arm held in the fully open position, turn the governor arm shaft in the same direction as far as it will go, and tighten the pinch bolt.
- 3) Check to be sure the governor arm and throttle valve move freely.



## 11. CYLINDER COMPRESSION

When the mechanical decompressor is engaged.

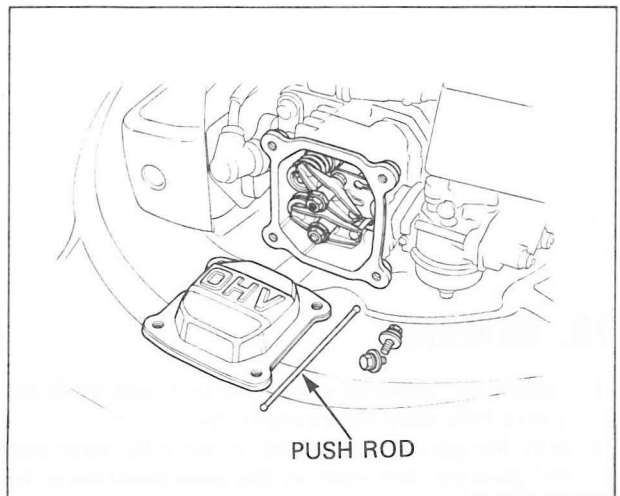
- 1) Remove the spark plug and install a compression gauge in the spark plug hole.
- 2) Crank engine several times with the recoil starter and measure compression.



When the mechanical decompressor is disengaged.

- 1) Remove the tappet cover and lower the inlet valve by cranking the engine while watching the valve movement.
- 2) Next, turn the exhaust rocker arm either to the right or left by pushing it with your fingers to disengage the rocker arm and the push rod. Remove the push rod.
- 3) Return the exhaust rocker arm to its original position to avoid interference with the inlet rocker arm.
- 4) Attach a compression gauge to the plug hole and measure compression by cranking the engine several times.

Compression	When decompressor is engaged	Less than 5.0 ± 2 kg/cm <sup>2</sup> (71 ± 28.4 psi) (600 rpm)
	When rocker arm is disengaged	10.0 ± 2 kg/cm <sup>2</sup> or more (142 ± 28.4 psi) (600 rpm)



**CAUTION:**

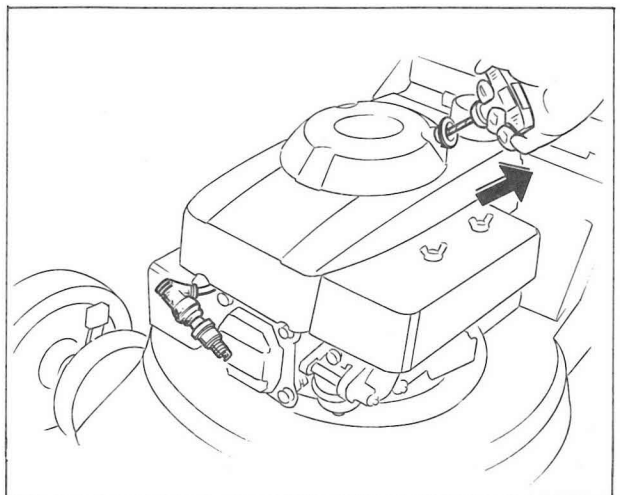
- Take care not to dislodge the valve spring retainer while working, or the valve will fall into the cylinder.

## 12. SPARK PLUG TEST

- 1) Remove the spark plug, attach it to the spark plug cap, and ground the side electrode against the cylinder head cover.
- 2) Turn on the engine switch, pull the recoil starter and check to see if sparks jump across the electrodes.

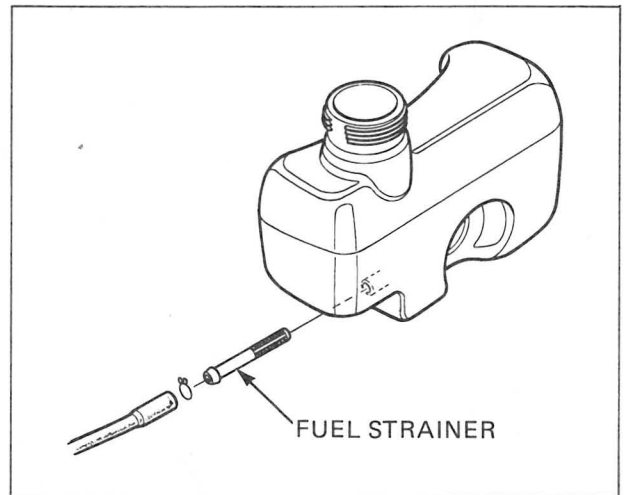
**CAUTION:**

- Never hold the high tension cord with wet hands while performing this test.
- Make sure that no fuel has been spilled on the engine—and that the plug is not wet with fuel.
- To avoid fire hazards, do not allow sparks near the plug hole.



### 13. FUEL STRAINER

- 1) Remove the fuel strainer from the fuel tank and fuel line.
- 2) Clean the fuel strainer. (Remove dirt which has accumulated on the mesh, and check that the mesh is not broken anywhere.)
- 3) Reinstall the fuel strainer and fuel line.



MEMO



- |                                     |   |
|-------------------------------------|---|
| 1. ROTO-STOP/ENGINE REMOVAL         | 9. DRIVESHAFT/GOVERNOR                  |
| 2. AIR CLEANER/MUFFLER              | 10. CRANKSHAFT/PISTON                   |
| 3. RECOIL STARTER/FUEL TANK         | 11. FRONT WHEELS/HOUSING                |
| 4. CARBURETOR/CONTROL LEVER         | 12. REAR WHEELS (PXA type)              |
| 5. IGNITION COIL/ENGINE STOP SWITCH | 13. REAR WHEELS/TRANSMISSION (SXA type) |
| 6. FLYWHEEL                         | 14. HANDLE AND CONTROLS                 |
| 7. CYLINDER HEAD/VALVES             | 15. DISCHARGE GUARD                     |
| 8. OIL PAN                          | 16. GRASS BAG ASSEMBLY                  |

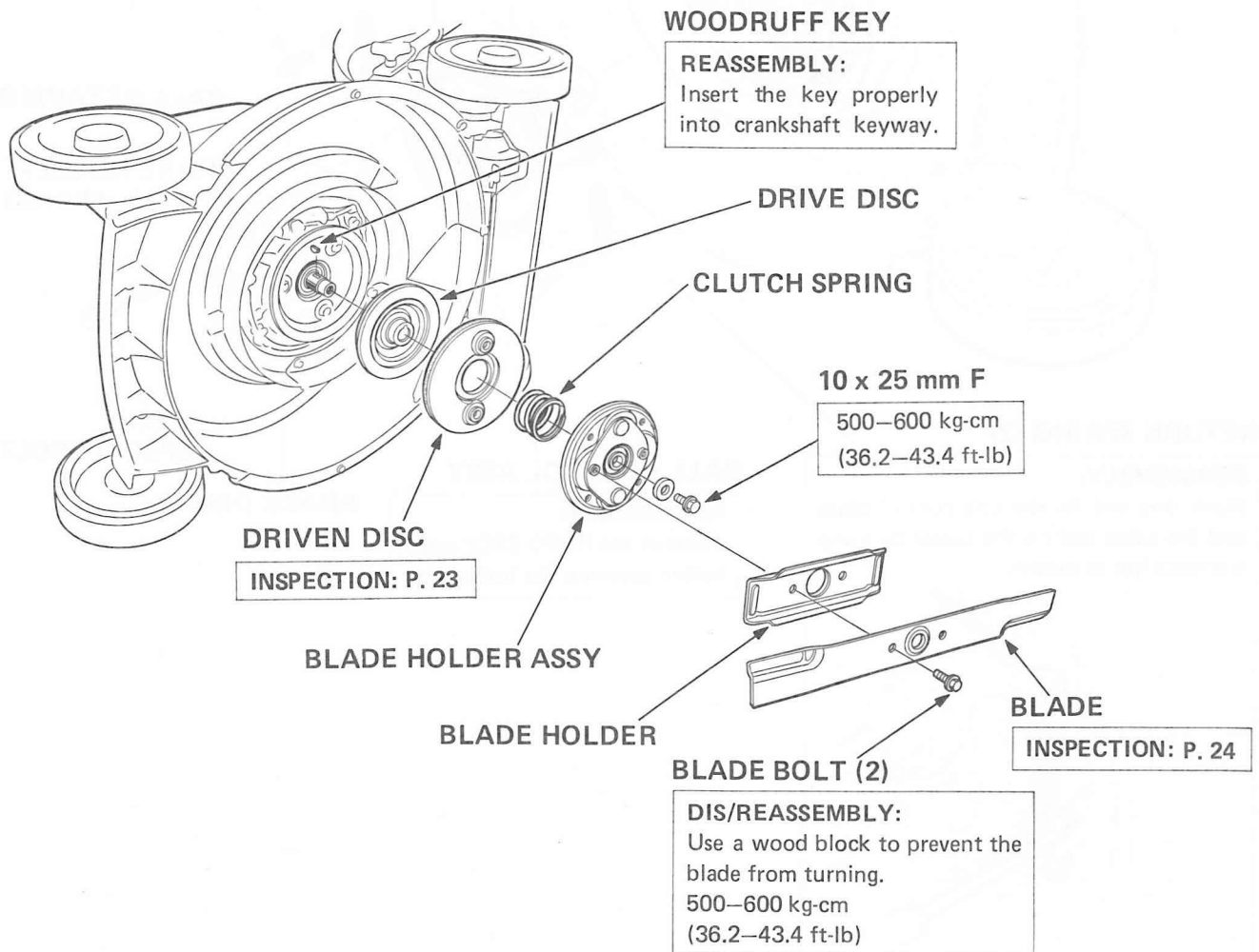
## 1. ROTO-STOP/ENGINE REMOVAL

### a. DISASSEMBLY/REASSEMBLY

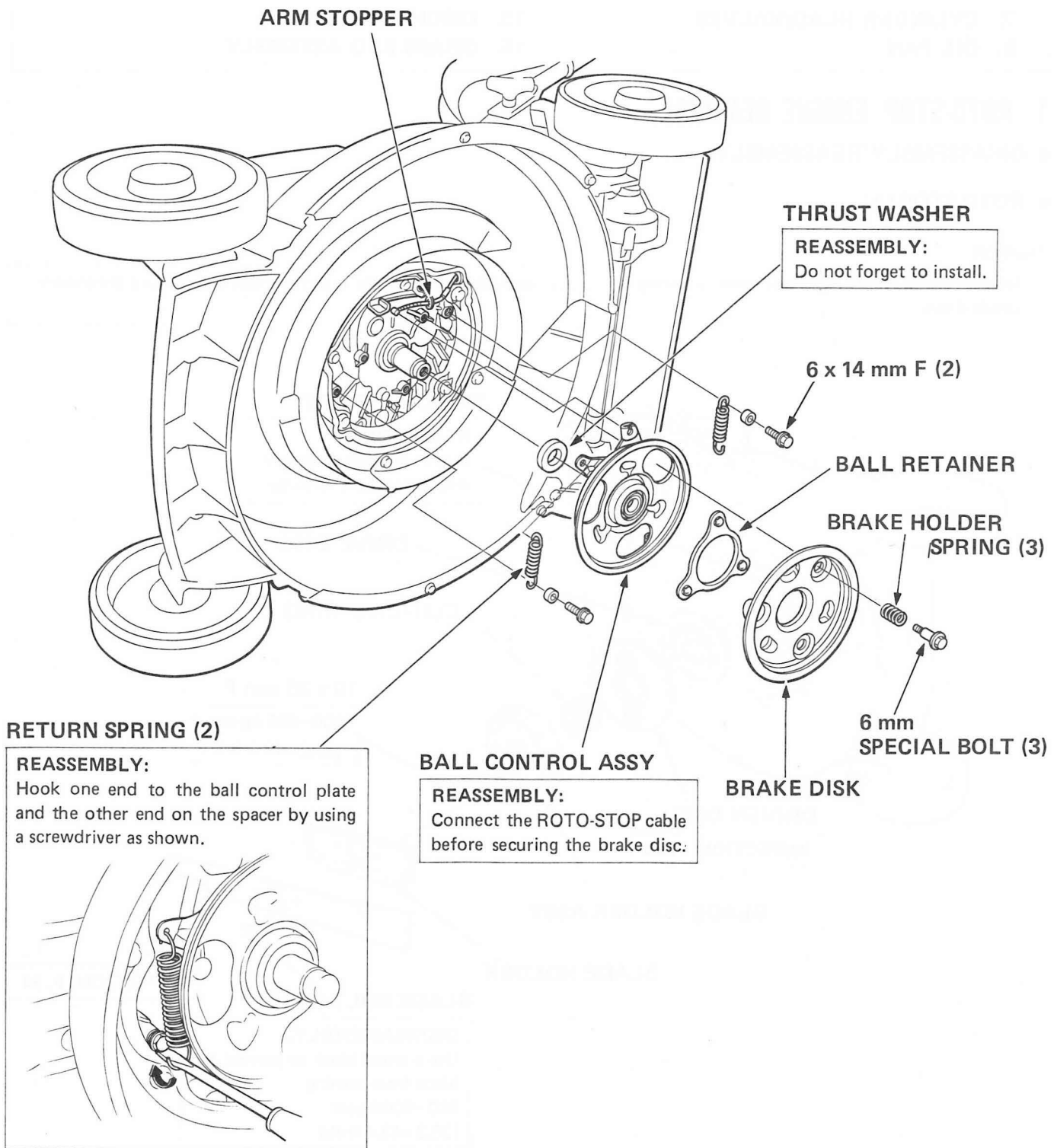
#### ● ROTO-STOP (A)

#### CAUTION:

Set the mower on its right side when servicing the mower with the engine oil in the crankcase. Do not turn the mower upside down.



● ROTO-STOP (B)



# HONDA

HR194·HR214·HRA214

## a. INSPECTION

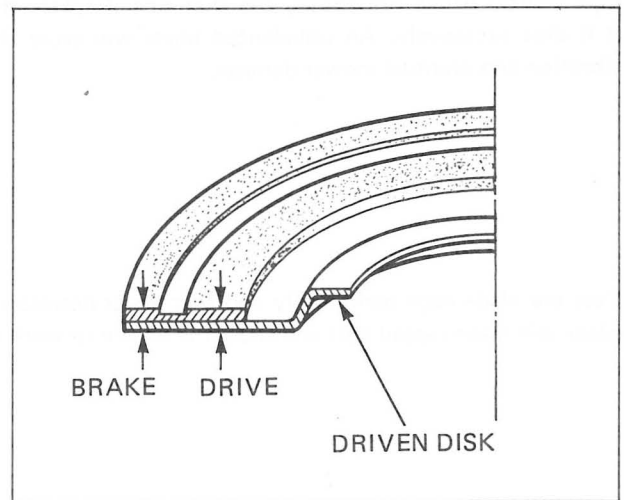
### DRIVEN DISC

Clutch lining thickness:

Service limit	4.6 mm (0.18 in)
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Brake lining thickness:

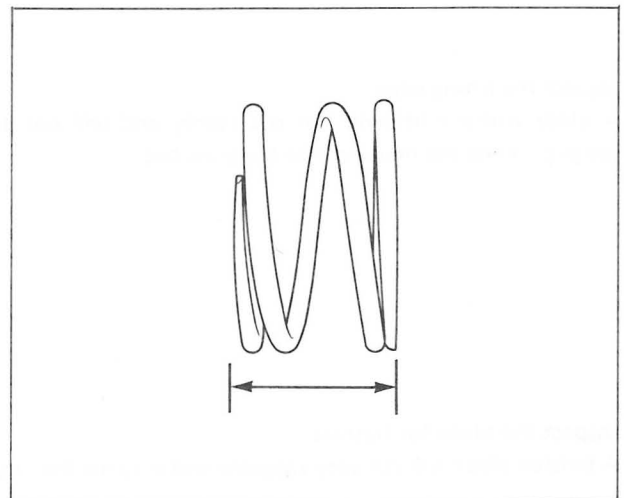
Service limit	4.6 mm (0.18 in)
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### CLUTCH SPRING

Measure the clutch spring free length.

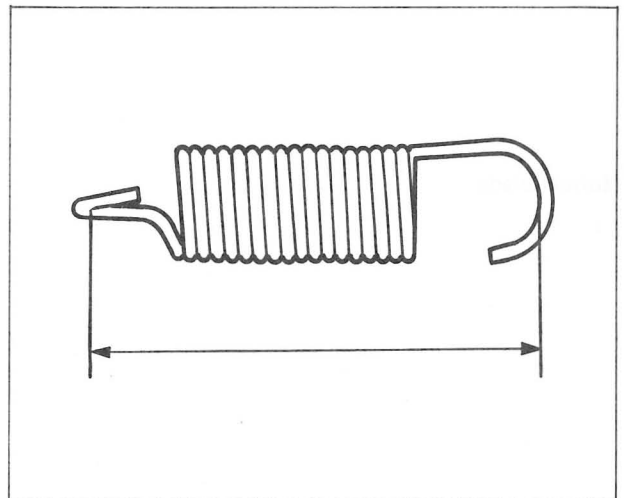
Service limit	40 mm (1.57 in) minimum
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### BALL CONTROL RETURN SPRING

Measure the return spring free length.

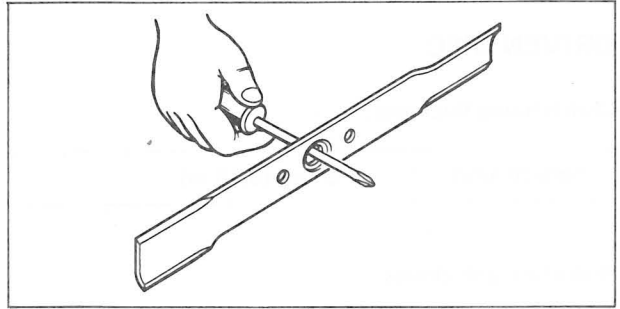
Service limit	58.5 mm (2.30 in) maximum
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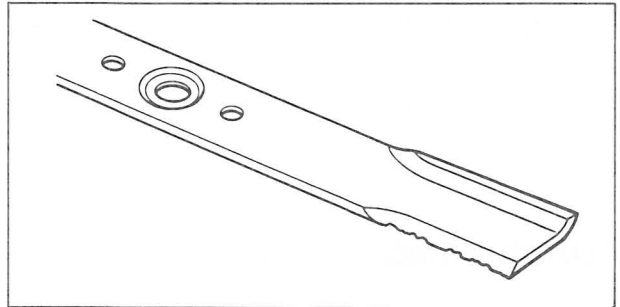


### CUTTING BLADE

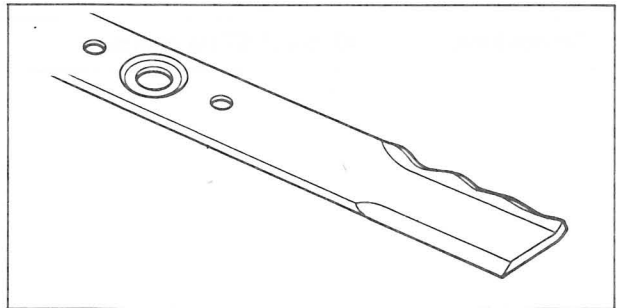
Test the blade balance using a screwdriver as shown. If either side dips slightly below horizontal, file that side. Replace the blade if it dips excessively. An unbalanced blade will cause abnormal vibration and eventual mower damage.



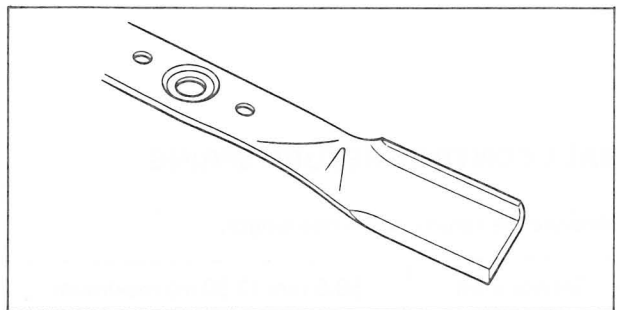
Test the blade edge periodically and sharpen as necessary. A dull blade will make ragged cuts and cause the engine to work harder.



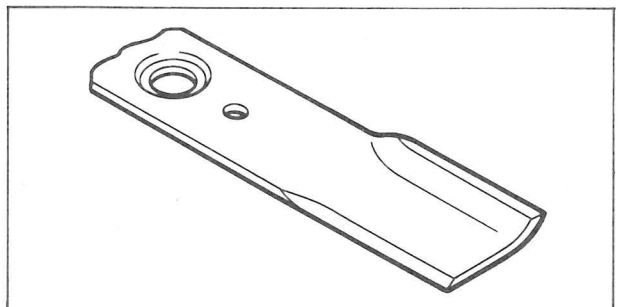
**Inspect the lifting edge**  
A blade without lift will not cut evenly and will not discharge the grass along the housing into the grass bag.



**Inspect the blade for flatness**  
A twisted blade will cut very raggedly and may hit the housing.



Normal blade.

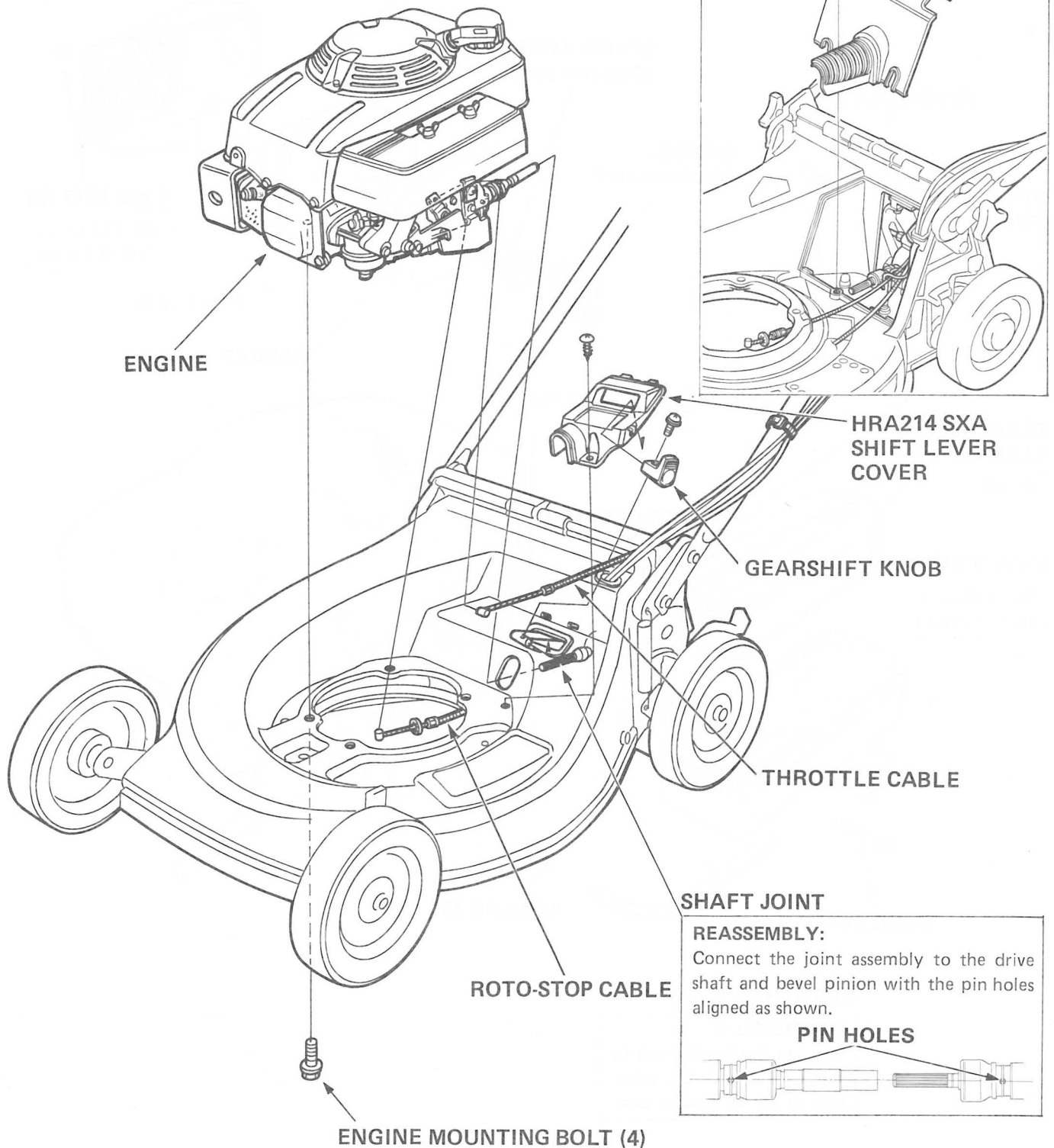


# HONDA

HR194·HR214·HRA214

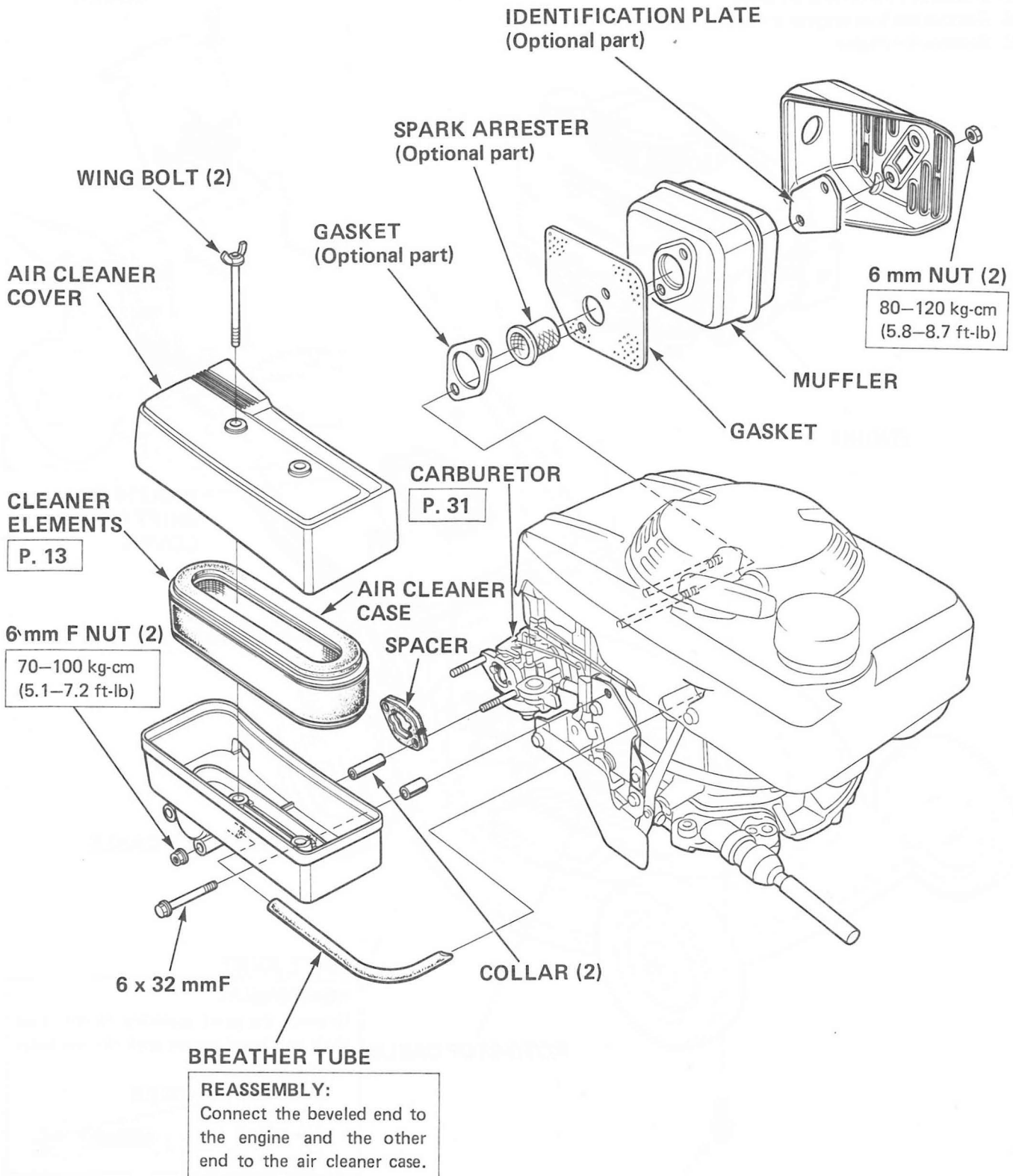
## ● ENGINE REMOVAL (HRA214 SXA shown here)

- 1) Remove the ROTO-STOP. (P.21)
- 2) Disconnect the ROTO-STOP and throttle cables.
- 3) Disconnect the drive shaft joint.
- 4) Remove the four engine mounting bolts.
- 5) Remove the engine.



### 2. AIR CLEANER/MUFFLER

#### a. DISASSEMBLY/REASSEMBLY

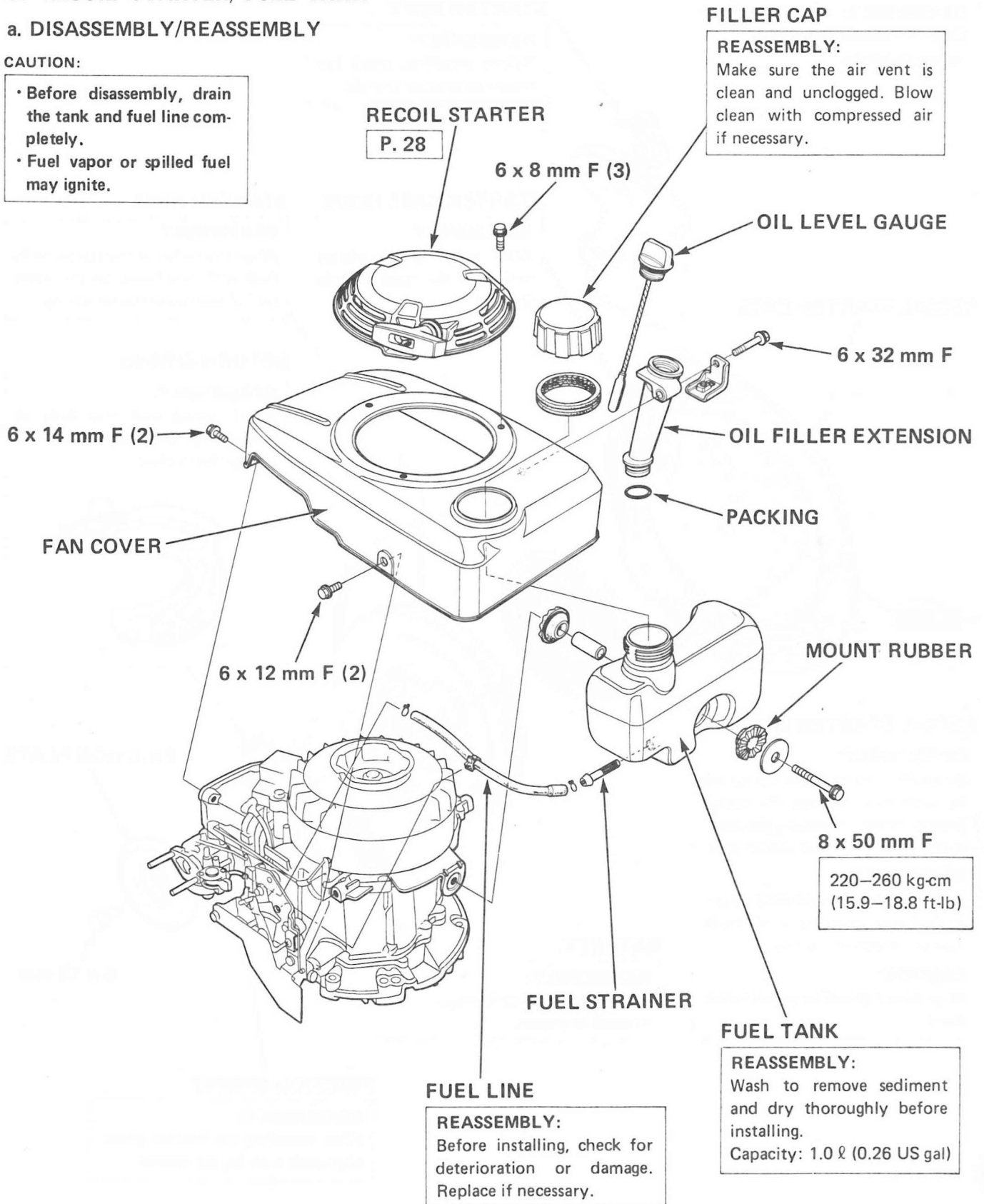


### 3. RECOIL STARTER/FUEL TANK

#### a. DISASSEMBLY/REASSEMBLY

##### CAUTION:

- Before disassembly, drain the tank and fuel line completely.
- Fuel vapor or spilled fuel may ignite.



### ● RECOIL STARTER

**REASSEMBLY:**

Clean the starter thoroughly before installing.

**STARTER ROPE****REASSEMBLY:**

Before installing, check for frayed or broken strands.

**STARTER CASE HOOK****REASSEMBLY:**

After installing the starter reel, bend the hook to hold the reel.

**STARTER REEL****REASSEMBLY:**

Align the notch in the starter reel's hub with the hook on the inner end of the recoil starter spring.

**RETURN SPRING****REASSEMBLY:**

Insert spring coil into hole in starter reel and hook the other end to the ratchet.

**RECOIL STARTER CASE****GREASE****RECOIL STARTER SPRING****DISASSEMBLY:**

Be careful not to allow the spring to jump out. Release the spring preload before removing the starter reel from the recoil starter case.

**REASSEMBLY:**

Place the spring in the recoil starter case and insert its outer hook into the notch in the case.

**CAUTION:**

Wear heavy gloves to protect your hands.

**RATCHET****REASSEMBLY:**

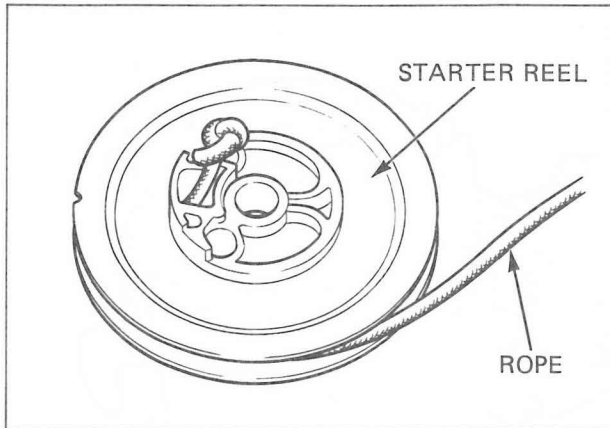
- Check for wear or damage.
- Install as shown.

**LUG****FRICITION PLATE****6 x 12 mm****FRICITION SPRING****REASSEMBLY:**

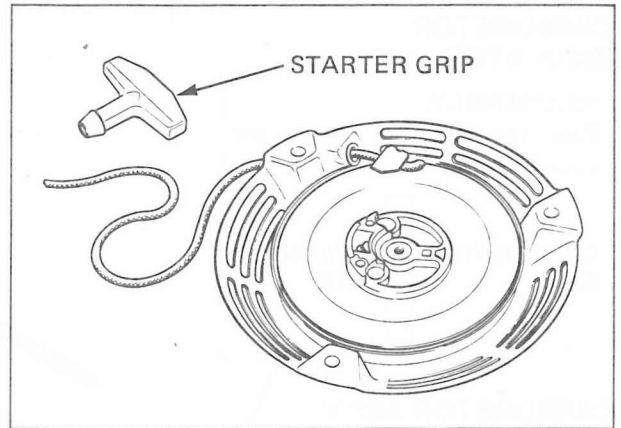
After installing on friction plate, align ends with lug on ratchet.

### ● STARTER ROPE (REASSEMBLY)

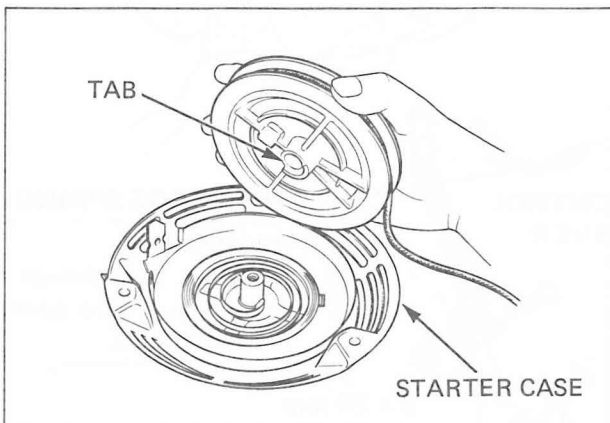
- 1) Feed the end of the rope through the hole in the starter reel, and knot the end.



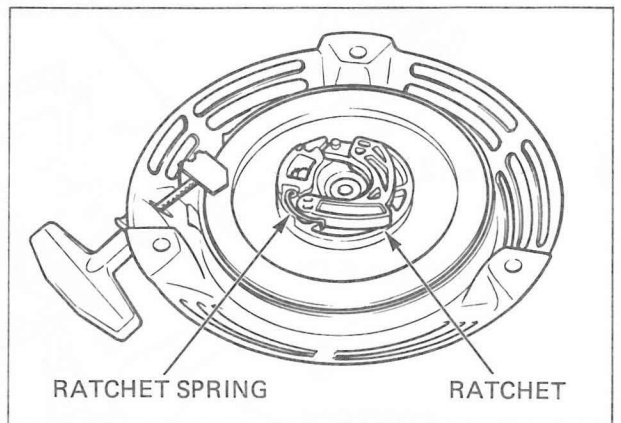
- 4) Hold reel and pull end of rope out of case and feed it through starter grip.



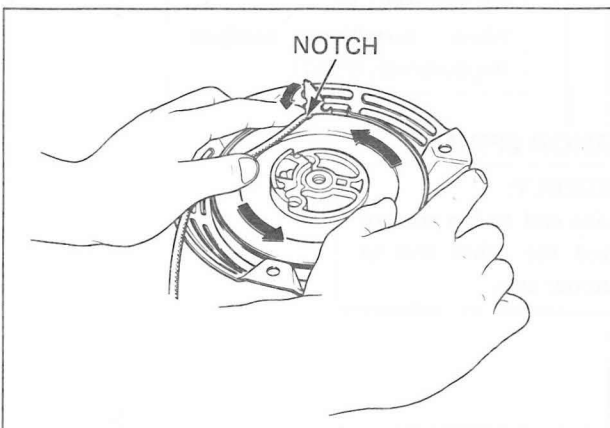
- 2) Wind rope around starter reel approx. 4 turns. Install reel in starter case, hooking inner hook of return spring onto tab.



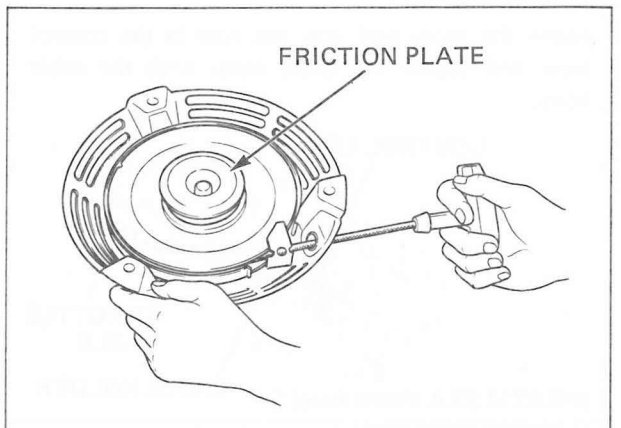
- 5) Install ratchet, ratchet spring and friction plate and tighten 6 mm bolt.



- 3) With a length of rope extending from starter reel notch, rotate reel 2 full turns in direction of the arrow. Bend the case hook to hold the reel.



- 6) Check operation of ratchet by pulling out starter rope and check return of rope onto reel.



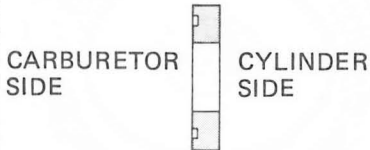
### 4. CARBURETOR/CONTROL LEVER

#### a. DISASSEMBLY/REASSEMBLY

##### CARBURETOR INSULATOR

**REASSEMBLY:**

Face the flat side toward the cylinder barrel.



##### CARBURETOR ASS'Y

6 x 12 mm F (2)

6 x 10 mm F (2)

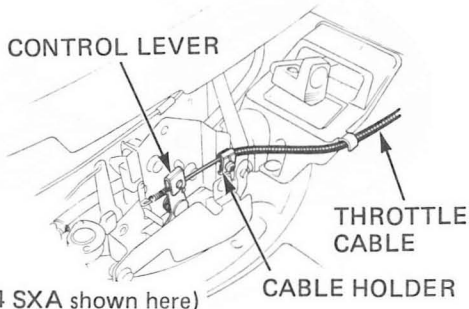
CONTROL PROTECTOR

CABLE HOLDER

##### THROTTLE CABLE

**REASSEMBLY:**

Insert the cable end into the hole in the control lever and secure the cable outer with the cable holder.



CHOKE ROD

CONTROL LEVER

ANTI-SURGE SPRING

**REASSEMBLY:**

Hook the ends through the small holes in the governor arm and throttle.

6 x 20 mm

80-110 kg-cm  
(5.8-8.0 ft-lb)

GOVERNOR ARM

**REASSEMBLY:**

When installing, readjust the governor. (P. 17)

GOVERNOR SPRING

**REASSEMBLY:**

Hook one end to the control lever and the other end to the governor arm.

# HONDA

HR194·HR214·HRA214

## • CARBURETOR

### CAUTION:

Remove the set bolt and drain the carburetor before disassembling. Fuel vapor or spilled fuel may ignite.

### FLOAT

#### REASSEMBLY:

Check for smooth movement after installing.

Check height:

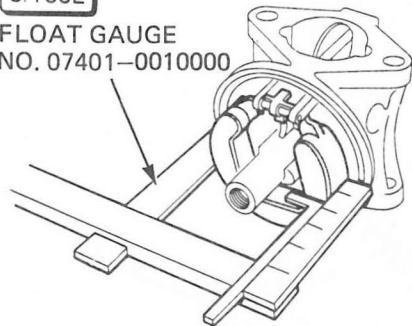
Place the carburetor in an upright position and measure the distance between the float top and carburetor body when the float just contacts the float valve.

Standard float height	12.2–15.2 mm (0.48–0.60 in)
-----------------------	--------------------------------

- Float height cannot be adjusted. If the height is out of specification, replace the float or the valve.

#### S. TOOL

FLOAT GAUGE  
NO. 07401-0010000



### MAIN JET

#### REASSEMBLY:

Clean thoroughly with compressed air before installing.

Standard	#65
----------	-----

### MAIN NOZZLE

#### REASSEMBLY:

Clean thoroughly with compressed air before installing.

### FUEL LINE

#### REASSEMBLY:

Check for deterioration or cracks. Replace if necessary.

### SET BOLT

#### REASSEMBLY:

After assembly, check for any sign of fuel leakage.

### FLOAT CHAMBER

### GASKET

#### REASSEMBLY:

Make sure the gasket is in place before installing the float chamber.

### FLOAT VALVE

#### REASSEMBLY:

Check for worn head or weak spring. Replace if necessary. Set the valve on the float arm properly as shown.

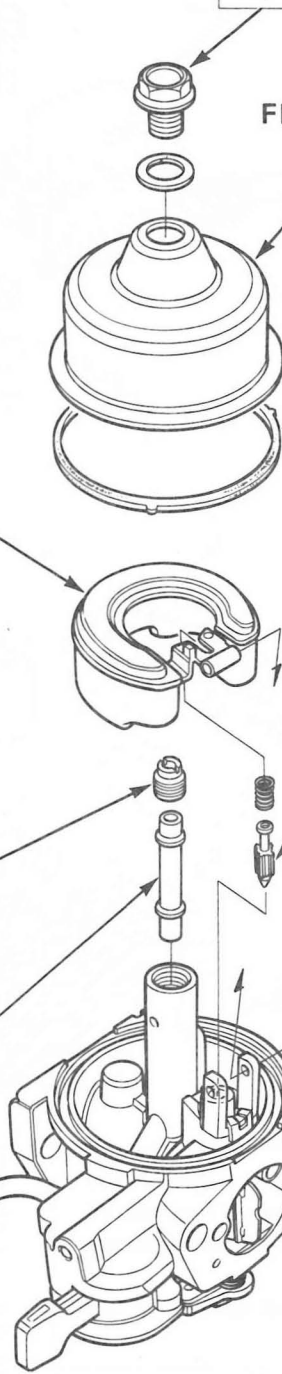


### FLOAT PIN

### CARBURETOR BODY

#### REASSEMBLY:

Clean internal passages and orifices with compressed air before installing.





### 5. IGNITION COIL/ENGINE STOP SWITCH

#### a. DISASSEMBLY/REASSEMBLY

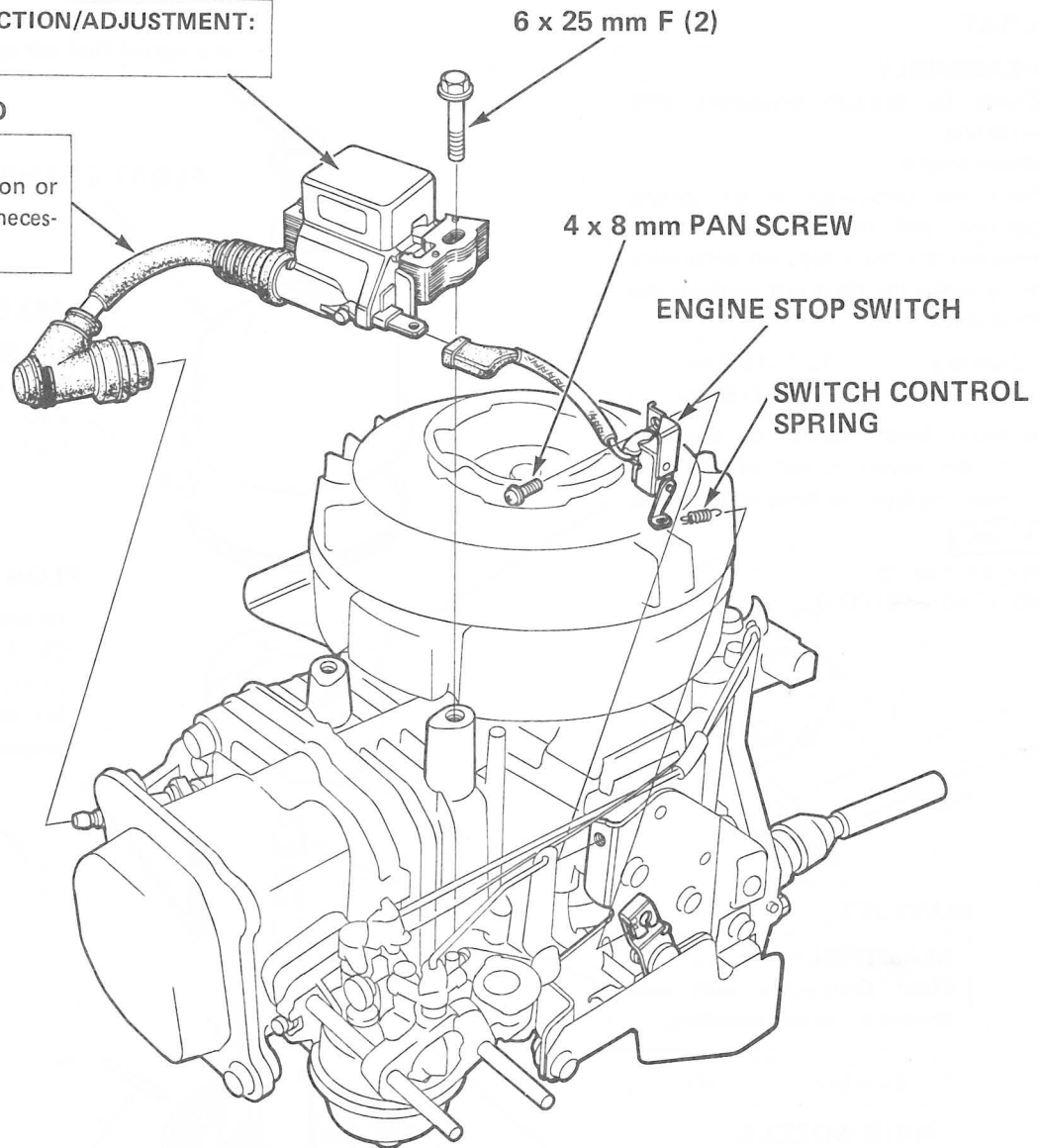
##### TRANSISTORIZED IGNITION COIL

INSPECTION/ADJUSTMENT:  
P. 33

##### HIGH TENSION CORD

###### REASSEMBLY:

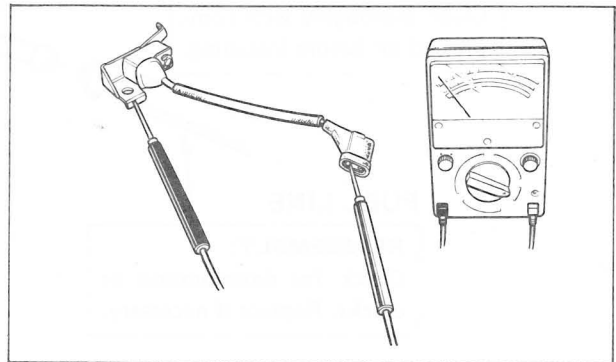
Check for frayed insulation or other defects. Replace if necessary.



#### b. INSPECTION

##### ● ENGINE SWITCH

There should be no continuity when the arm is moved fully counterclockwise, against its spring tension. There should be continuity when the arm is released and its spring moves the arm fully clockwise. Replace the engine switch if the correct continuity test results are not obtained.



# HONDA

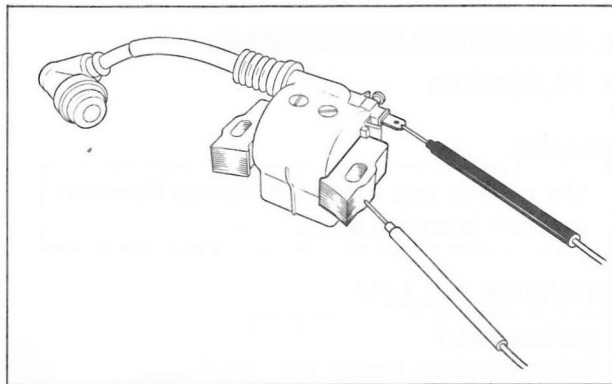
## HR194·HR214·HRA214

### ● TRANSISTORIZED IGNITION COIL

#### 〈 PRIMARY SIDE 〉

Measure the resistance of the primary coil by attaching one ohmmeter lead to the ignition unit's primary (black) lead while touching the other test lead to the iron core.

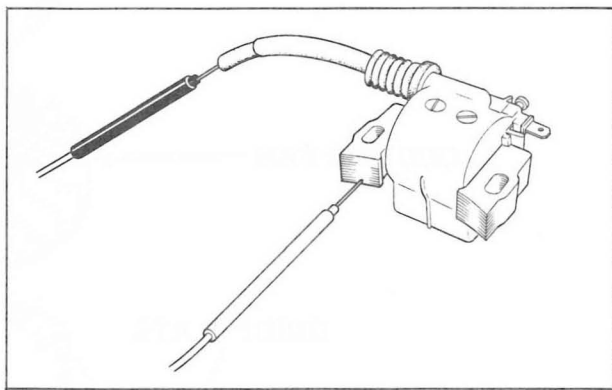
Primary side resistance value	$1.2 \Omega \pm 0.2$
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#### 〈 SECONDARY SIDE 〉

Measure the resistance of the secondary side of the coil by removing the spark plug cap and touching one test lead to the spark plug lead wire while touching the other lead to the unit's iron core.

Secondary side resistance value	$12 \text{ k}\Omega \pm 2\text{k}$
---------------------------------	------------------------------------



#### NOTE:

A false reading will result if the spark plug cap is not removed.

### c. ADJUSTMENT

#### ● IGNITION COIL AIR GAP

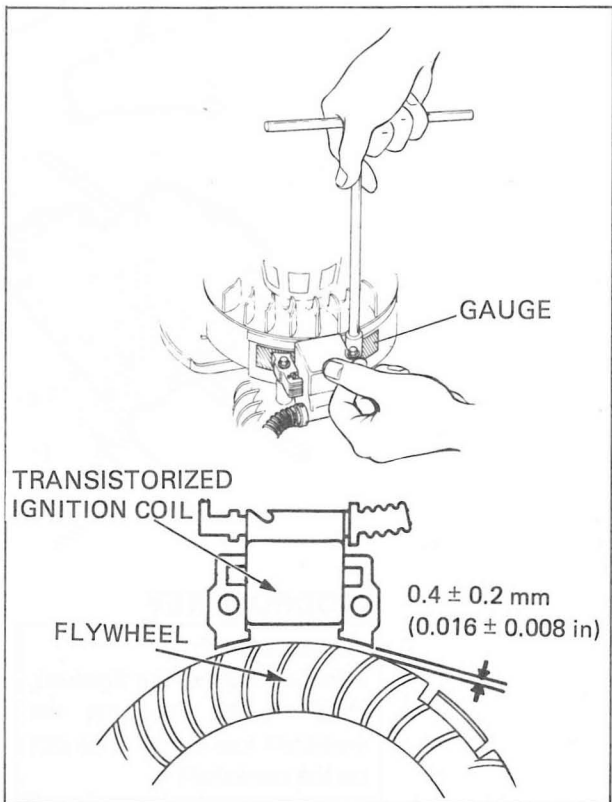
Adjustment is required only when the ignition coil or the flywheel have been removed.

- 1) Loosen the transistor unit bolts.
- 2) Insert a long thickness gauge or a piece of paper of the proper thickness between the ignition coil and the flywheel. Both gaps should be adjusted simultaneously.
- 3) Push the ignition coil firmly toward the flywheel and tighten the bolts.

Specified clearance	$0.4 \text{ mm} \pm 0.2$ ( $0.016 \text{ in} \pm 0.008$ )
---------------------	---

#### NOTE:

Avoid the magnet part of the flywheel when adjusting.



## 6. FLYWHEEL

### a. DISASSEMBLY/REASSEMBLY

#### ● FLYWHEEL

#### CAUTION:

Use extreme care when working with flywheel assembly to prevent injury.

#### STARTER PULLEY

#### REASSEMBLY:

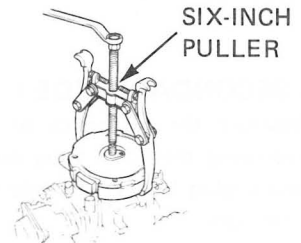
Before installing, remove any dirt or foreign matter.

#### 14 mm SPECIAL NUT FLYWHEEL

700–800 kg-cm  
 (50.6–57.9 ft-lb)

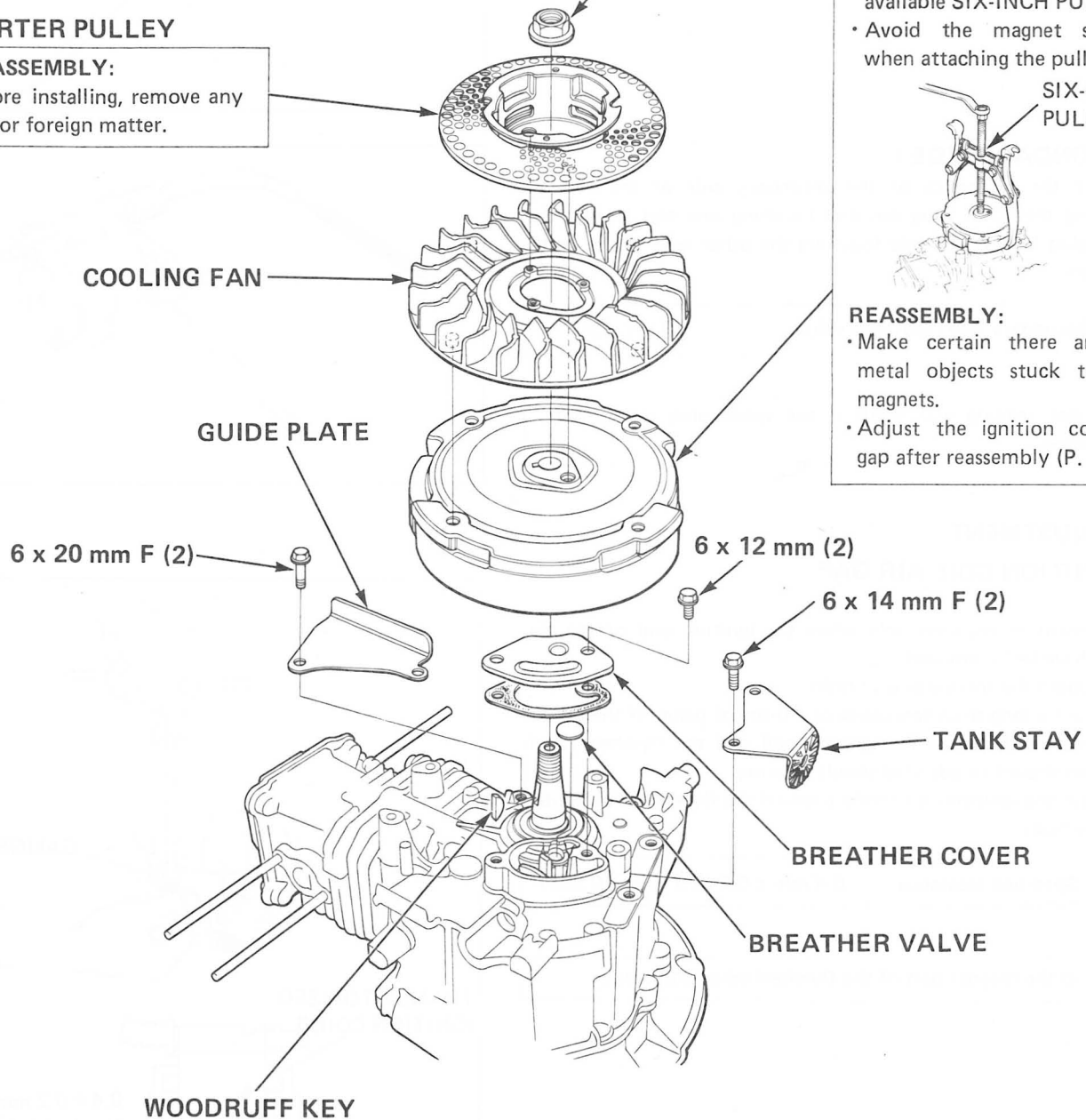
#### DISASSEMBLY:

- Do not hit the flywheel with a hammer.
- Remove with a commercially available SIX-INCH PULLER.
- Avoid the magnet section when attaching the puller.



#### REASSEMBLY:

- Make certain there are no metal objects stuck to the magnets.
- Adjust the ignition coil air gap after reassembly (P. 33)



#### WOODRUFF KEY

#### REASSEMBLY:

After reinstalling the flywheel, check to be sure that the woodruff key is still in its slot on the crankshaft.

### 7. CYLINDER HEAD/VALVES

#### a. DISASSEMBLY/REASSEMBLY

#### INLET VALVE/ EXHAUST VALVE

**VALVE HEAD DIAMETER:**  
IN . . . . . 20 mm (0.79 in)  
EX . . . . . 18 mm (0.71 in)

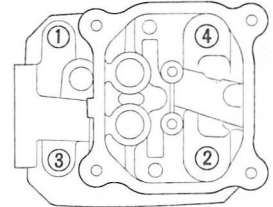
#### CYLINDER HEAD GASKET

**8 x 45 mm F (4)**  
220–260 kg-cm  
(15.9–18.8 ft-lb)

#### CYLINDER HEAD

##### DISASSEMBLY/REASSEMBLY:

- Loosen and tighten the bolts, in the order shown.



- Before installing, remove carbon deposits from inside the combustion chamber.
- Before installing, inspect the contact area of the valve seats.
- Measure cylinder compression after reassembly.

#### PUSH RODS

##### REASSEMBLY:

- Check both ends for wear, and check the shafts for straightness.
- Be sure that the rod ends are firmly seated in the lifters.

#### PUSH ROD GUIDE

#### PIVOT BOLT

80–120 kg-cm  
(5.8–8.7 ft-lb)

#### ROCKER ARM

##### REASSEMBLY:

Before installing, check for wear on the surfaces which contact the pivot bolt, the push rod and the rocker arm pivot.

#### ROCKER ARM PIVOT

#### PIVOT LOCK NUT

80–120 kg-cm  
(5.8–8.7 ft-lb)

#### CYLINDER HEAD COVER

#### 6 x 14 mm F (4)

80–120 kg-cm  
(5.8–8.7 ft-lb)

#### SPARK PLUG

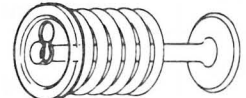
##### STANDARD:

BP5ES, BPR5ES (NGK) or  
W16EP-U, W16EPR-U (ND)

#### VALVE SPRING RETAINER

##### DISASSEMBLY:

Push down on the valve spring and move the retainer to the side so that the valve stem slips through the side hole.



##### CAUTION:

Do not remove the valve spring retainers while the cylinder head is attached to the cylinder, or the valves will drop into the combustion chamber.

### ● VALVE GUIDE REMOVAL/INSTALLATION

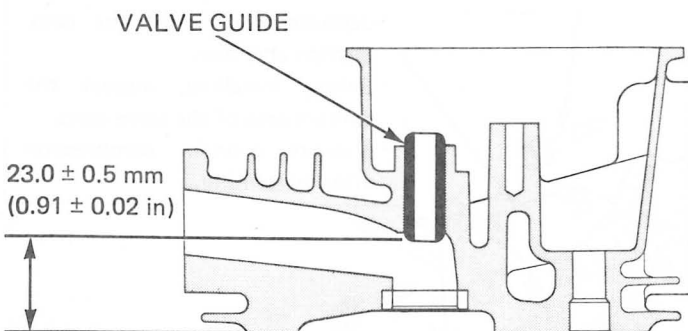
Drive the valve guide out of the head using a valve guide driver (special tool).

Clean the hole, apply oil to the outside of the new guide, and drive it into the head as shown.

Seating depth	$23.0 \pm 0.5$ mm ( $0.91 \pm 0.02$ in)
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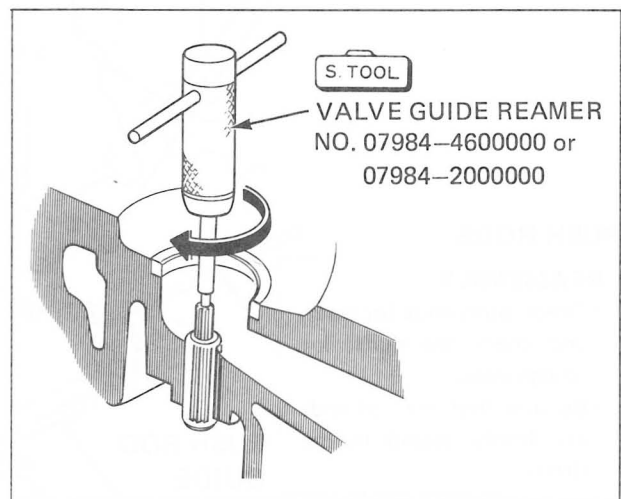
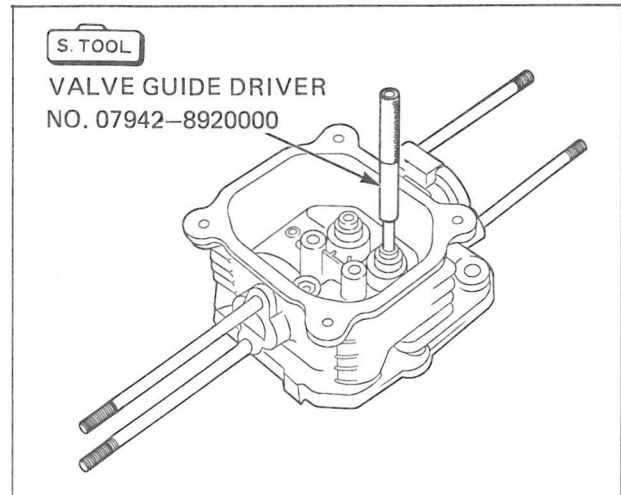
#### CAUTION:

Protect the head gasket surface to prevent damage during the driving operation.



After replacing the valve guide, ream the valve guide ID using a special tool (valve guide reamer).

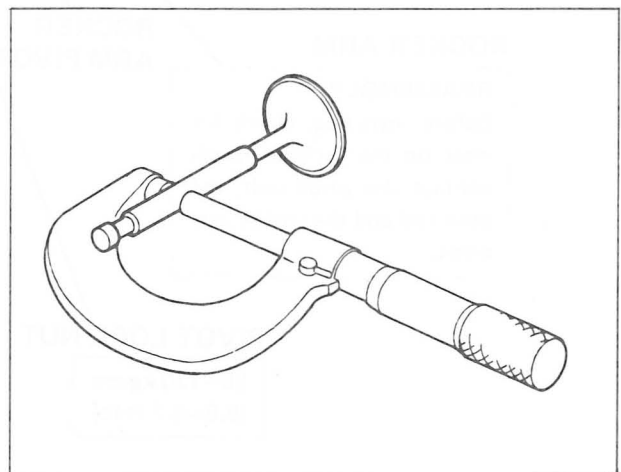
Always turn the reamer clockwise, never counterclockwise. Continue to turn the reamer as it is pulled out of the head.



### b. INSPECTION

#### ● VALVE STEM OD

	Standard	Service limit
IN	5.5 mm (0.217 in)	Replace under 5.318 mm (0.209 in)
EX	5.5 mm (0.217 in)	Replace under 5.275 mm (0.208 in)



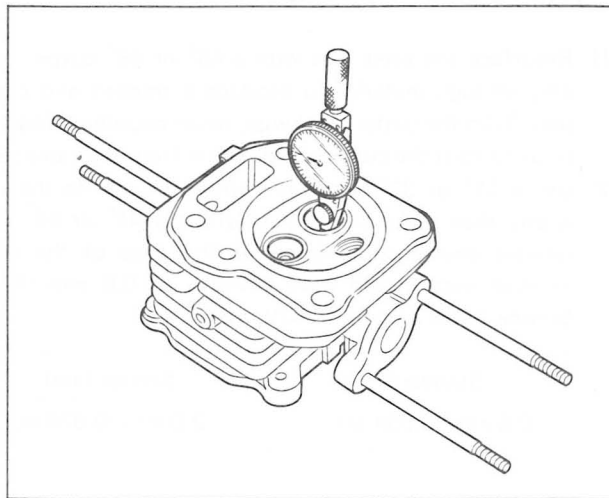
# HONDA

## HR194·HR214·HRA214

### ● VALVE GUIDE ID

Standard	Service limit
5.5 mm (0.217 in)	Replace under 5.562 mm (0.222 in)

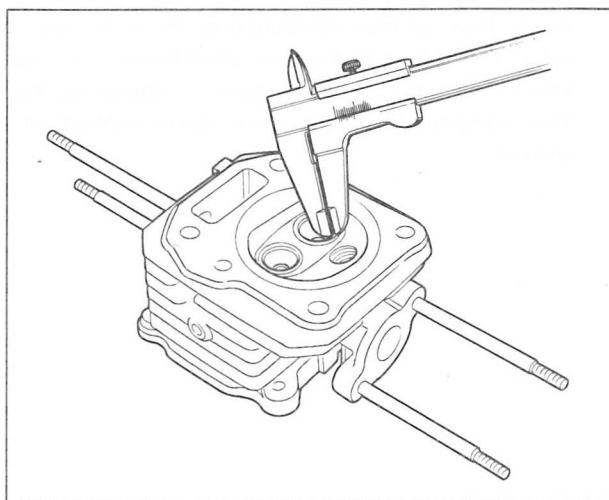
See P. 36 for replacement procedure.



### ● VALVE SEAT WIDTH

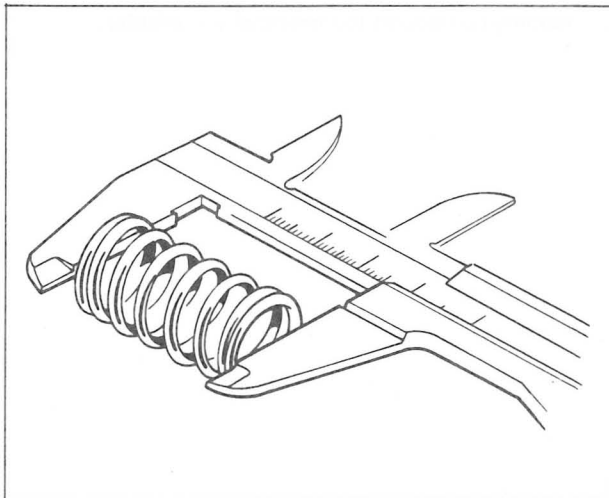
Standard	Service limit
0.8 mm (0.03 in)	Recut when over 2.0 mm (0.079 in)

See P. 38 for valve seat reconditioning.



### ● VALVE SPRING FREE LENGTH

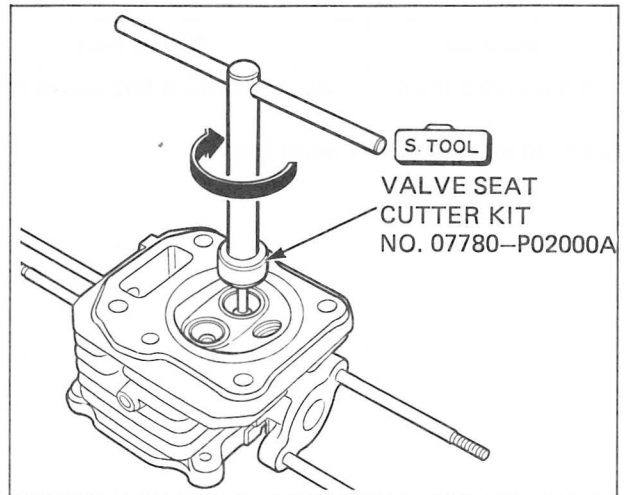
Standard	Service limit
34.0 mm (1.339 in)	Replace if less than 32.5 mm (1.280 in)



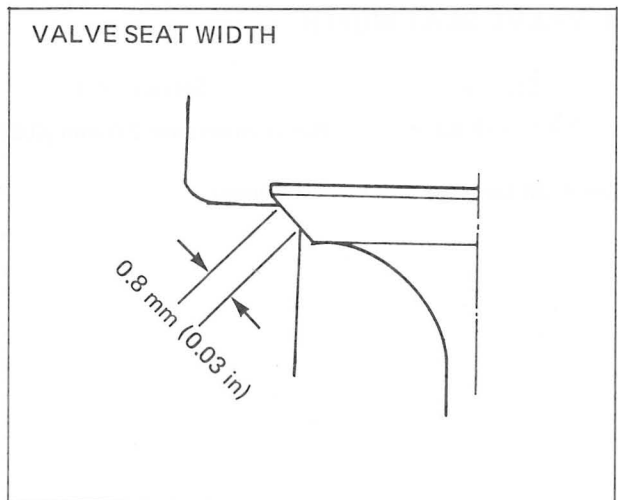
## ● VALVE SEAT RECONDITIONING

- 1) Resurface the valve seat with a 45° or 46° cutter, removing only enough material to produce a smooth and concentric seat. Turn the cutter clockwise, never counterclockwise. Continue to turn the cutter as you lift it from the valve seat.
- 2) Use a 31° or 32° cutter to narrow the seat to the standard width, then make a light pass with the 45° or 46° cutter to remove any possible burrs at the edge of the seat. The finished seat should have a width of 0.8 mm (0.031 in). Service Limit 2.0 mm (0.079 in).

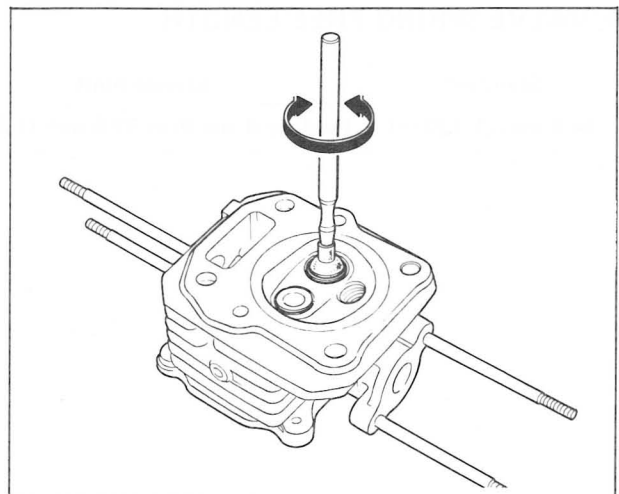
Standard	Service limit
0.8 mm (0.031 in)	2.0 mm (0.079 in)



- 3) After resurfacing the seat, inspect for even valve seating. Apply Prussian blue compound to the valve face, insert the valve, then lift it and snap it closed against the seat several times. The valve seating surfaces, as shown by the Prussian blue compound, should show good contact all the way around.

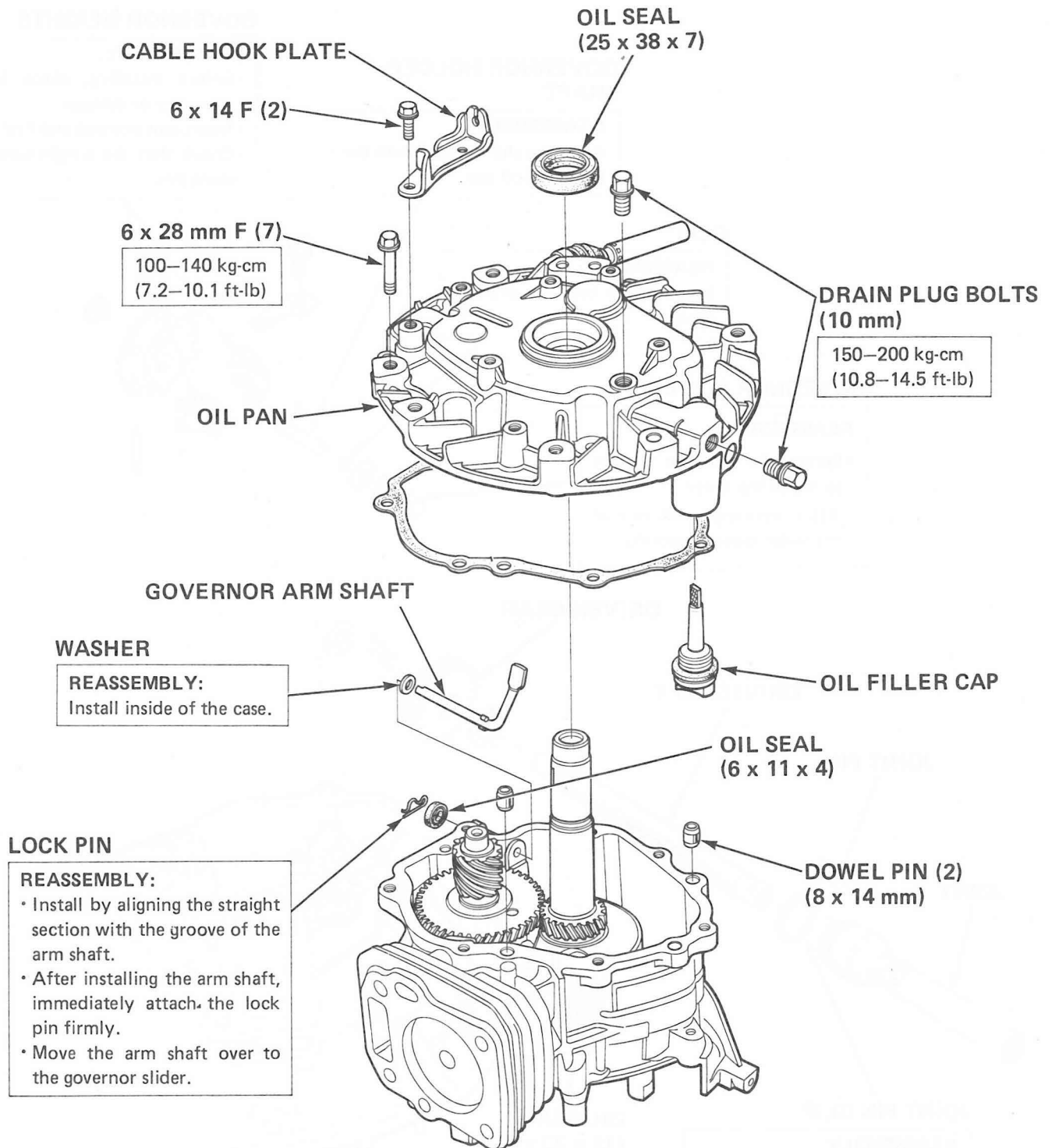


- 4) Lap the valves into their seats, using a hand valve lapper and lapping compound (commercially available).



### 8. OIL PAN

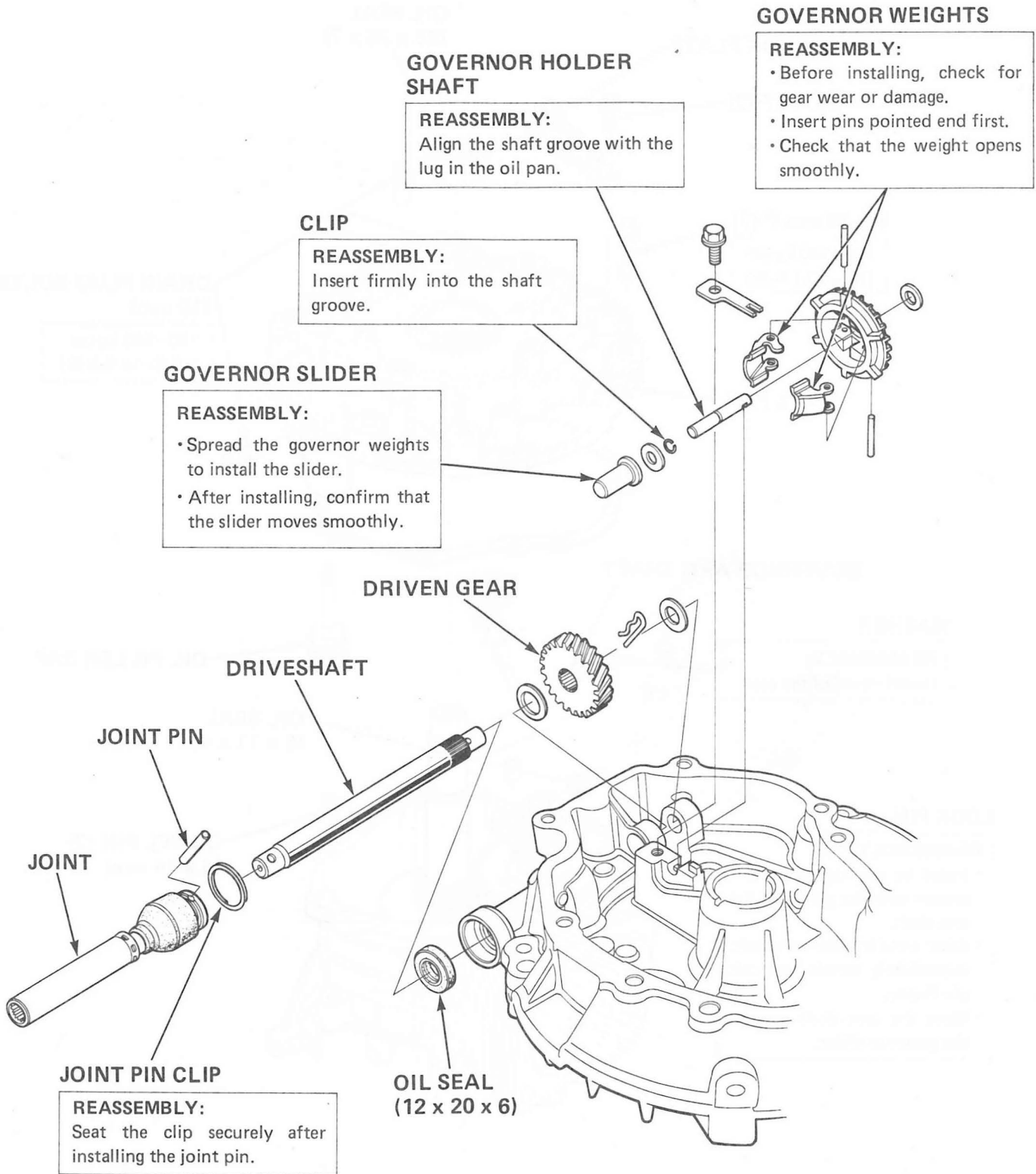
#### a. DISASSEMBLY/REASSEMBLY





### 9. DRIVESHAFT/GOVERNOR

#### a. DISASSEMBLY/REASSEMBLY



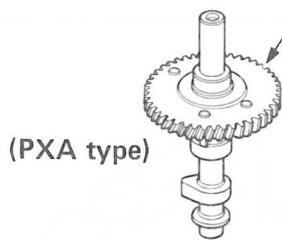
### 10. CRANKSHAFT/PISTON

#### a. DISASSEMBLY/REASSEMBLY

##### CAMSHAFT

###### REASSEMBLY:

With the crankshaft in place, align the timing punch mark on the cam gear with the punch mark on the crankshaft's cam drive gear. (P. 42)

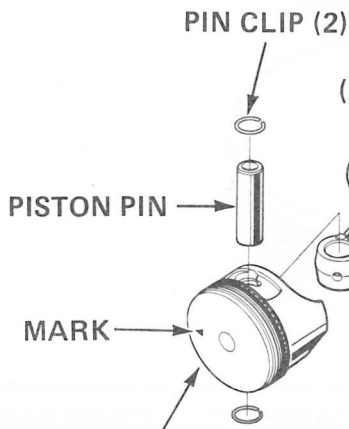


(PXA type)

##### VALVE LIFTER

###### DISASSEMBLY:

- When removing, mark so that the IN and EX sides can be distinguished.
- Install the lifter before installing the camshaft.



PIN CLIP (2)

PISTON PIN

MARK

##### PISTON

###### REASSEMBLY:

Install so that the triangular mark on the piston head points toward the push rods.



PISTON SLIDER  
(commercially available)

##### MECHANICAL DECOMPRESSOR

###### REASSEMBLY:

Before installing, inspect for worn and weakened springs and check that the decompressor weight is moving smoothly.

##### MECHANICAL DECOMPRESSOR

##### MECHANICAL DECOMPRESSOR WEIGHT

##### CRANKSHAFT

###### REASSEMBLY:

- Install by pressing in firmly until contact is made with the bearing surface.
- Take care not to damage the oil seal.
- Take care not to damage the gear on the governor weight.

(SXA type)

RETURN SPRING

##### CONNECTING ROD BOLT (2)

100–140 kg-cm  
(7.2–10.1 ft-lb)

LOWER CAP

BALL BEARING (62/22)

OIL SEAL (22 x 35 x 6)

##### CONNECTING ROD

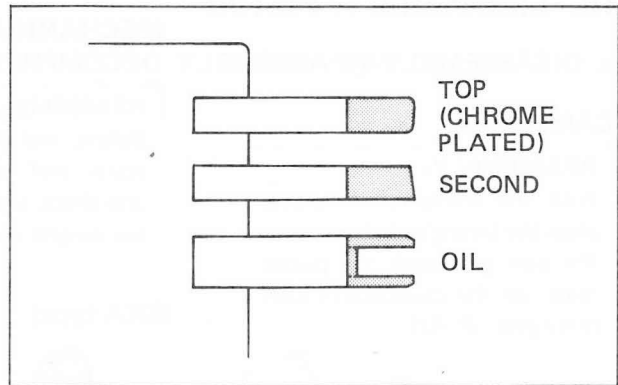
###### REASSEMBLY:

Note that the longer big end segment (A) of the connecting rod goes to the same side as the triangular mark on the piston.

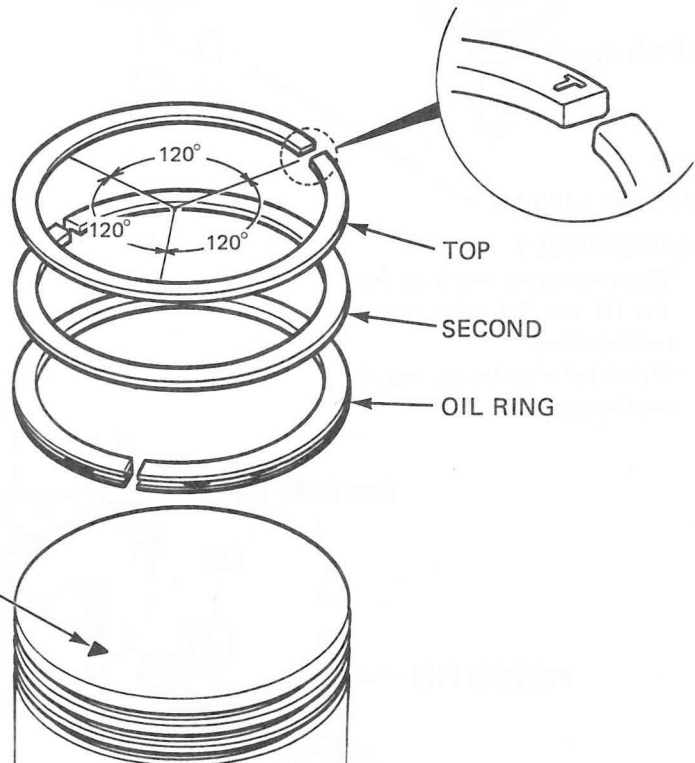
### ● PISTON RING INSTALLATION

#### NOTE:

- Install all rings with the markings facing up.
- After installation, the rings should rotate freely in the grooves.



Space the piston ring end gaps 120 degrees apart.



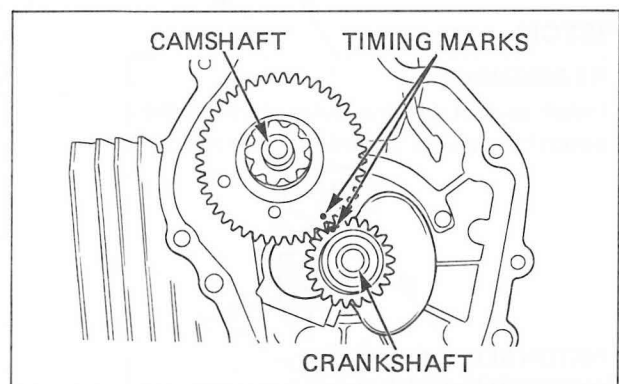
#### OFF-SET MARK

##### REASSEMBLY:

When installing the piston, turn this mark toward the push rod side.

### ● VALVE TIMING

After installing the crankshaft, install the camshaft by aligning the marks on the timing gears.



# HONDA

HR194·HR214·HRA214

## ● TIMING GEAR

### DISASSEMBLY:

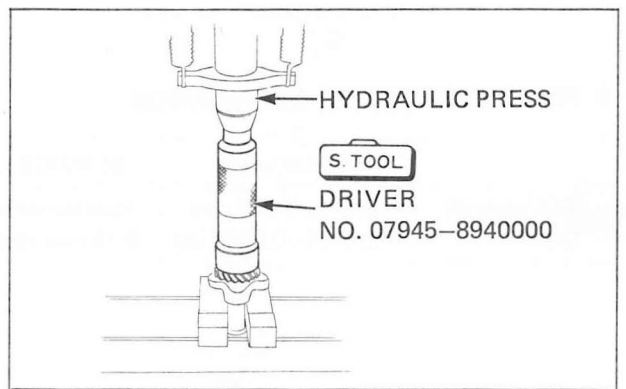
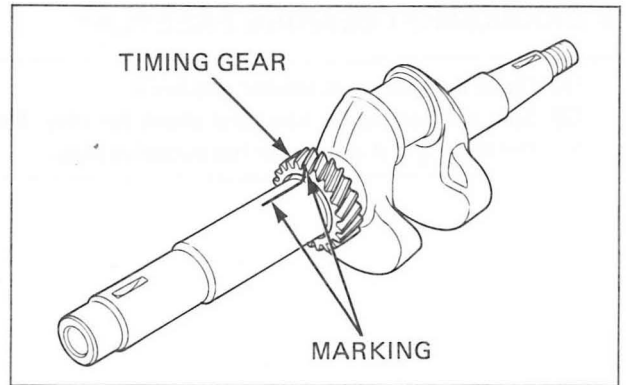
- 1) Scribe a line on the crankshaft and the timing gear tooth as shown.
- 2) Use a hydraulic press to remove the timing gear.

### REASSEMBLY:

- 1) Using the old gear for reference, scribe a line at the same position on the new timing gear tooth.
- 2) Use a hydraulic press and the special tool to press the timing gear in with the scribed marks aligned.

### CAUTION:

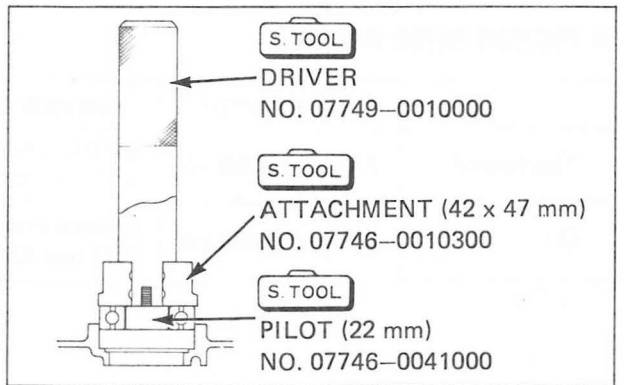
Do not scribe the crankshaft deeply. Otherwise, oil may seep through the oil seal.



## ● CRANKSHAFT BEARING/OIL SEAL INSTALLATION

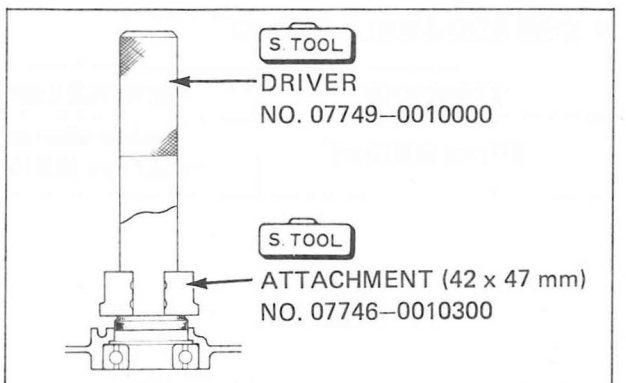
### BALL BEARING (62/22)

- 1) Replace the bearing if it rattles.
- 2) Oil the bearing to ease installation and drive in evenly.



### OIL SEAL (22 x 35 x 6)

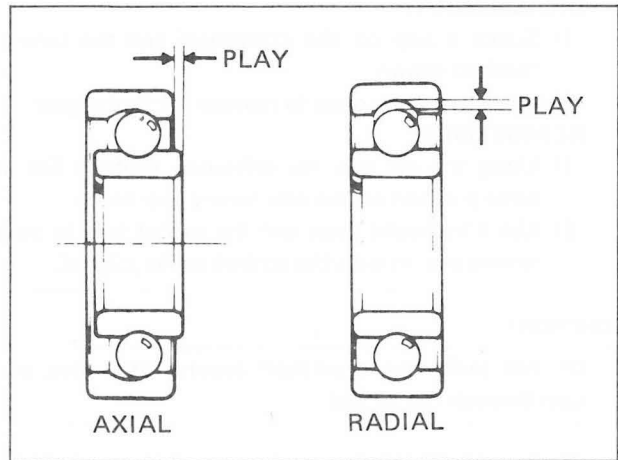
- 1) Drive a new oil seal into the crankcase until the outer face is flush with the crankcase.



## b. INSPECTION

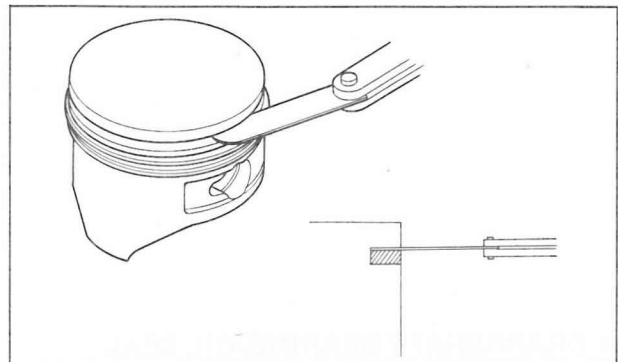
### ● CRANKSHAFT BEARING FREE PLAY

- (1) Clean the bearing in solvent and dry it.
- (2) Spin the bearing by hand and check for play. Replace the bearing if it is noisy or has excessive play.



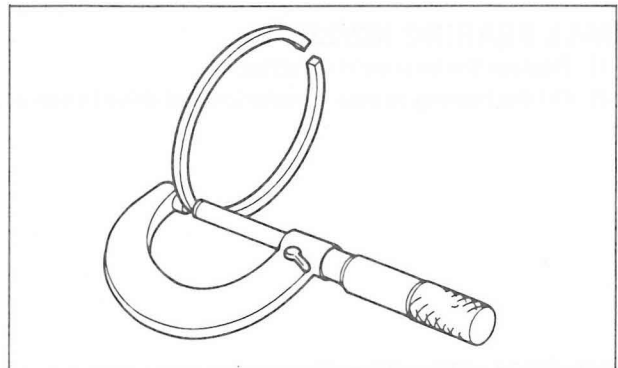
### ● PISTON RING SIDE CLEARANCE

	STANDARD	SERVICE LIMIT
Top/second/ Oil	0.015–0.045 mm (0.0006–0.0018 in)	Replace when over 0.15 mm (0.006 in)



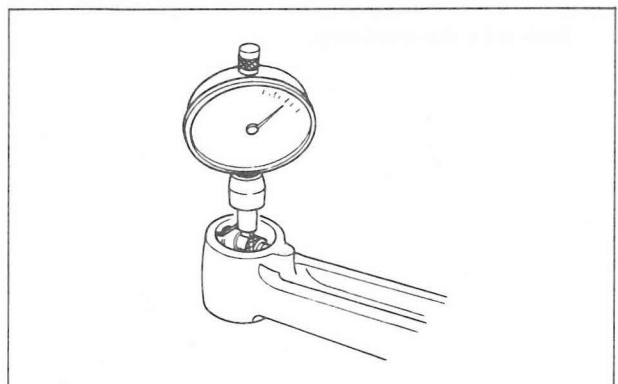
### ● PISTON RING WIDTH

	STANDARD	SERVICE LIMIT
Top/second	1.5 mm (0.059 in)	Replace when under 1.37 mm (0.054 in)
Oil	2.5 mm (0.098 in)	Replace when under 2.37 mm (0.093 in)



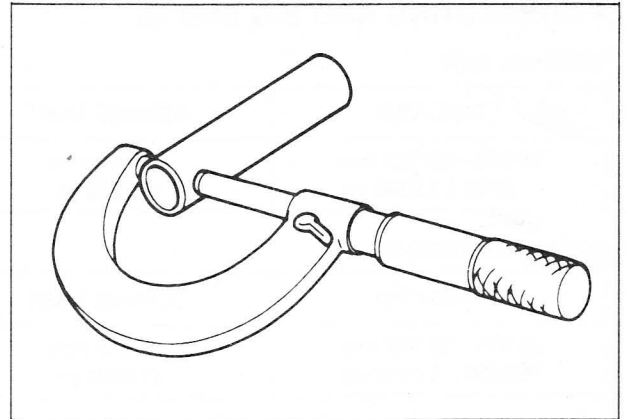
### ● CON-ROD SMALL END ID

STANDARD	SERVICE LIMIT
13.0 mm (0.512 in)	Replace when over 13.07 mm (0.519 in)



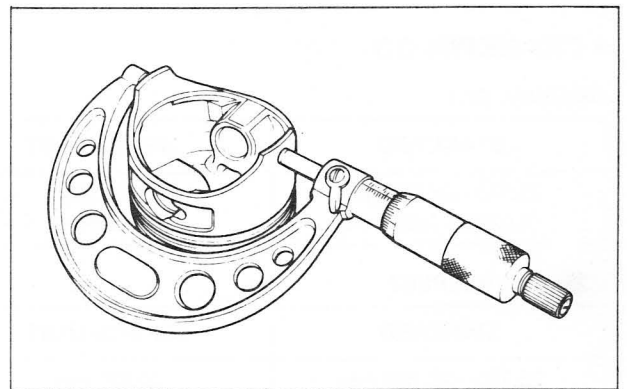
● PISTON PIN OD

STANDARD	SERVICE LIMIT
12.994–13.0 mm (0.5115–0.5118 in)	Replace when under 12.954 mm (0.510 in)



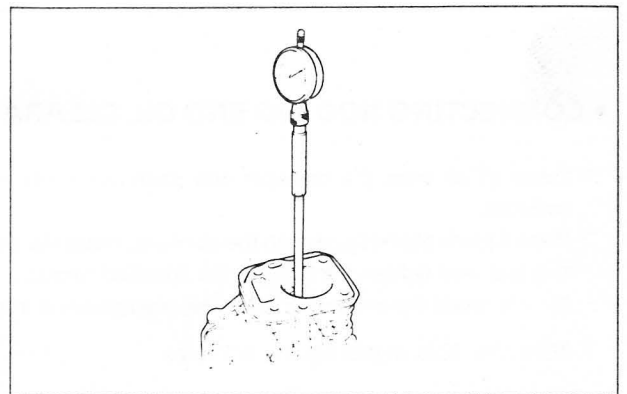
● PISTON SKIRT OD

STANDARD	SERVICE LIMIT
60.0 mm (2.36 in)	Replace when under 59.55 mm (2.34 in)



● CYLINDER ID

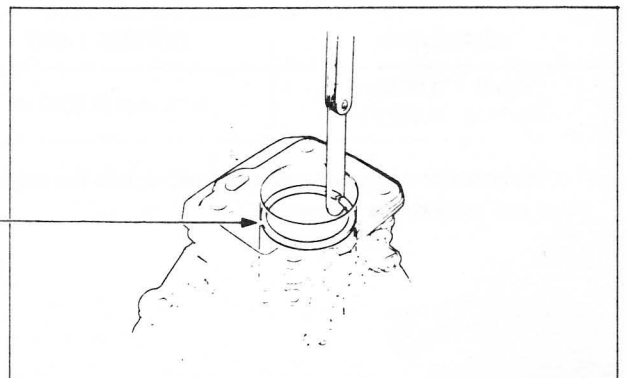
STANDARD	SERVICE LIMIT
60.0 mm (2.36 in)	Replace when over 60.165 mm (2.37 in)



● PISTON RING END GAP

STANDARD	SERVICE LIMIT
0.2–0.4 mm (0.008–0.016 in)	Replace when over 1.0 mm (0.039 in)

Before measuring end gap, use the piston top to position the ring so it will not be cocked in the cylinder bore.



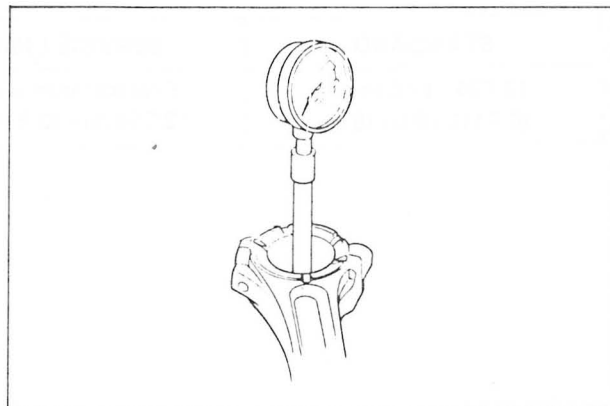
### • CONNECTING ROD BIG END ID

ORIGINAL SIZE

STANDARD	SERVICE LIMIT
26.020—26.033 mm (1.0244—1.0249 in)	26.066 mm (1.0262 in)

0.25 mm UNDERSIZE

STANDARD	SERVICE LIMIT
25.770—25.783 mm (1.0146—1.0151 in)	25.816 mm (1.0164 in)



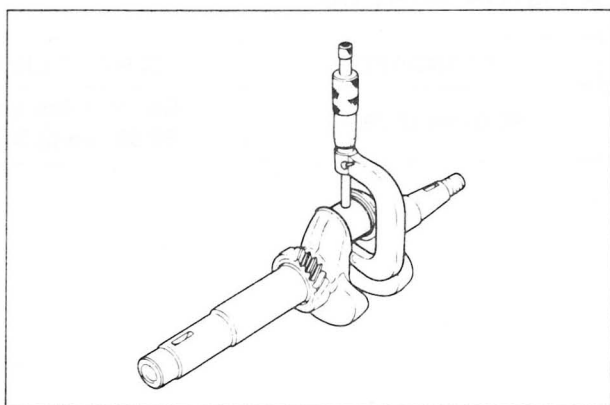
### • CRANKPIN OD

ORIGINAL SIZE

STANDARD	SERVICE LIMIT
25.970—25.980 mm (1.0224—1.0228 in)	25.92 mm (1.0205 in)

0.25 mm UNDERSIZE

STANDARD	SERVICE LIMIT
25.720—25.730 mm (1.0126—1.0130 in)	25.670 mm (1.0106 in)



### • CONNECTING ROD BIG END OIL CLEARANCE

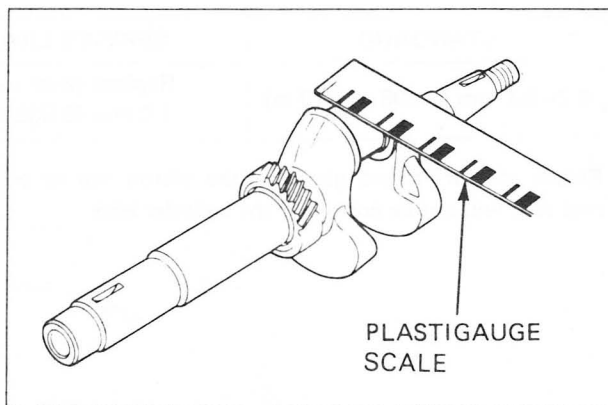
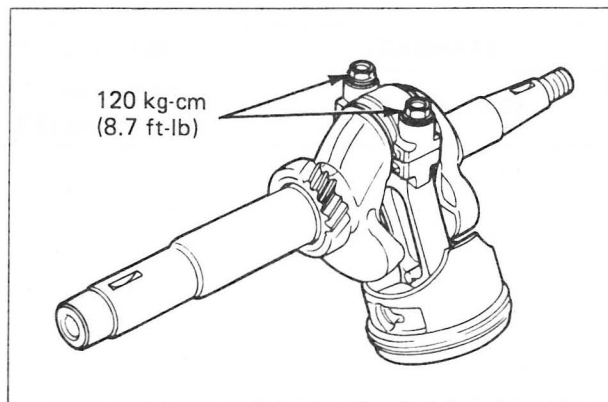
- 1) Clean all oil from the crankpin and connecting rod bearing surfaces.
- 2) Place a piece of plastiguage on the crankpin, install the connecting rod, and tighten the bolts to the specified torque.  
Do not rotate the crankshaft while the plastiguage is in place.

TORQUE: 12 N·m (120 kg·cm, 8.7 ft·lb)

- 3) Remove the connecting rod and measure the plastiguage.

STANDARD	SERVICE LIMIT
0.040—0.063mm (0.0016—0.0025 in)	0.12 mm (0.0047 in)

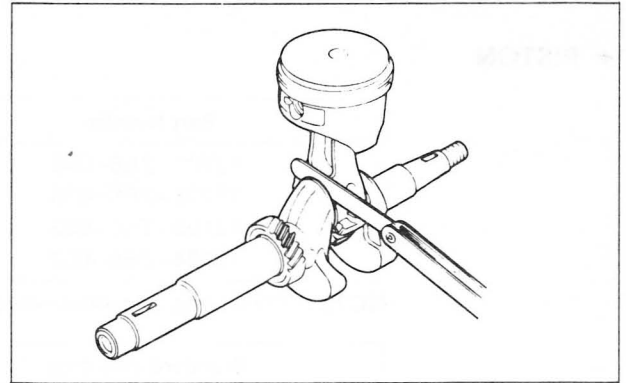
- 4) If the clearance exceeds the service limit, replace the connecting rod and recheck the clearance.



NEW

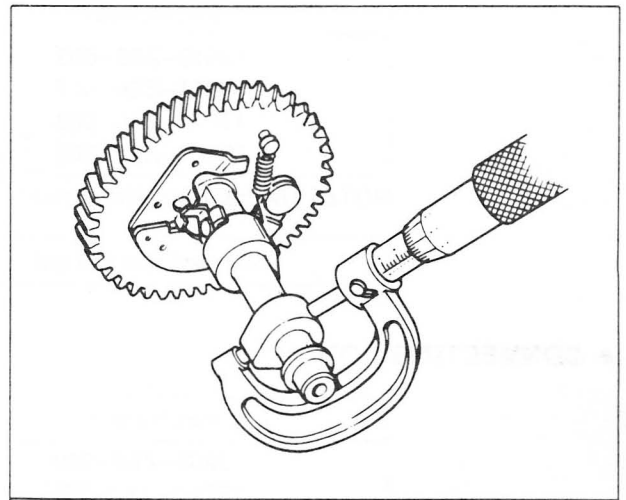
● **CON-ROD BIG END AXIAL CLEARANCE**

STANDARD	SERVICE LIMIT
0.1–0.7 mm (0.0039–0.0276 in)	1.1 mm (0.0433 in)



● **CAMSHAFT CAM HEIGHT**

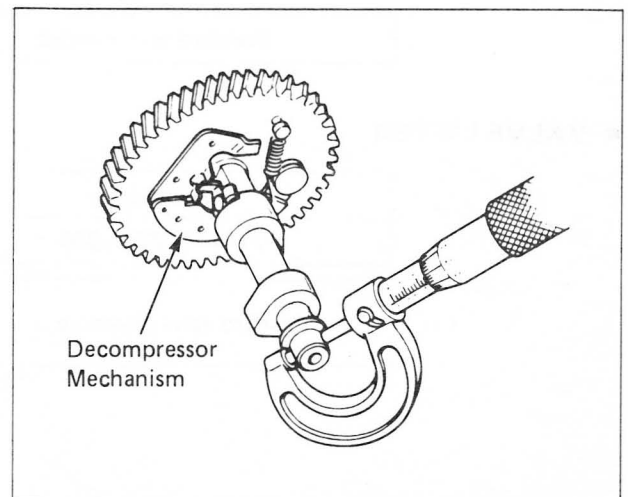
	STANDARD	SERVICE LIMIT
IN	27.7 mm (1.091 in)	Replace under 27.45 mm (1.081 in)
EX	27.75 mm (0.093 in)	Replace under 27.50 mm (1.083 in)



● **CAMSHAFT OD**

STANDARD	SERVICE LIMIT
14.0 mm (0.551 in)	Replace under 13.916 mm (0.548 in)

- Note the location of the decompressor mechanism, check to be sure it moves freely.





## c. REPAIR PART INFORMATION (UNDERSIZE/OVERSIZE)

### ● PISTON

Part Number	Size
13101-ZE6-003	Standard
13102-ZE6-003	plus 0.25 mm (0.01 in)
13103-ZE6-003	plus 0.50 mm (0.02 in)
13104-ZE6-003	plus 0.75 mm (0.03 in)

NOTE: When using an oversize piston, be sure to check the piston-to-cylinder clearance.

Standard clearance	0.01–0.06 mm (0.001–0.002 in)
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### ● PISTON RING SET

Part Number	Size
13010-ZE6-003	Standard
13011-ZE6-003	plus 0.25 mm (0.01 in)
13012-ZE6-003	plus 0.50 mm (0.02 in)
13013-ZE6-003	plus 0.75 mm (0.03 in)

NOTE: Use the same sized piston.

Standard ring end gap	0.2–0.4 mm (0.008–0.016 in)
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### ● CONNECTING ROD

Part Number	Size
13200-ZE6-000	Standard
132A0-ZE6-305	minus 0.25 mm (0.01 in) 25.770–25.783 mm (1.0146–1.0151 in)

NOTE: When using an undersized connecting rod, be sure to check the oil clearance with plastigauge.

Standard oil clearance	0.040–0.063 mm (0.0016–0.0025 in)
------------------------	-----------------------------------

### ● VALVE LIFTER

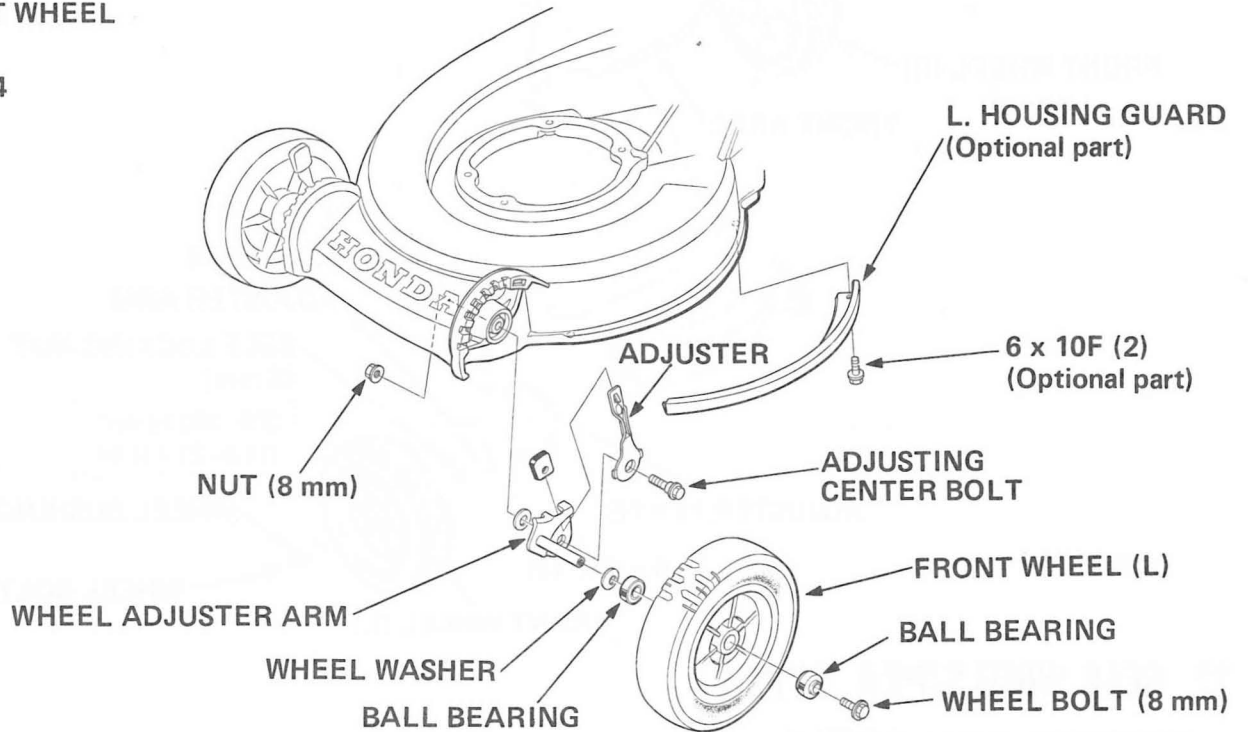
Part Number	Size	
14441-ZE1-000	30.5 mm (1.20 in)	
Standard valve clearance	IN	0.10 ± 0.03 mm (0.004 ± 0.001 in)
	EX	0.15 ± 0.03 mm (0.006 ± 0.001 in)

### 11. FRONT WHEELS/HOUSING

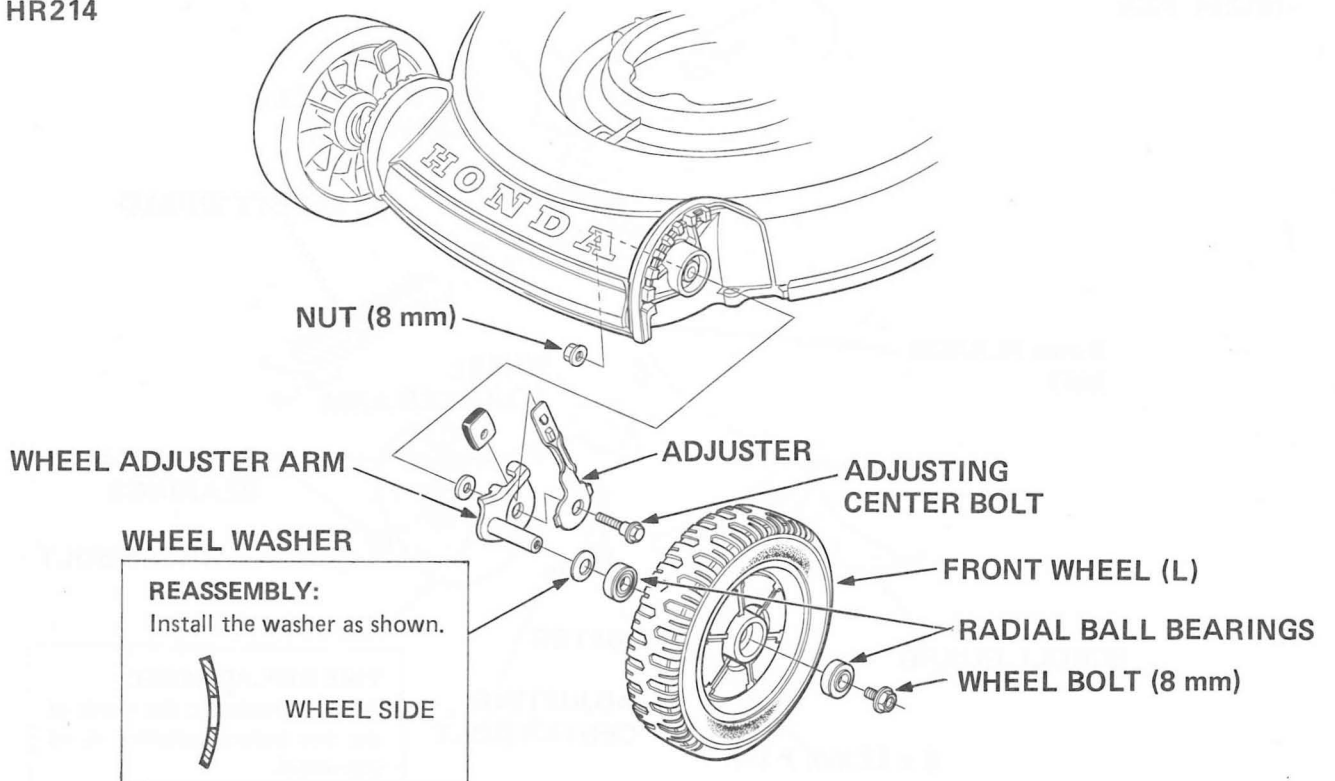
#### a. DISASSEMBLY/REASSEMBLY

##### ● FRONT WHEEL

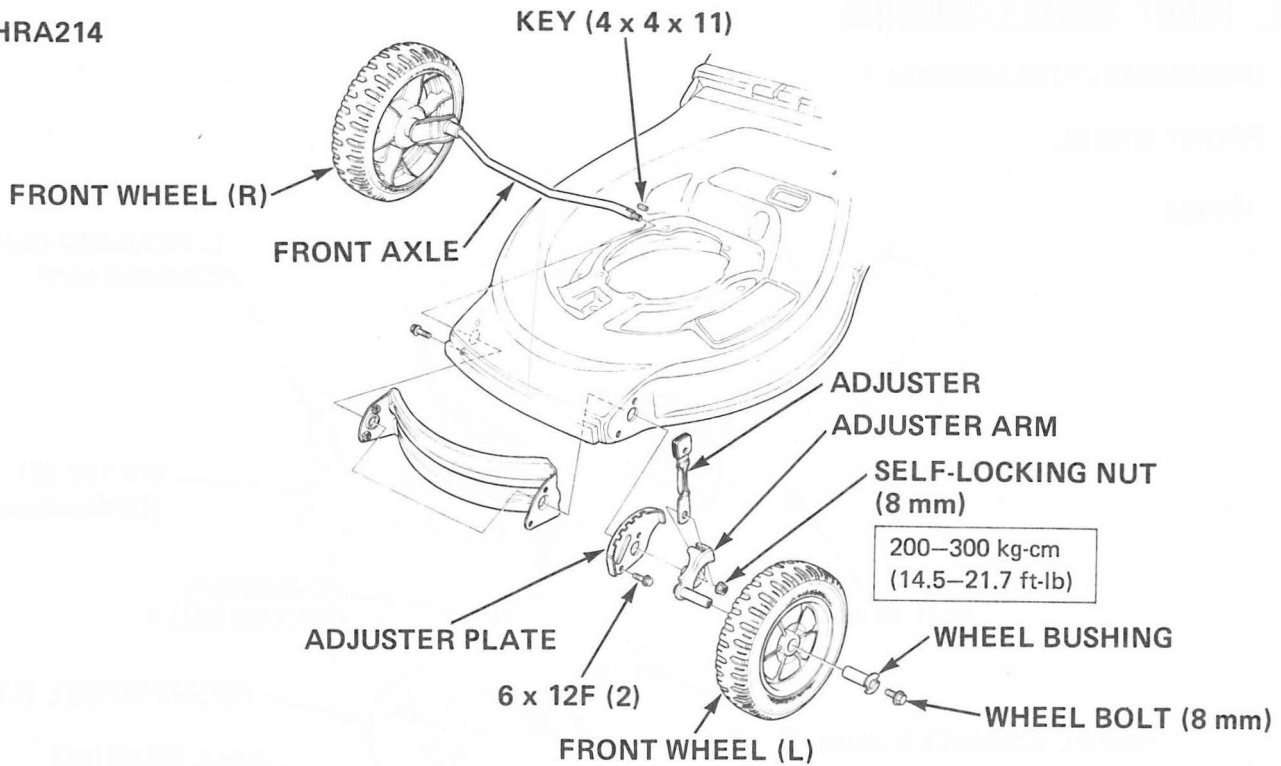
HR194



HR214



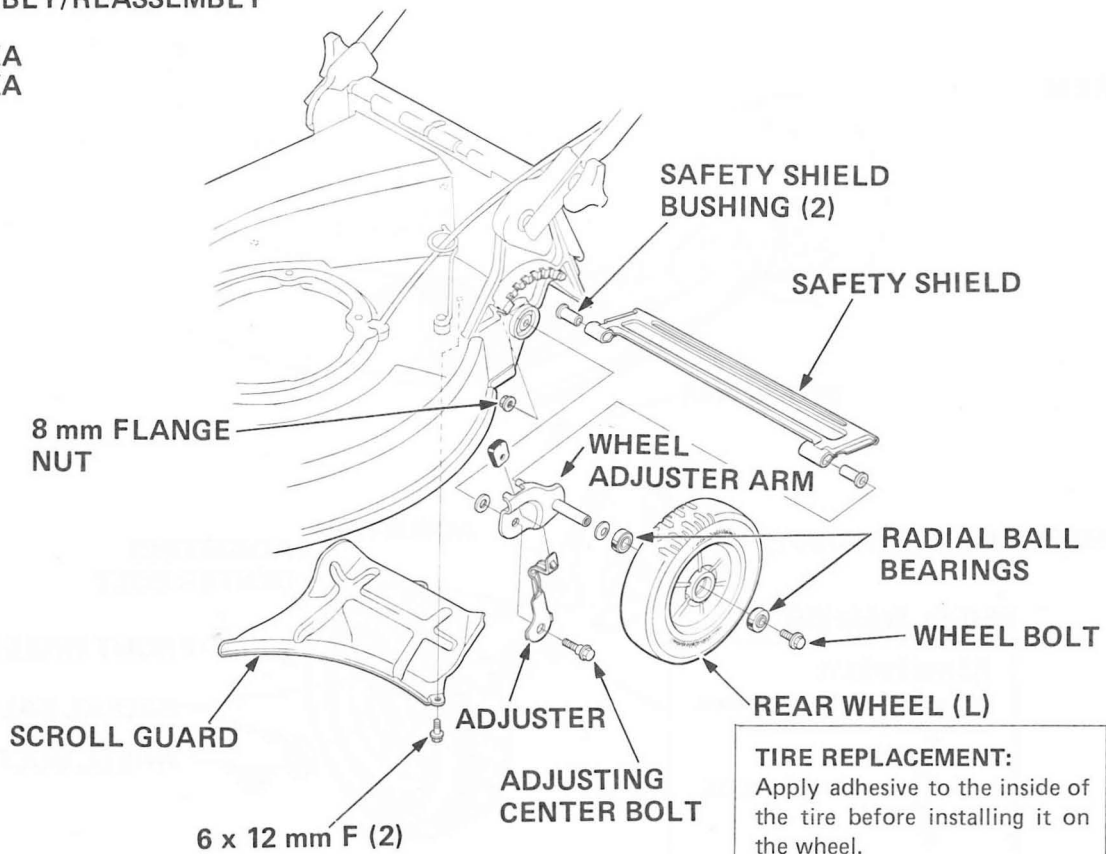
HRA214



## 12. REAR WHEELS(PXA TYPE)

### a. DISASSEMBLY/REASSEMBLY

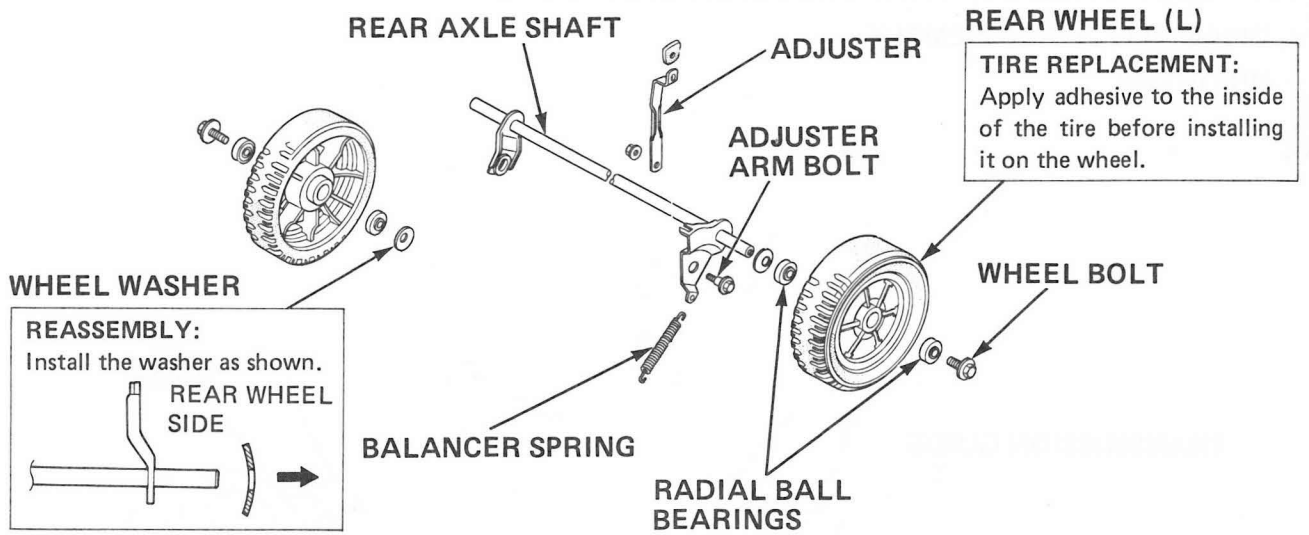
HR194 PXA  
HR214 PXA



# HONDA

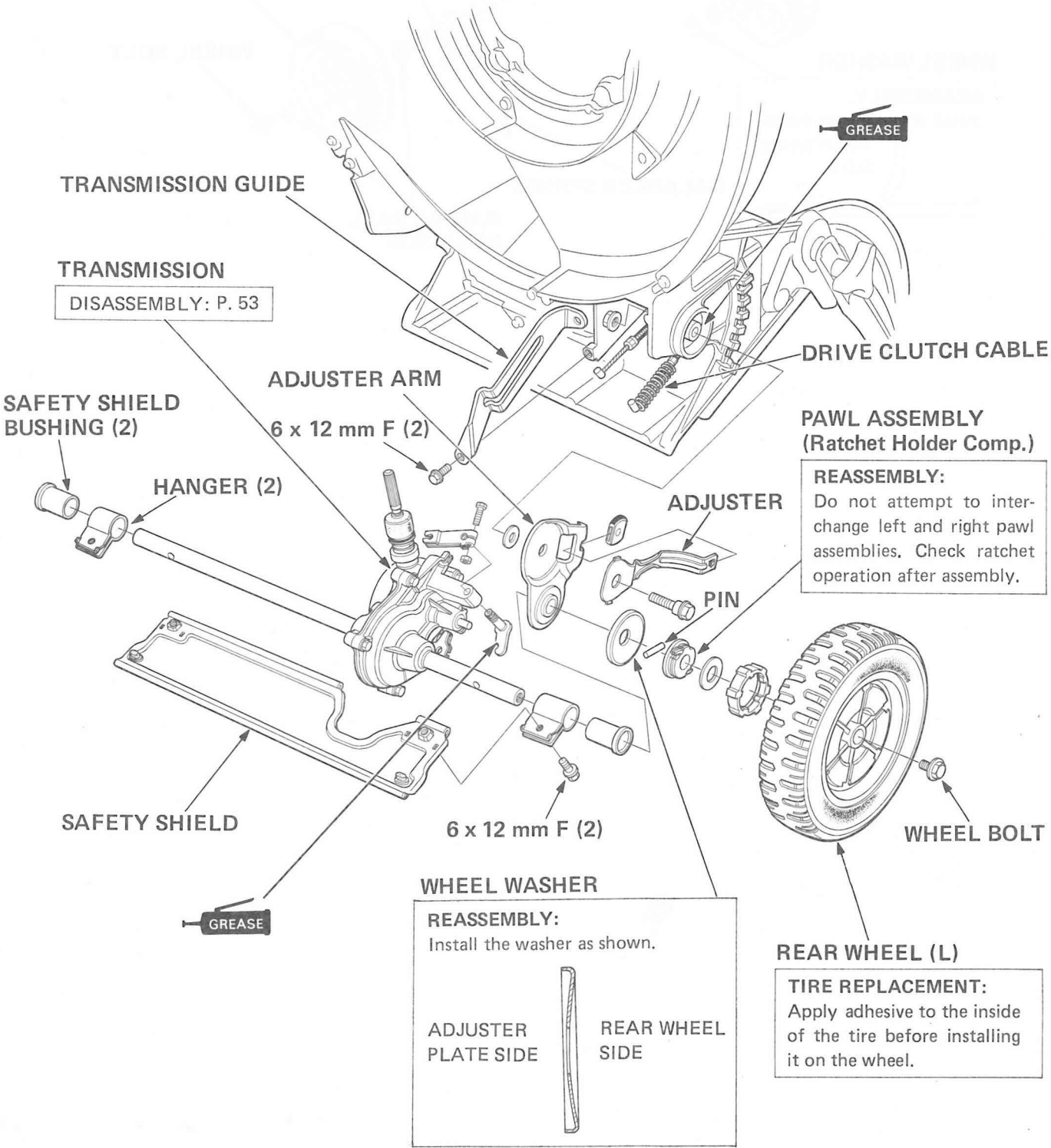
HR194·HR214·HRA214

HRA214 PXA



**13. REAR WHEELS/TRANSMISSION(SXA TYPE)**

a. DISASSEMBLY/REASSEMBLY  
 HR214 SXA





● TRANSMISSION (HR214 SXA) R. TRANSMISSION CASE

**REASSEMBLY:**

After assembly, check for smooth operation without binding.

Oil capacity: 130cc (0.14 US qt)  
Specified oil: SAE 90 hypoid gear oil  
Transmission case on serial number 1168193 and above (Japan made), 6221210 and above (U.S.A. made), is provided with a needle bearing.

NEW

**NEEDLE BEARING (10 × 17 × 4)**

This bearing is standard on the following HR214SXA mowers:  
Ser. No. 1168193 and above (Japan made)  
Ser. No. 6221210 and above (U.S.A. made)

NEW

**JOINT PIN CLIP**

**REASSEMBLY:**

Seat the clip securely after installing the joint pin.

**OIL SEAL (8 x 14 x 5)**

**DRIVEN CLUTCH**

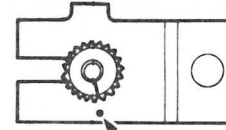
**REASSEMBLY:**

Check the dogs for wear.

**CLUTCH ARM**

**REASSEMBLY:**

Align the punch marks on the arm and clutch fork shaft.



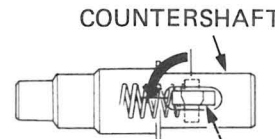
PUNCH MARK

**SHIFTER**

**DISASSEMBLY/**

**REASSEMBLY:**

Rotate the shifter 90° to remove or install.



SHIFTER

JOINT PIN

**COUNTERSHAFT BEVEL PINION**

**HIGH DRIVE GEAR**  
**LOW DRIVE GEAR**

**OIL SEAL**

(10 × 20 × 5) Ser. No. 1000001-1168192.  
(10 × 17 × 4) Ser. No. 1168193 and above

NEW

**BEVEL GEAR**

**REASSEMBLY:**

Check the dogs and teeth for wear.

**DRIVEN CLUTCH FORK**

**ASSEMBLY:**

Check the claws for wear.

SHIFT SPRING

**THRUST WASHER**

**REASSEMBLY:**

Do not forget to install.

FINAL SHAFT

SHIFT SLIDER

PUSH ARM

OIL SEAL (8 x 14 x 5)

OIL SEAL (15 x 24 x 5)

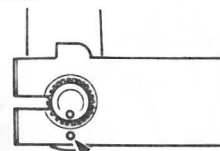
L. TRANSMISSION CASE

6 x 25 mm F (3)  
6 x 28 mm F (2)

CHANGE ARM

**REASSEMBLY:**

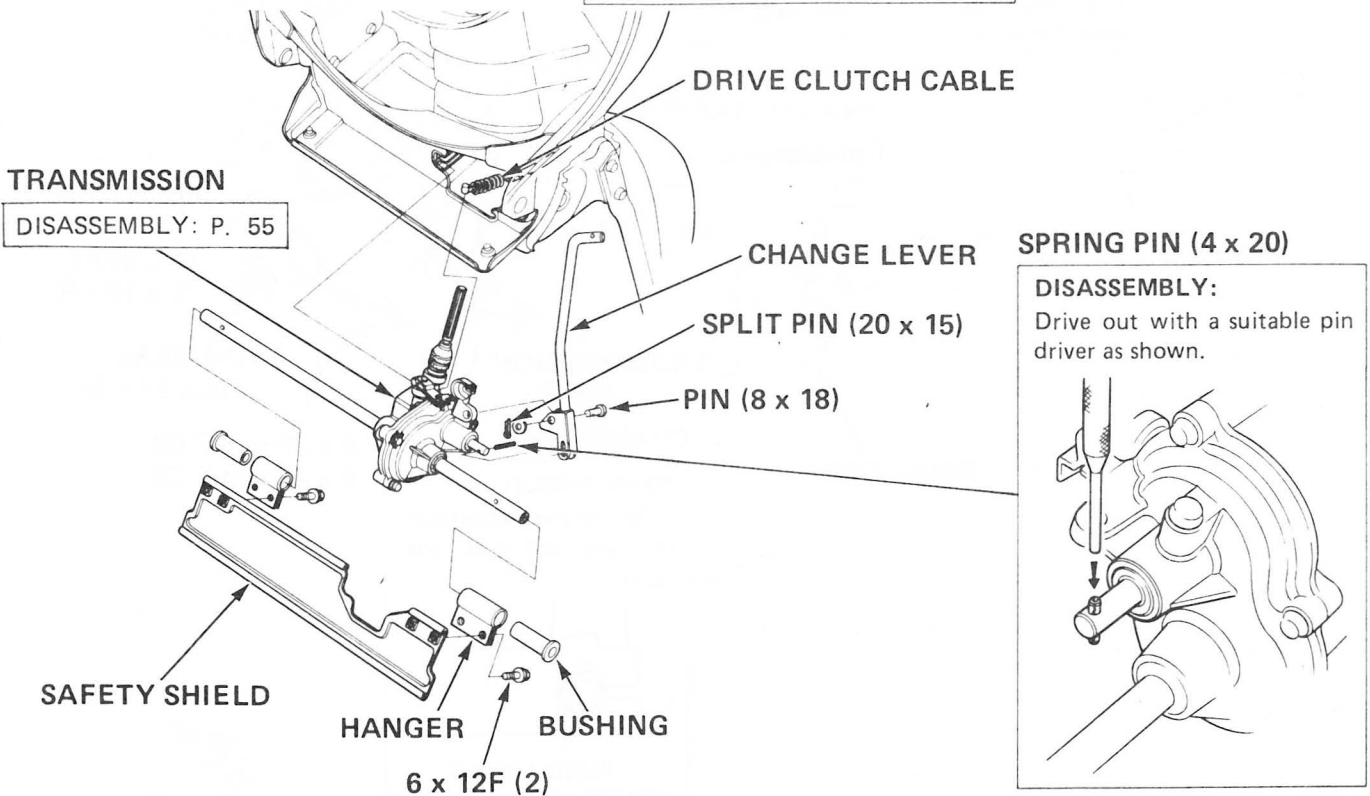
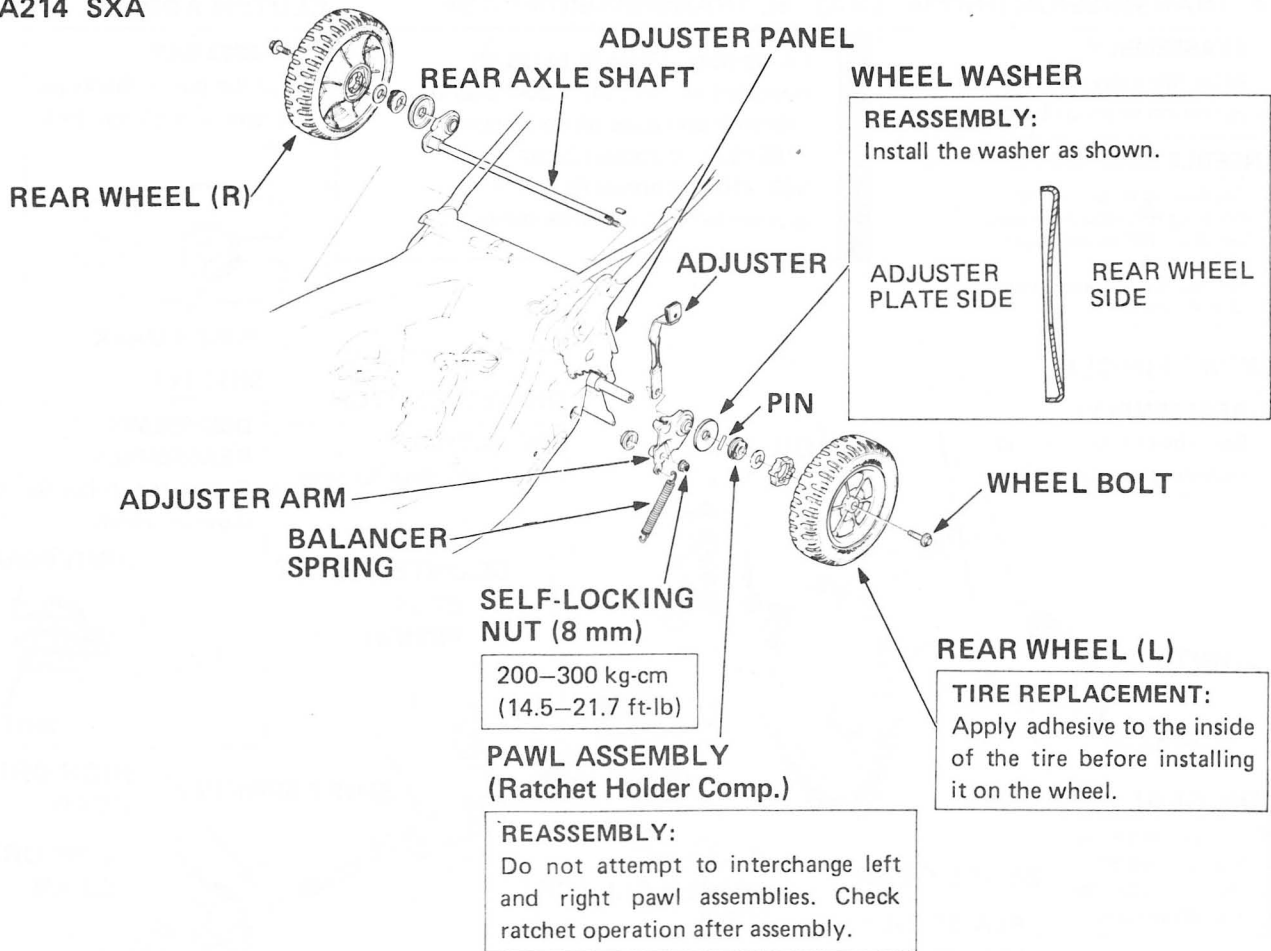
Align the punch marks on the arm and push arm shaft.



PUNCH MARK

FINAL GEAR

HRA214 SXA





● TRANSMISSION (HRA214 SXA) R. TRANSMISSION CASE

**REASSEMBLY:**

After assembly, check for smooth operation without binding.

Oil capacity: 130 cc (0.14 US qt)  
specified oil: SAE 90 hypoid gear oil  
Transmission case on serial number  
1197675 and above is provided with  
needle bearing.

**SHIFT SPRING RETAINER**

**REASSEMBLY:**

Install the shift spring retainer  
as shown.



SHIFT SPRING  
RETAINER

**JOINT PIN CLIP**

**REASSEMBLY:**

Seat the clip securely after  
installing the joint pin.

**OIL SEAL**  
(15 x 24 x 5)

**BEVEL GEAR**

**REASSEMBLY:**

Check the dogs and  
teeth for wear.

**OIL SEAL**

(10 x 20 x 5) Ser. No.  
1000001-1197674  
(10 x 17 x 4) Ser. No.  
1197675 and above

**GUIDE BOLT**

**DOWEL PIN**  
(8 x 14)

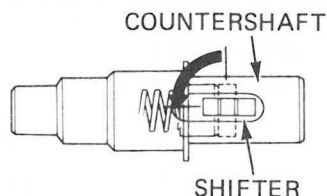
**DRIVEN CLUTCH**

**REASSEMBLY:**

Check the dogs for wear.

**SHIFTER**

**DISASSEMBLY/  
REASSEMBLY:**  
Rotate the shifter 90° to  
remove or install.



COUNTERSHAFT

SHIFTER

**OIL SEAL**  
(8 x 14 x 5)

**JOINT PIN**

**BEVEL  
PINION**

**COUNTERSHAFT**

**HIGH DRIVE  
GEAR**

**LOW DRIVE  
GEAR**

**NEEDLE BEARING**  
(10 x 17 x 4)  
This bearing is standard on all  
HRA214SXA mowers above Ser.  
No. 1197675

**DRIVEN  
CLUTCH  
FORK**

**ASSEMBLY:**  
Check the claws  
for wear.

**SHIFT SPRING**

**THRUST WASHER**

**REASSEMBLY:**

Do not forget to install.

**HEX. BOLT**  
(5 x 20)

**FINAL SHAFT**

**HIGH GEAR  
SHIFT SPRING**

**SHIFT SLIDER**

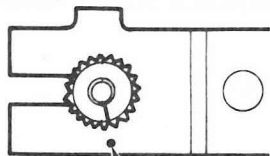
**BALL SET SPRING**

Ball set spring length for  
serial number 1197675  
and above is 24mm (0.94in).

**CLUTCH ARM**

**REASSEMBLY:**

Align the punch marks on  
the arm and clutch fork  
shaft.



PUNCH MARK

**FINAL GEAR**

**L. TRANSMISSION CASE**

Transmission case on serial  
number 1197675 and above is  
provided with the oil drain  
bolt.

**NEW**  
6 x 25F (3)  
6 x 28F (2)

**OIL SEAL**  
(15 x 24 x 5)

**OIL SEAL**  
(10 x 20 x 5)

**OIL DRAIN BOLT**

This drain bolt and  
washer is standard on  
all HRA214SXA  
mowers above Ser.  
No. 1197675

**NEW**

**NEW**



### 14. HANDLE AND CONTROLS

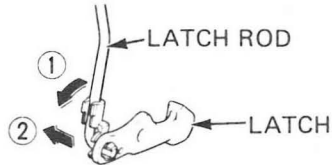
#### a. DISASSEMBLY/REASSEMBLY

HR194

#### LATCH ROD

##### DISASSEMBLY:

Unclip the latch rod, and remove it from the latch.



ROTO-STOP LEVER

ADJUSTMENT: P. 15

6 x 10 mmF

CLIP

HINGE PIN

LATCH

CLUTCH LEVER PIN

ROTO-STOP CABLE

THROTTLE CABLE

HANDLE JOINT KNOB (2)

HANDLE HOLDER BOLT (2)

##### REASSEMBLY:

Insert bolt from outer side.

THROTTLE LEVER

DISASSEMBLY: P. 59

#### CABLE GUIDE

##### REASSEMBLY:

Position the small end in the hole in the housing.

8 mm NUT

CABLE BAND (2)

6 x 12 mmF

HANDLE JOINT KNOB (2)

HANDLE HOOK BOLT

L. HANDLE BRACKET

CABLE GROMMET

# HONDA

HR194·HR214·HRA214

HR214

DRIVE CLUTCH LEVER (SXA)

ADJUSTMENT: P. 15

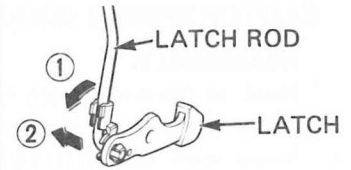
CLUTCH SPRING (SXA)

REASSEMBLY:  
Hook to the drive clutch from inside as shown to avoid interfering with the ROTO STOP lever.

CLUTCH CABLE (SXA)

LATCH ROD

DISASSEMBLY:  
Unclip the latch rod, and remove it from the latch.



HANDLE HOLDER BOLT (2)

REASSEMBLY:  
Insert bolt from outer side.

UPPER HANDLE

GEARSHIFT LEVER  
THROTTLE LEVER

DISASSEMBLY: P. 59

CLIP

ROTO-STOP LEVER

ADJUSTMENT: P. 15

LATCH

HINGE PIN

GREASE

CLUTCH LEVER PIN

CHANGE CABLE  
THROTTLE CABLE

HANDLE JOINT KNOB (2)

6 x 12 mmF

CABLE GUIDE

REASSEMBLY:  
Position the small end in the hole in the housing.

ROTO-STOP CABLE

8 mm NUT

CABLE BAND (2)

LOWER HANDLE

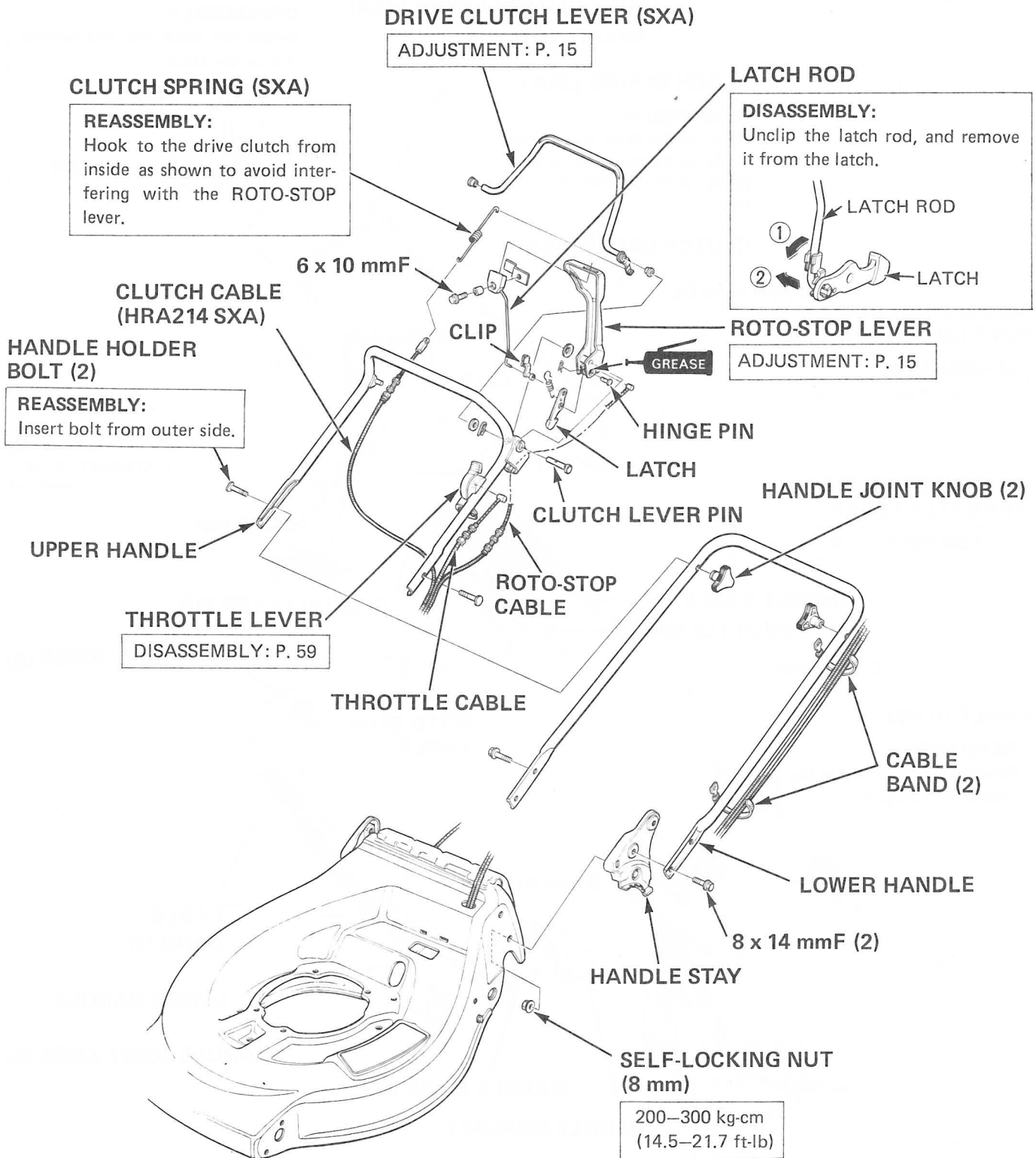
HANDLE JOINT KNOB (2)

HANDLE HOOK BOLT

L. HANDLE BRACKET

CABLE GROMMET

### HRA214

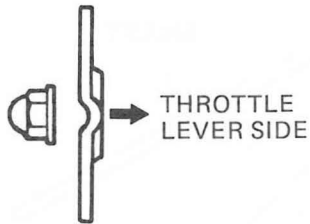


- THROTTLE LEVER (all models, except HR214 SXA)

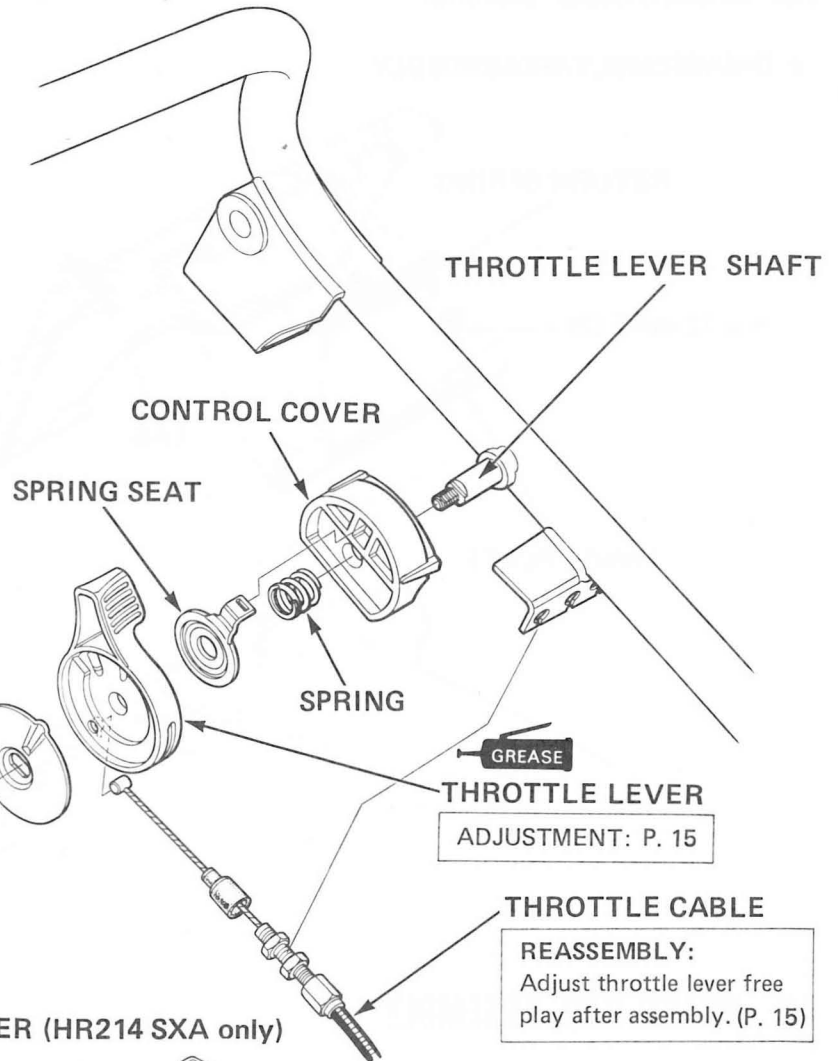
### THROTTLE LEVER PLATE

#### REASSEMBLY:

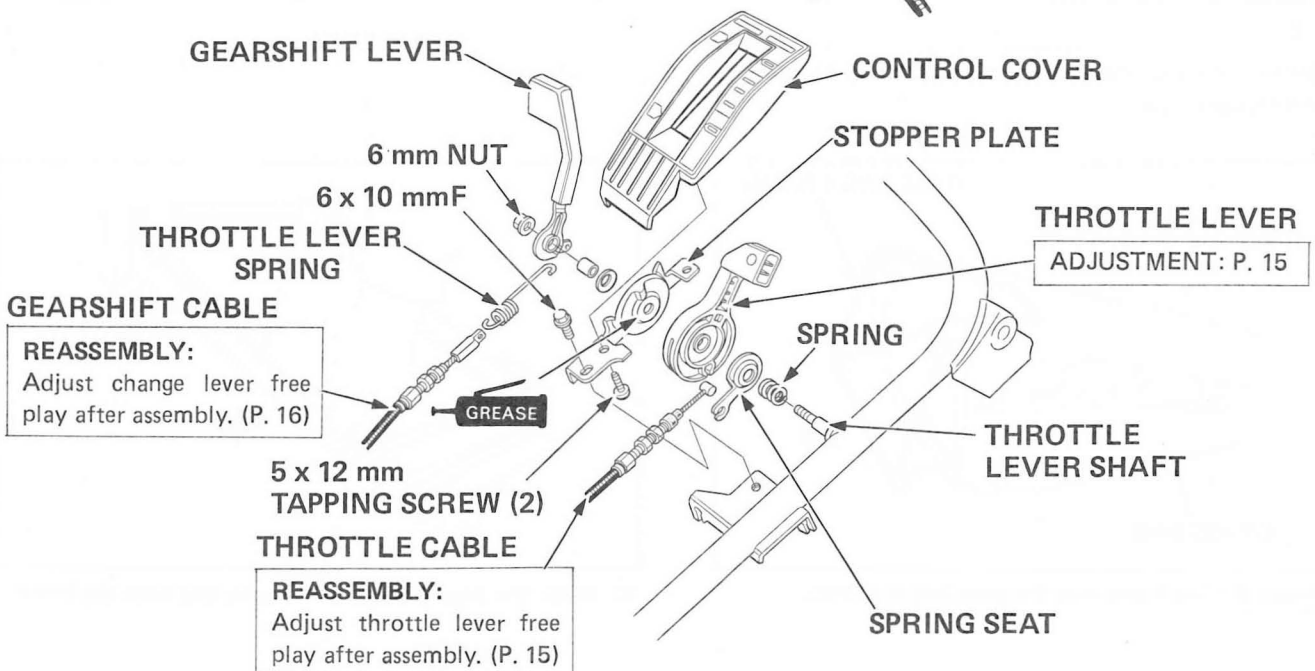
Align with the cutout in the throttle shaft as shown.



6 mm CAP NUT

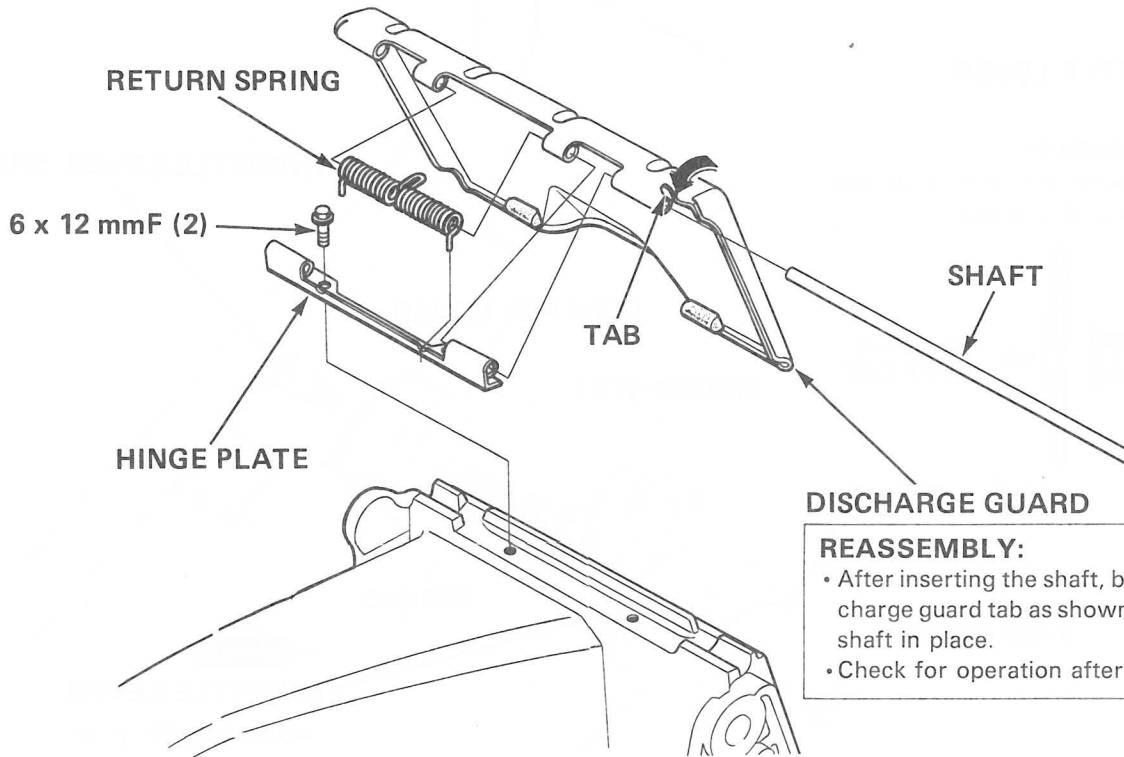


- THROTTLE LEVER/GEARSHIFT LEVER (HR214 SXA only)



### 15. DISCHARGE GUARD

#### a. DISASSEMBLY/REASSEMBLY



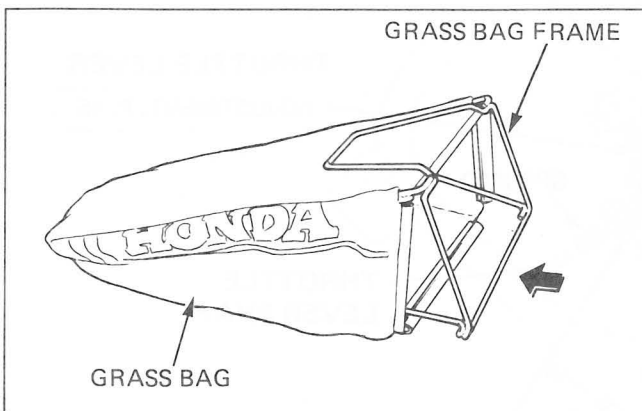
#### REASSEMBLY:

- After inserting the shaft, bend the discharge guard tab as shown to hold the shaft in place.
- Check for operation after assembly.

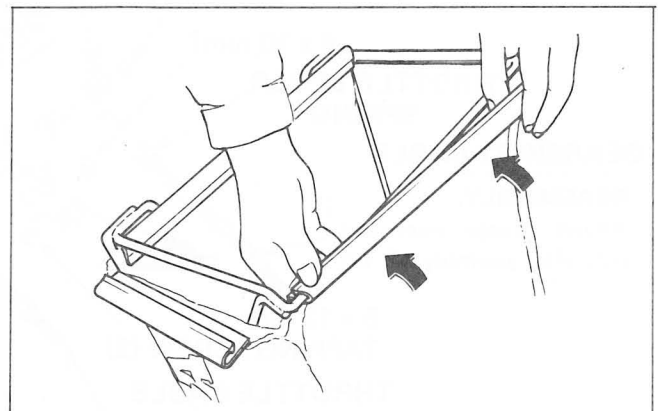
### 16. GRASS BAG ASSEMBLY

#### NOTE:

Before assembly, check the grass bag for fraying, tears and clogged mesh.



1) Insert the bag frame into the grass bag as shown.



2) Hook the plastic edges of the grass bag onto the frame.

- |   |   |
|---|---|
| 1. VALVE ARRANGEMENT (OHV)              | 4. CUTTING HEIGHT ADJUSTMENT MECHANISM (HRA214)         |
| 2. DRIVE MECHANISM (SXA type)           |   |
| 3. INDEPENDENT DRIVE CONTROL (SXA type) | 5. HANDLE-HEIGHT ADJUSTMENT MECHANISM (HR194 and HR214) |

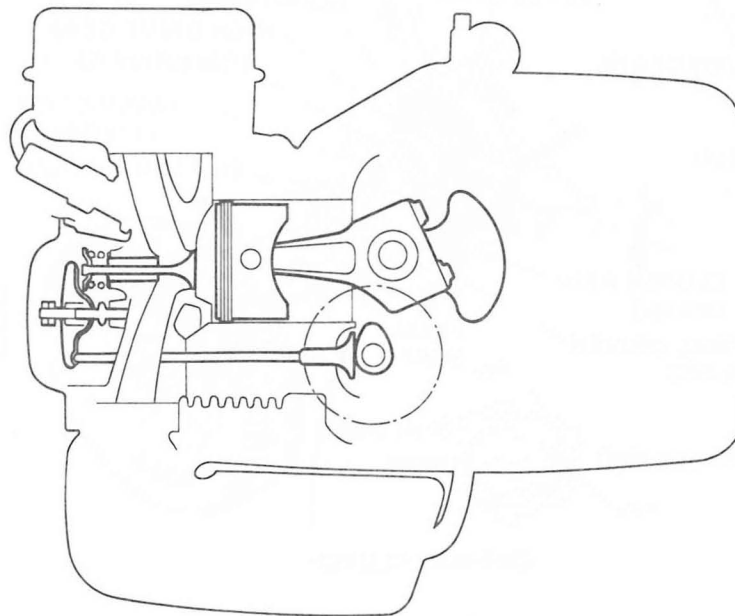
## 1. VALVE ARRANGEMENT (OHV)

Job proven on hundreds of thousands of Honda motorcycles and automobiles, the overhead valve arrangement features:

- Ideally shaped combustion chamber.
- Higher cylinder compression.
- More efficient breathing and easier escape of exhaust gases.

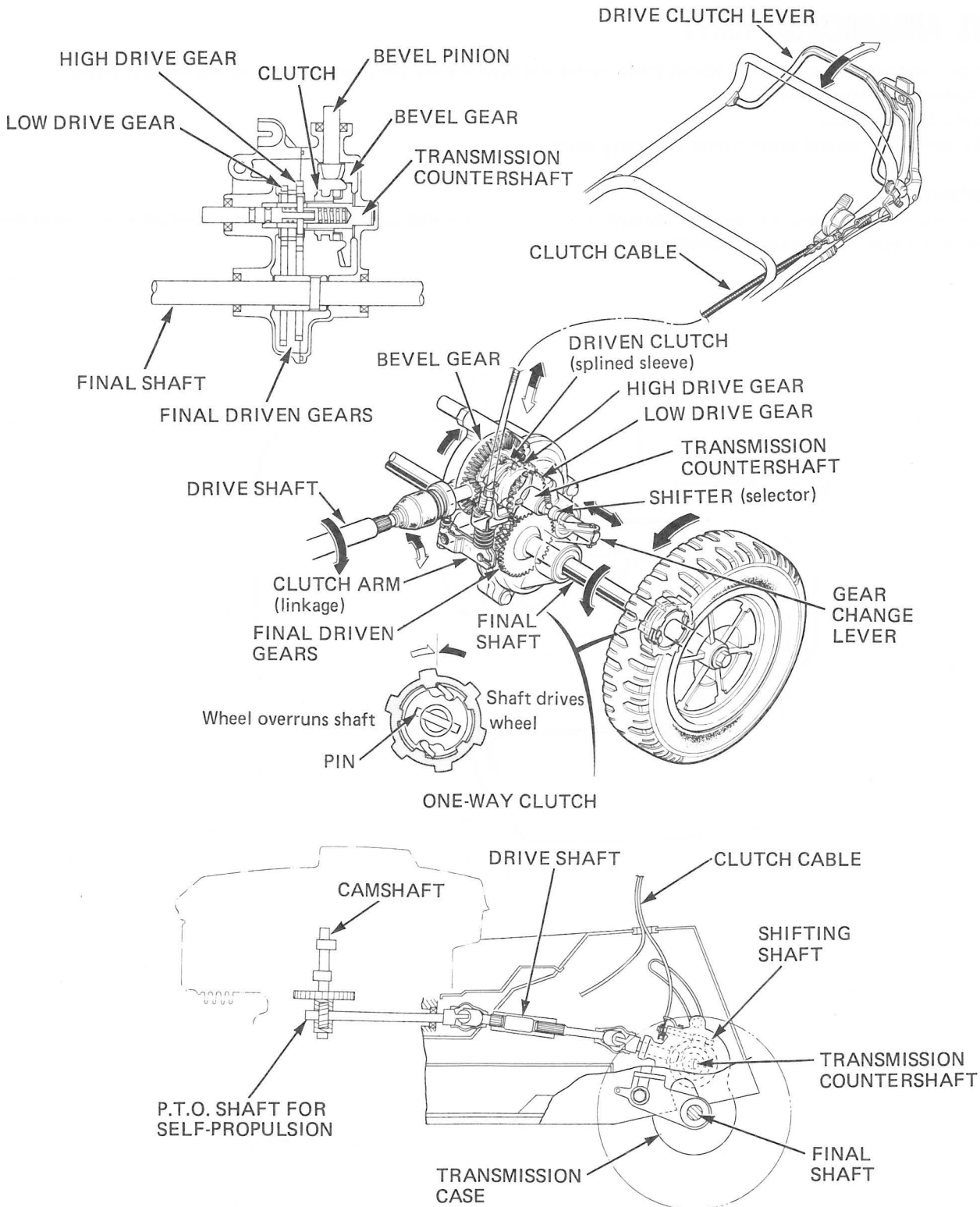
### < Construction >

- The valves are operated from the camshaft through valve lifters, push rods and rocker arms. The camshaft is located in the crankcase and is gear driven from crankshaft.



**2. DRIVE MECHANISM (SXA TYPE-HR214 SXA SHOWN HERE)**

The HR214 SXA and HRA214 SXA have a two-speed transmission with shaft drive; no belts are used in this drive system. The gear change lever selects high or low drive speed, and the drive clutch lever on the mower handle controls engagement/disengagement.



### < Operation >

A drive shaft transmits power from the engine camshaft to the bevel gears in the transmission.

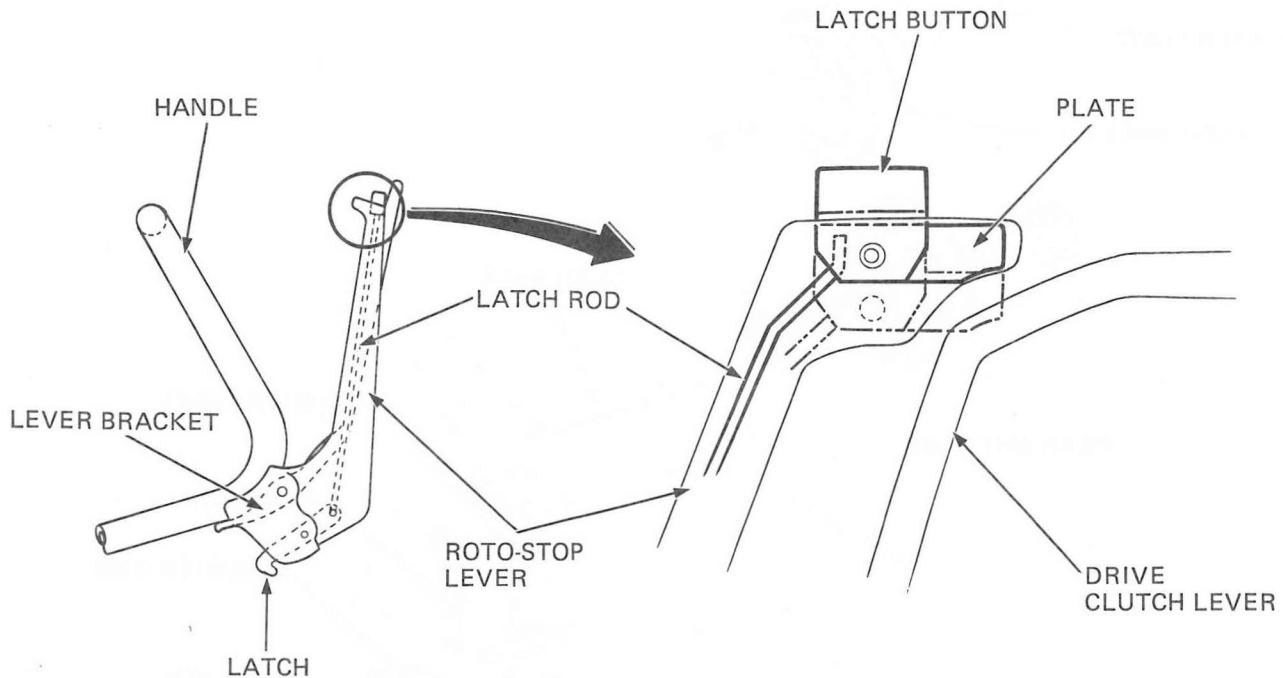
When the drive clutch lever on the mower handle is pushed forward, the clutch linkage connects the bevel gears to the transmission countershaft, and power is transmitted to the rear wheels. When the clutch lever is released, the transmission countershaft is disconnected from the bevel gears. Engagement/disengagement within the transmission is accomplished by a splined sleeve (driven clutch) that slides on the countershaft to engage dogs on the bevel gear.

Both high and low drive gears are in constant mesh with the final driven gears. The gear change lever is linked to a selector (shifter) in the countershaft that connects one of the two drive gears to the countershaft, while the other drive gear spins freely on the countershaft.

Each rear wheel is equipped with a one-way clutch, enabling the mower to turn easily and smoothly. When the mower is operated in a straight line, the one-way clutches transmit power equally to both rear wheels. When the mower is turned right or left, the one-way clutch at the inner wheel continues to transmit power, while the outer wheel overruns the final shaft and turns faster than the inner wheel.

### 3. INDEPENDENT DRIVE CONTROL (SXA TYPE)

The drive clutch lever can be operated independently or in conjunction with the ROTO-STOP lever. This allows the operator to move the lawnmower under its own power between the garage and yard while cutting blade operation is not needed.



### < Operation >

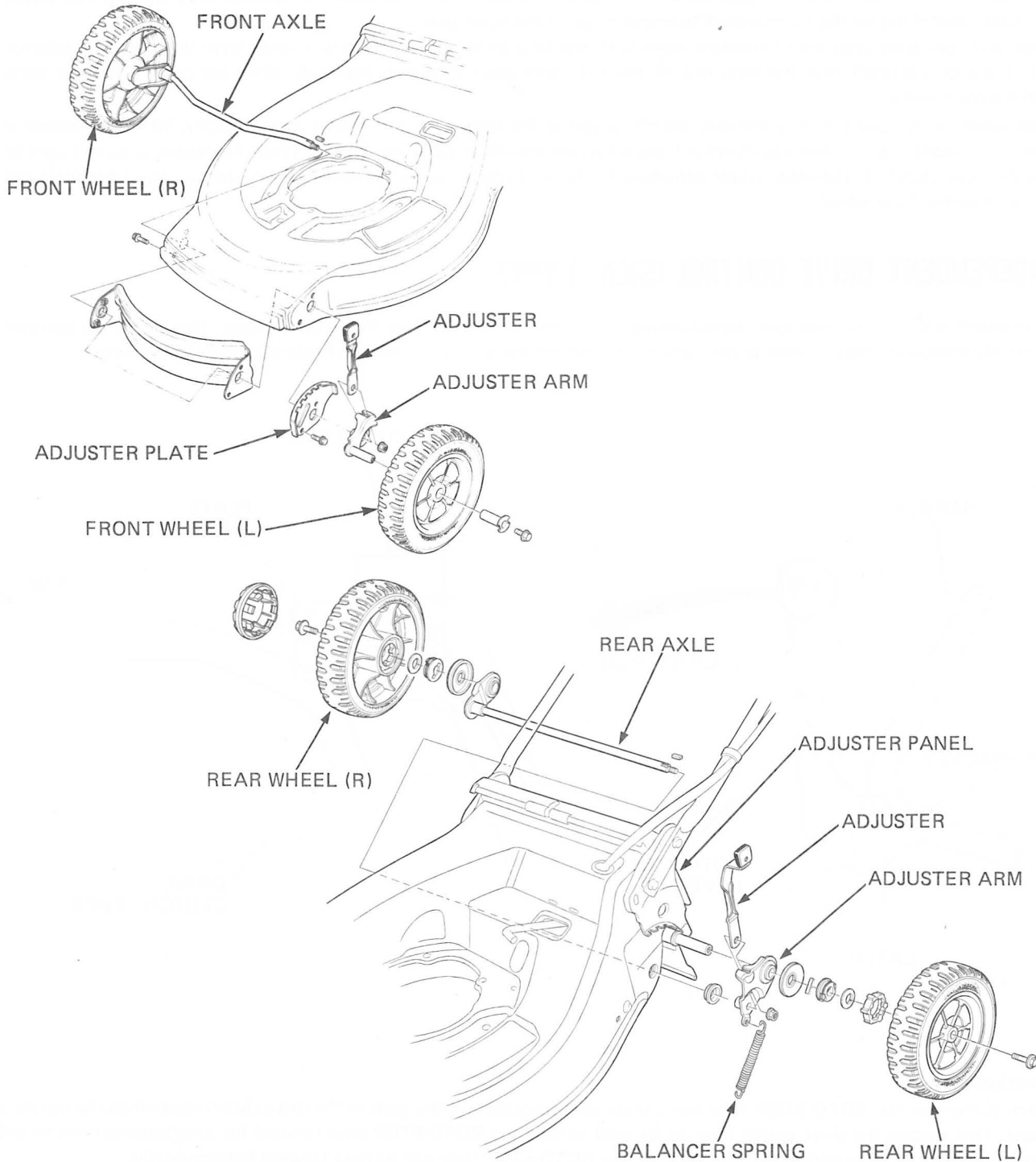
The latch button on the ROTO-STOP lever has a plate that projects into the path of the drive clutch lever when the button is depressed. This enables the drive clutch lever to be used to hold the ROTO-STOP lever forward for simultaneous mowing and self-propulsion. For mowing without self-propulsion, the ROTO-STOP lever can be held forward independently.

When the cutting blade is not in use, and the ROTO-STOP button is not depressed, there is no contact between the two levers, and the drive clutch can be used to propel the mower without activating the cutting blade.



## 4. CUTTING HEIGHT ADJUSTMENT MECHANISM (HRA214)

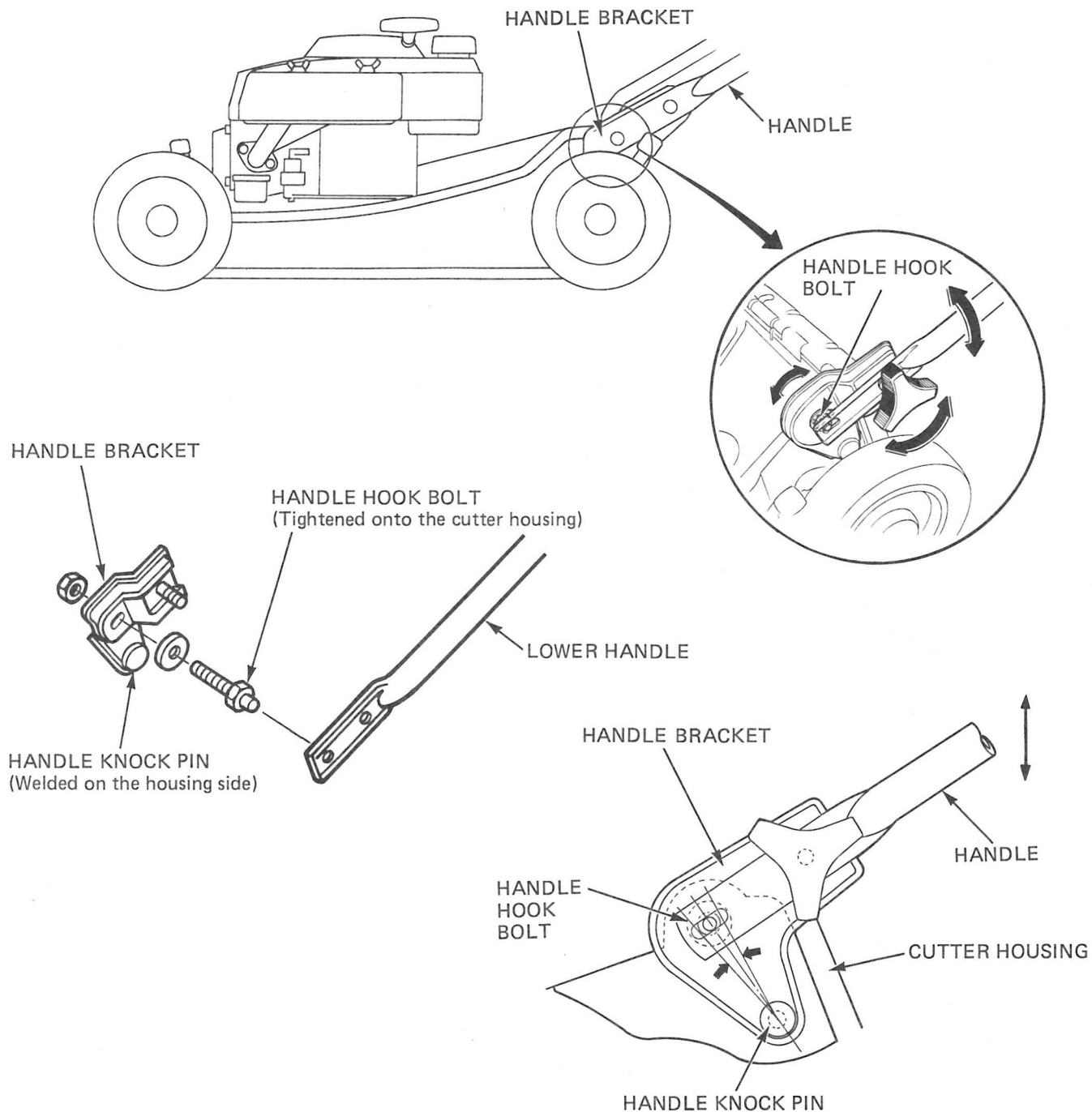
Because both right and left wheels are mounted on a single axle, there are only two cutting height adjusters — one for the front wheels and one for the rear wheels — instead of separate adjusters at each wheel.



Push the front and rear adjusters toward the wheels to release the adjusters from their holding slots, then move them up or down to pivot the axles for cutting height adjustment. The rear axle is provided with a balance spring to support the mower until the adjuster is returned to one of its holding slots.

### 5. HANDLE-HEIGHT ADJUSTMENT MECHANISM (HR194 AND HR214)

The handle has a 10° adjustment range, and can be raised or lowered through a 60 mm range (2.4 in) to provide a comfortable mowing position.



#### < Operation >

Loosening the right and left handle hook bolts allows the handle to be pivoted on the knock pin. Tighten the handle hook bolts securely after adjustment.

