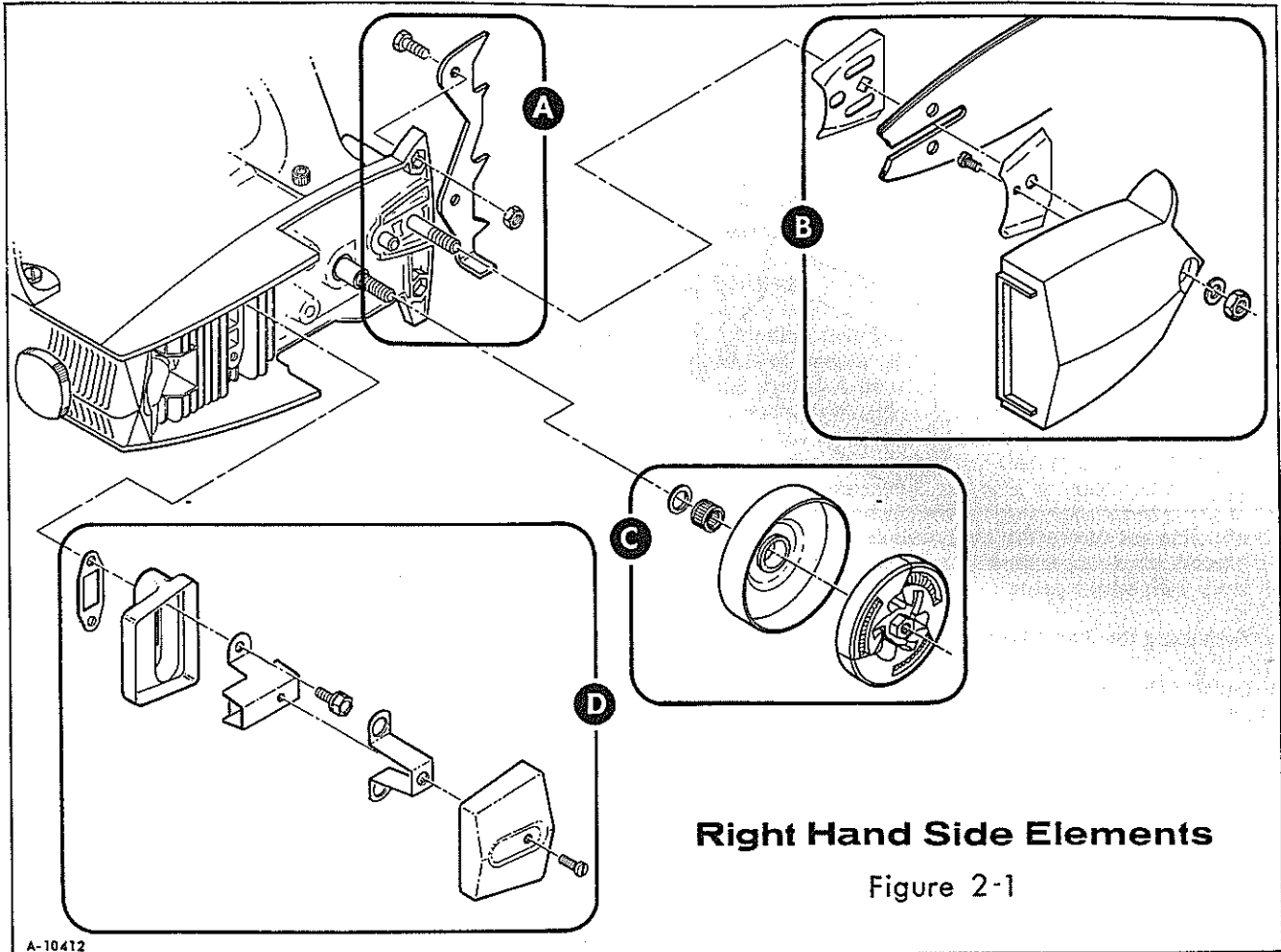


## Section Two - Right Hand Side Elements



This section covers servicing the assemblies on the right hand side of the saw (Figure 2-1): (A) spike, (B) clutch guard and bar plates, (C) clutch assembly and drum and sprocket assembly and (D) spark arrester muffler.

### SPIKE

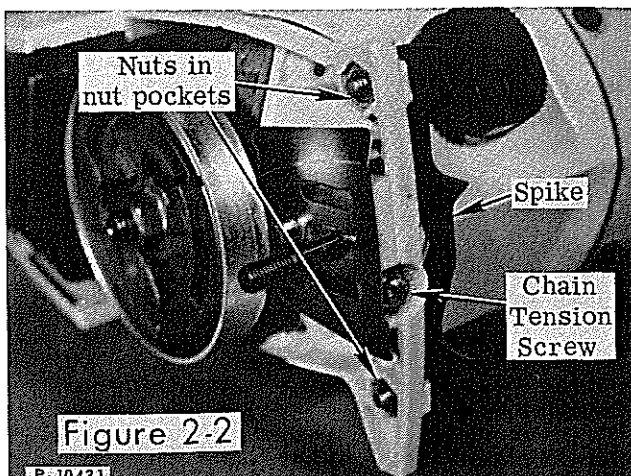
If the spike is damaged, a new spike should be installed. Remove the clutch guard to remove or install the spike. The spike fits on the left side of the spike mounting flange (Figure 2-2) with the mounting nuts going into the nut pockets on the right side of the spike mounting flange.

### CLUTCH GUARD & BAR PLATES

Remove the bar mounting nut (1, Figure 2-3) and washer (2) to remove the clutch guard (3). The outer bar plate (4B) is fastened to the clutch guard with a screw (4A). Remove the chain and bar to remove the inner bar plate (5) which fits onto the bar mounting stud and bar pin.

#### a. Servicing the Clutch Guard

Install a new clutch guard if the old one is damaged, cracked or if the threads for the outer bar plate mounting screw are damaged. Superficial damage to the leading edge of the clutch guard (dents, gouges,



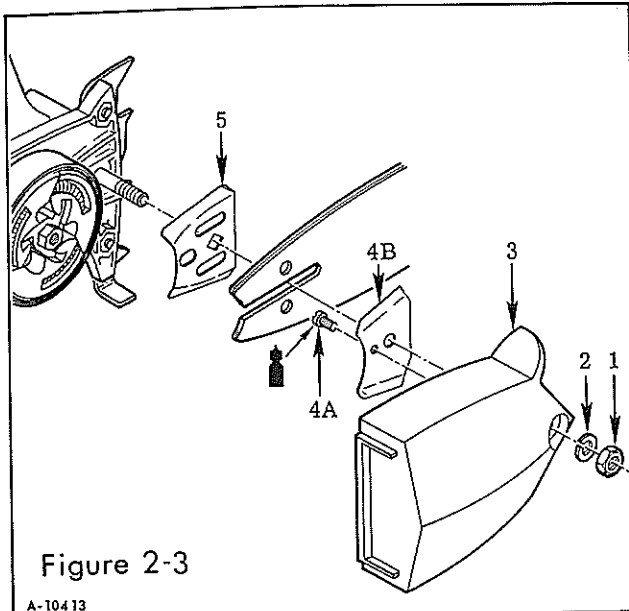


Figure 2-3

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etc.) is not cause for replacement. File the area smooth or clean it up with a sanding disc and touch it up with spray paint.

#### b. Servicing the Bar Plates

Install new bar plates if there is any sign of the chain having cut into or otherwise damaged the old plates. The bar plates may show an imprint of the contact surfaces of the clutch guard and bar mounting pad. This is a common electrolytic reaction and is not cause for installing new bar plates unless the corrosion has eaten into the surface of the bar plates. The bar plates may be replaced as a set or individually.

#### c. Servicing the Chain Tension Adjustment Screw

Install a new chain tension adjustment screw if the threads are worn or the screwdriver slot is damaged. Install a new adjustment nut if the tang is damaged or the threads are worn.

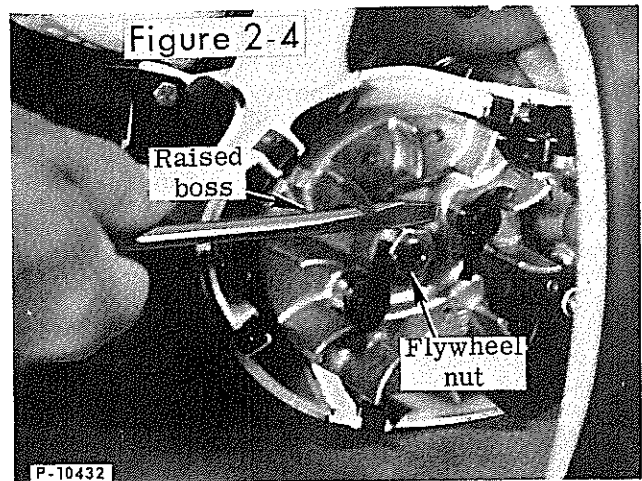
When reinstalling the bar plates, make sure the flanged sides of the bar plates face away from the bar. Make sure the bar mounting stud holes in the outer bar plate and clutch guard are aligned before tightening the bar plate attaching screw. Put a drop of Loctite on the screw and tighten the screw securely.

## CLUTCH ASSEMBLY & CLUTCH DRUM & SPROCKET

In order to remove the clutch assembly and drum and sprocket assembly, remove the clutch guard, bar and chain and the fan housing.

#### REMOVAL & DISASSEMBLY

1. Remove the six screws attaching the fan housing to the saw and remove the fan housing.



2. Lock the flywheel with a screwdriver (Figure 2-4). Do not put the screwdriver against the fins of the flywheel for the fins can be broken. Put the screwdriver against the raised boss and the flywheel nut.
3. Turn the clutch nut on the spider clockwise to remove the clutch assembly (1, Figure 2-5).

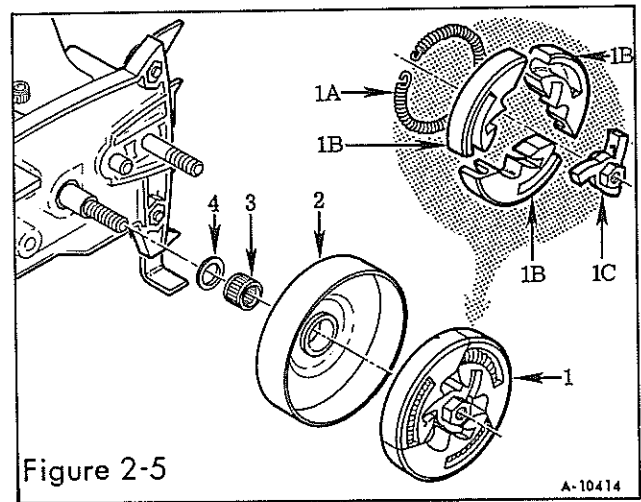
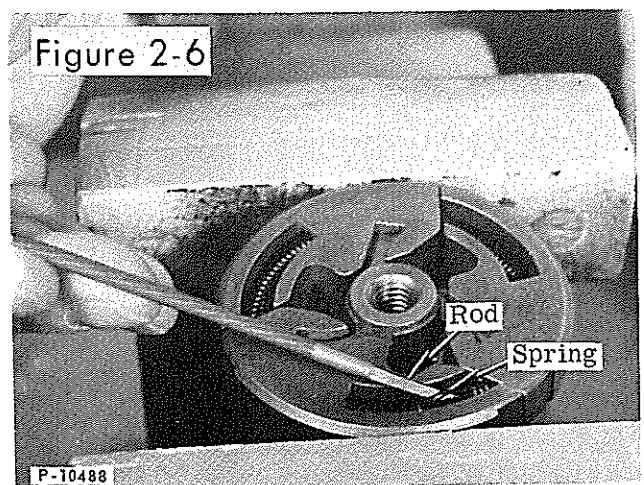


Figure 2-5

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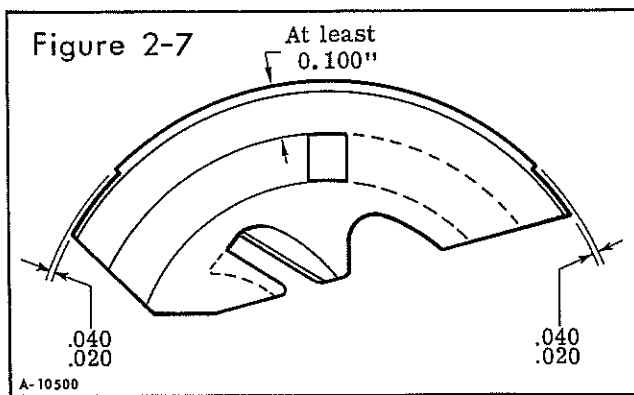


4. Disassembly the clutch assembly in the following manner:
  - a. Mount the clutch assembly in a vise (Figure 2-6) and use a pointed rod or tool with a hook on the end of it, to unhook the spring (1A, Figure 2-5). Do not put too much vise pressure on the clutch assembly or the spider (1C) will be damaged. Use only enough pressure to hold the assembly steady.
  - b. Work the spring out of the shoes (1B) with the tool and remove the shoes from the spider.
5. Slide the drum and sprocket assembly (2) off the crankshaft. Remove the sprocket bearing (3) and sprocket washer (4).

#### SERVICING THE CLUTCH & SPROCKET

##### a. Clutch Grabs

The relief area at each end of the clutch shoes must be between 0.020 and 0.040 inch (Figure 2-7). If the relief area is less than this, the shoes will have a tendency to grab. The shoes should be replaced as a set or the relief areas can be carefully deepened with a narrow flat file to the proper depth. Maintain a radius during the filing and make the areas of all shoes as nearly the same depth as possible.



##### b. Too High Clutch Engagement Speed

Normal clutch engagement speed is 2300 to 3000 RPM. As the contact area of the rim of the clutch shoes is worn down by the drum, the speed at which the clutch takes hold will increase. If the clutch engaging speed becomes too high or if the rim thickness of the shoes as shown in Figure 2-7 becomes less than 0.100 inch thick, a set of new shoes should be installed.

##### c. Too Low Clutch Engagement Speed

A weakened spring will cause a low clutch engagement speed. If it is impossible to adjust the engine slow enough to prevent the chain from moving, install a new clutch spring. Handle the spring carefully so as not to stretch it during installation.

##### d. Clutch Chatters

Clutch chatter is caused by excessive wear of the guide area of the clutch shoes and the legs of the spider. If chattering occurs, install a set of new shoes and a new spider.

##### e. Sprocket Worn

If the rails of the sprocket are worn or pounded by the side links of the chain or if the pins are worn more than one-third of their thickness, install a new sprocket and drum assembly.

##### f. Sprocket Bearing

Sprocket bearing may run rough or bind because of lack of proper grease or because it is worn. Check the sprocket bearing (after cleaning and re-greasing it with light automotive chassis grease) by placing it on the crankshaft, putting the drum and sprocket assembly on top of it and then spinning the drum and sprocket assembly. If there is roughness or binding or if the assembly does not spin easily, install a new sprocket bearing. Install a new sprocket washer if the old washer has a groove worn into either face.

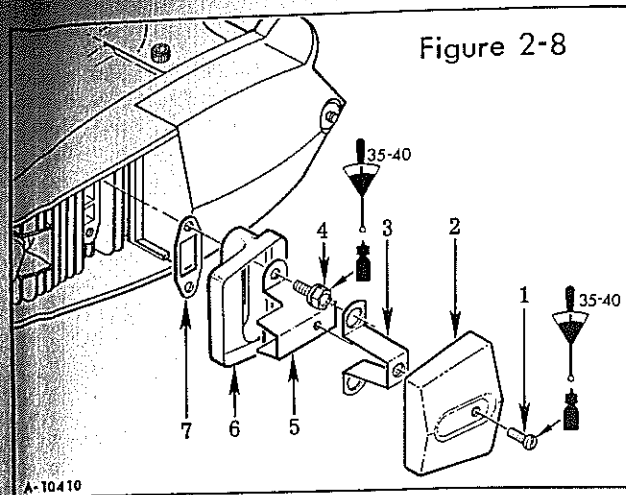
#### REASSEMBLY & INSTALLATION

1. Place the sprocket washer (4, Figure 2-5) and sprocket bearing (3) on the crankshaft. Make sure the bearing is coated with light weight automotive chassis grease.
2. Put the drum and sprocket assembly (2) on the bearing.
3. Assemble the clutch rotor assembly:
  - a. Feed the spring (1A) through one of the clutch shoes (1B). Place all three shoes on the spider (1C) and feed the spring through the other shoes. Use the hooked or pointed tool to work the spring through the shoes. Do not stretch the spring.
  - b. Place the assembled spider, spring and shoes in a vise. Tighten the vise just enough to hold the assembly secure. Catch one end of the spring with the tool and hook the ends together. The friction of the spring in the shoes will prevent the free end from slipping.
4. Turn the clutch assembly counterclockwise onto the crankshaft. Lock the flywheel and tighten the clutch assembly securely.

Reinstall the fan housing, bar, chain and clutch guard.

### SPARK ARRESTER MUFFLER

The spark arrester muffler can be removed without taking off any other parts.



#### REMOVAL

1. Remove the screw (1, Figure 2-8) attaching the cover (2) and remove the cover.
2. With a screwdriver, pry the clip (3) off the two hex head screws (4) which attach the baffle (5) and base (6) to the saw. Remove the screws, baffle and base.
3. Remove and discard the gasket (7).

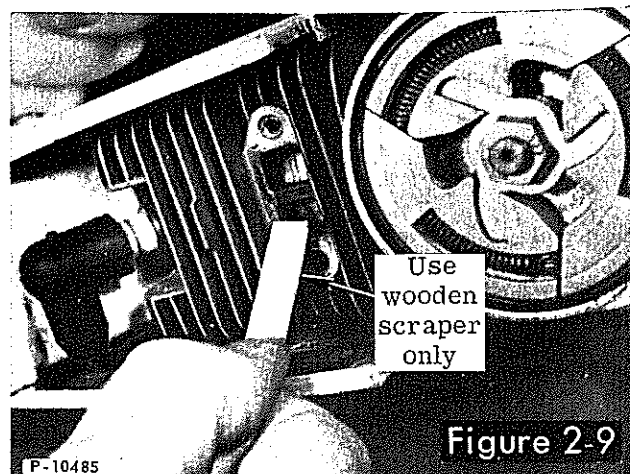
#### SERVICING THE SPARK ARRESTER MUFFLER

##### a. Clogged or Dirty Muffler

A clogged or dirty muffler will prevent full power output of the saw. Thoroughly clean the carbon from the muffler parts. Replace any parts that are damaged.

##### b. Clogged Exhaust Ports

Clogged exhaust ports will prevent full power output of the saw. If the muffler is dirty, the ports will be clogged too. Turn the crankshaft until the lower portion of the piston covers the exhaust ports to prevent carbon entering the cylinder during the cleaning operation. Use a wooden scraper to clean the ports (Figure 2-9). Do not use a metal tool because if it slips it will scratch and damage the piston. Blow carbon away with low (three to five pounds) pressure air.



#### INSTALLATION

1. Install a new muffler gasket. Place the base and baffle on the gasket. Put a drop of Loctite on each of the screws (4) and install them.
2. The clip locks the hex head screws in place. If there are more than six indentations (Figure 2-10) in each screw head hole, the clip may not lock the screws; use a new clip. Place a socket over the screw heads and tap lightly with a hammer to force the clip into place.
3. Install the spark arrester cover. Put a drop of Loctite on the screw (1) and install it.

