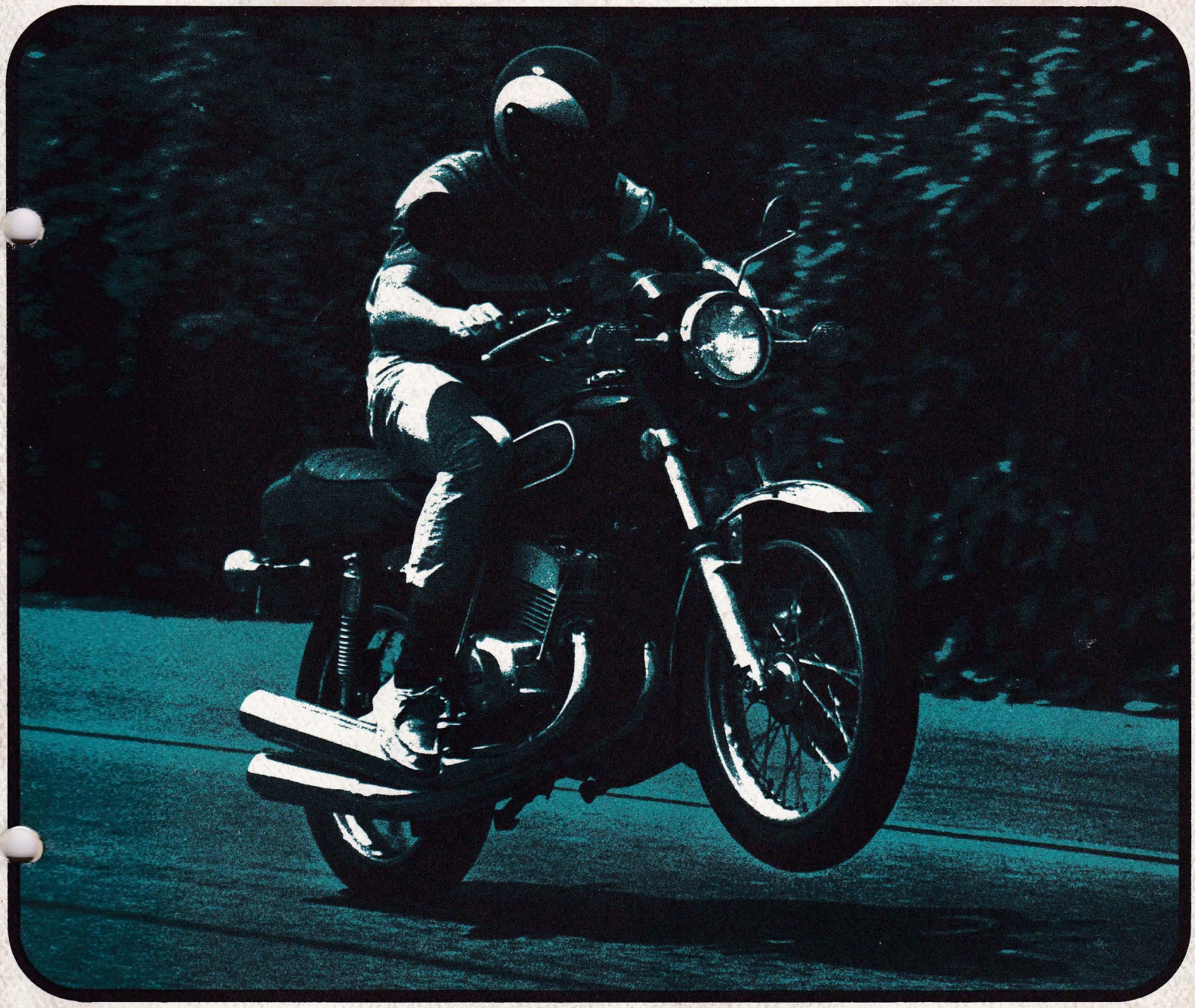
KAWASAKI

S1-B/S3

ASSEMBLY & PREPARATION MANUAL



P/N 99995-256-74

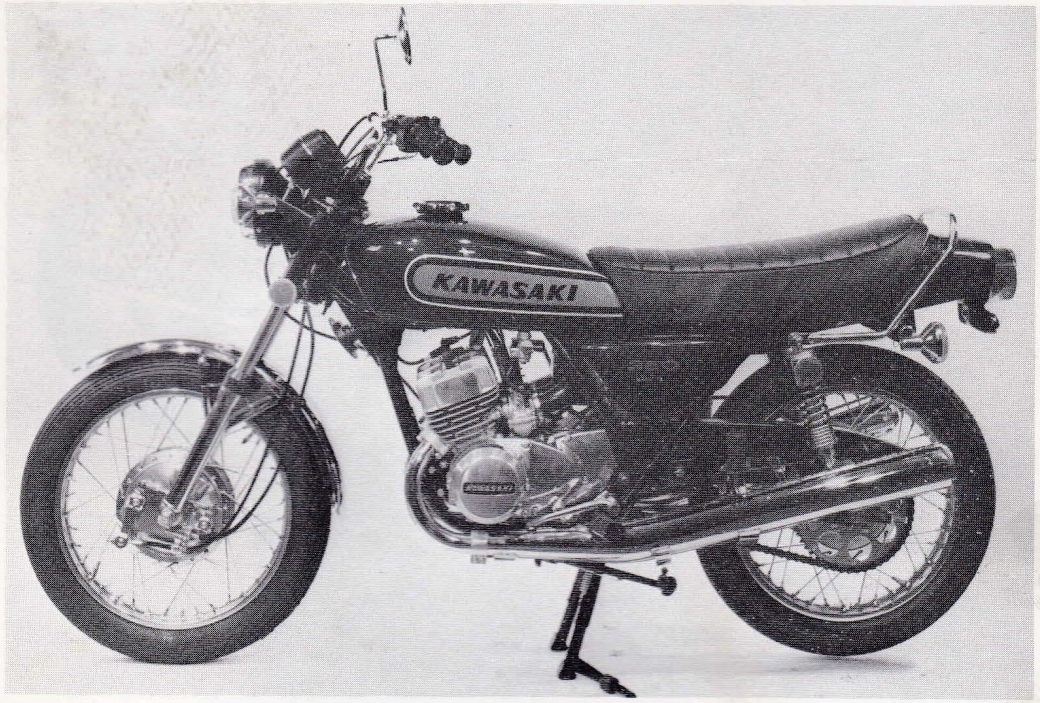
KAWASAKI S1-B S3

ASSEMBLY AND PREPARATION MANUAL

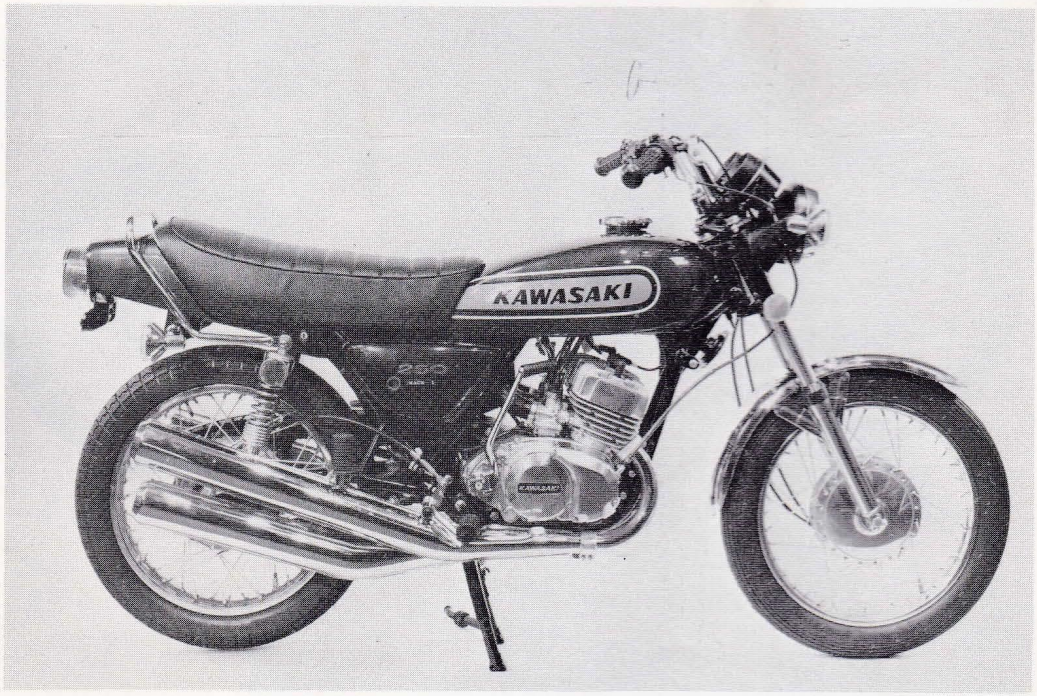
There are three major sections in this manual:

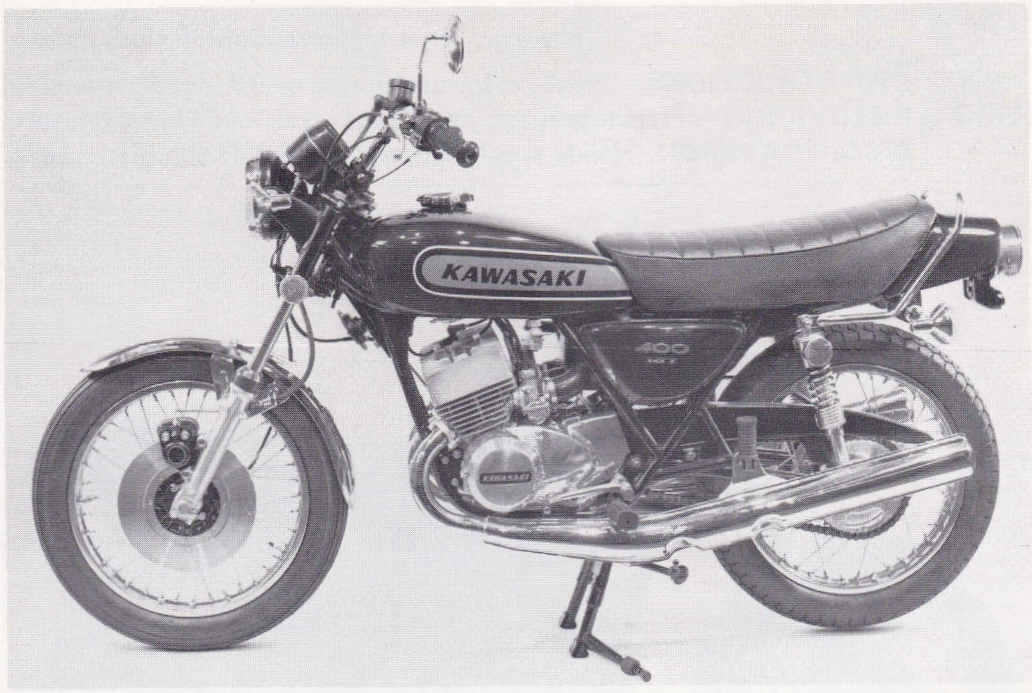
SET-UP INSTRUCTIONS – Work performed during uncrating and assembly
PRE-SALE SERVICING – Preparation and inspection performed before delivery
SPECIFICATIONS – Handy specifications for possible troubleshooting

S1-B LEFT SIDE

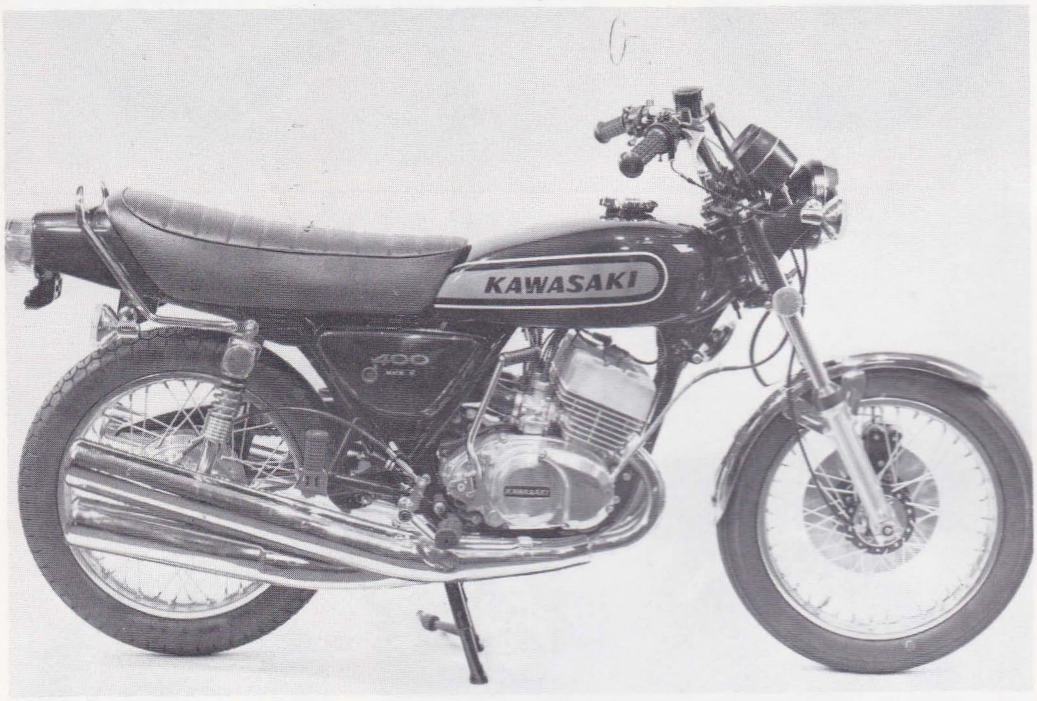


S1-B RIGHT SIDE





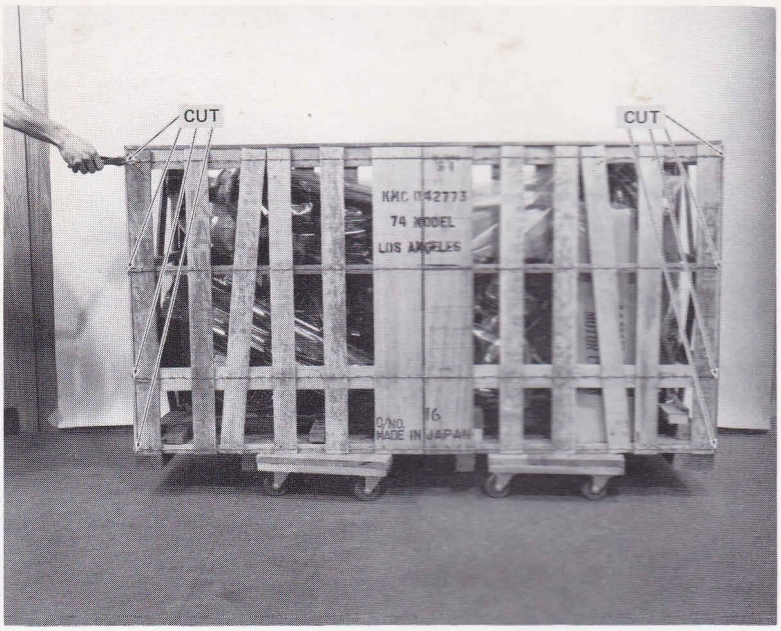
S3 LEFT SIDE



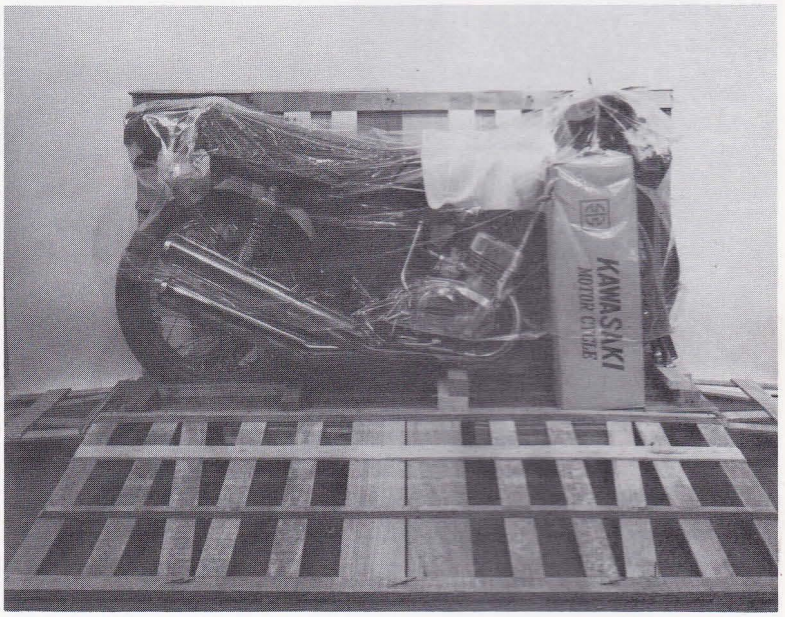
S3 RIGHT SIDE

ASSEMBLY

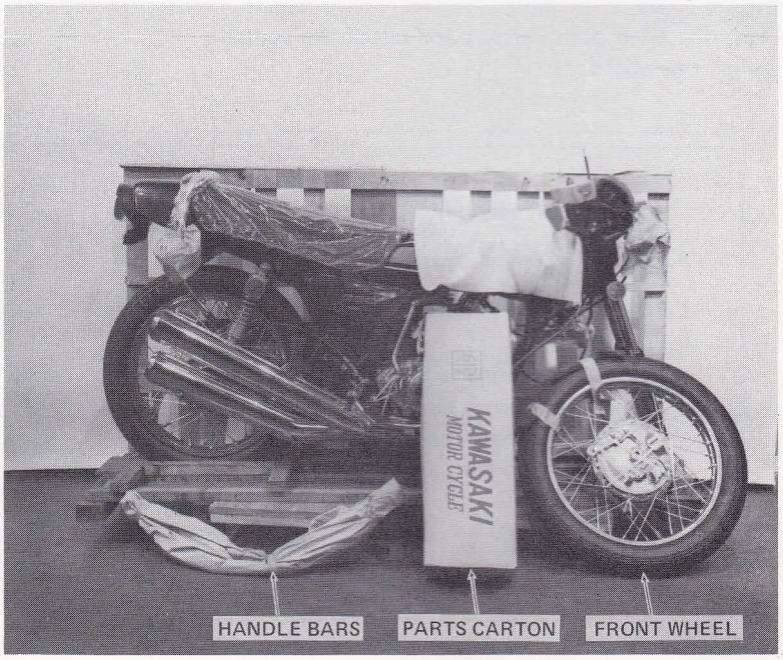
Clear an area 20' x 20', and position the crate upright on its base. Cut the straps or banding wires.

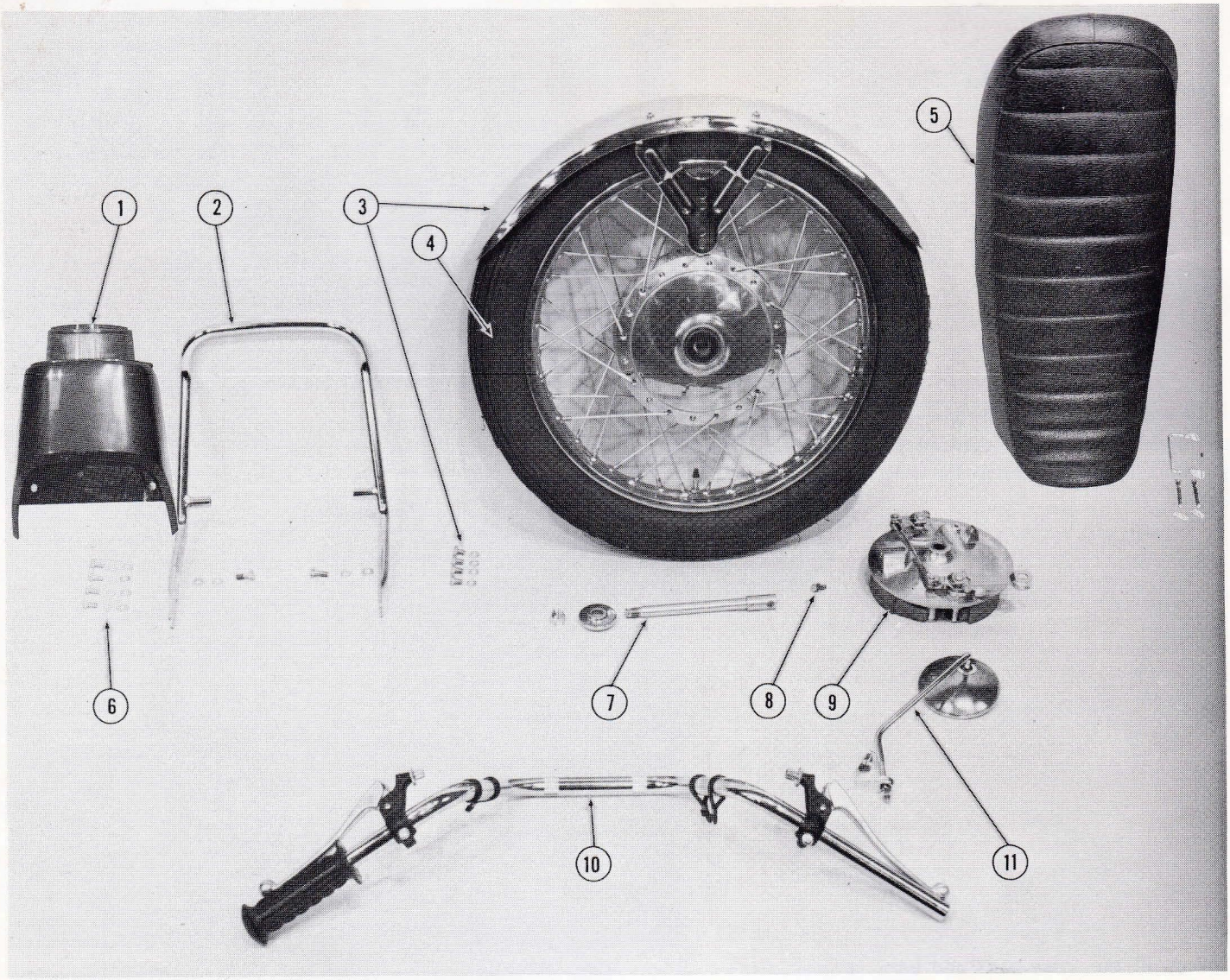


Fold down the crate ends and sides, or lift off the cardboard cover. Peen over all nails which might puncture the tires, scratch the motorcycle, or cause injury.



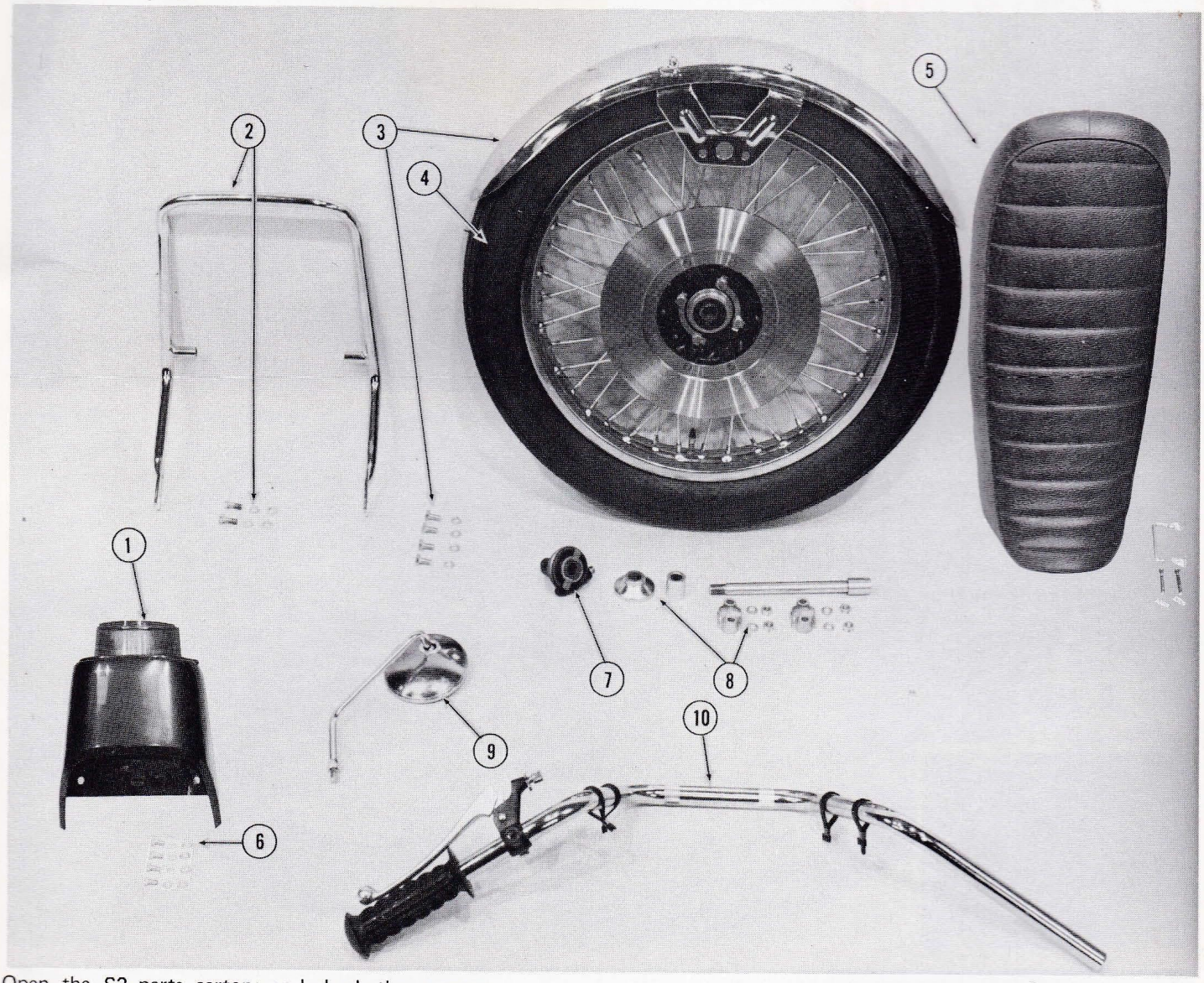
Collect all the loose parts and parts cartons in the crate. Be sure to check all the parts cavities in the foam ends, if the motorcycle is packed in a cardboard crate. With an assistant, remove the motorcycle to the assembly area and support it on the center stand.





Open the S1-B parts cartons and check the contents against this photo.

1. Seat backrest assembly.
2. Passenger grab rail with 2 bolts, 2 washers, and 2 lockwashers.
3. Front fender with 4 bolts and lockwashers.
4. Front wheel.
5. Dual seat assembly with retainer rod, 2 washers, 2 cotter pins, 2 hinge pins, and 2 safety clips.
6. Seat backrest hardware: 4 bolts, 4 washers and 4 lockwashers.
7. Front axle with dust cover and nut.
8. Speedometer cable clamp bolt.
9. Front brake panel assembly.
10. Handlebar with front brake and clutch levers, wiring straps, and left-hand grip rubber attached.
11. Rear view mirror.



Open the S3 parts cartons and check the contents against this photo.

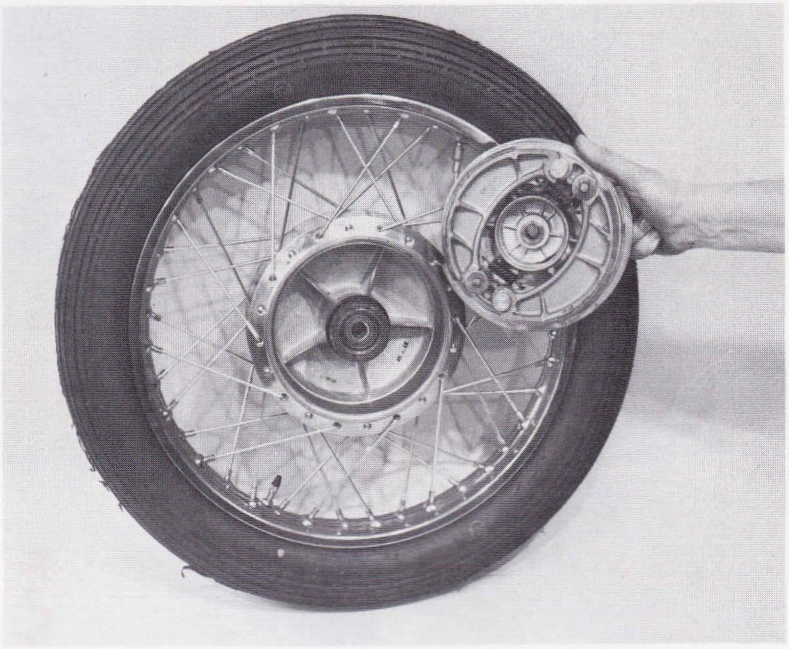
1. Seat backrest assembly.
2. Passenger grab rail with 2 bolts, 2 washers, and 2 lockwashers.
3. Front fender with 4 bolts and lockwashers.
4. Front wheel.
5. Dual seat assembly with retainer rod, 2 washers, 2 cotter pins, 2 hinge pins, and 2 safety clips.
6. Seat backrest hardware: 4 bolts, 4 washers, and 4 lockwashers.
7. Speedometer drive gearbox.
8. Front axle with spacer, dust cover, 2 clamps, 4 nuts, and 4 lockwashers.
9. Rear view mirror.
10. Handlebar with clutch lever, left-hand grip rubber, and wiring straps attached.

S1-B FRONT WHEEL ASSEMBLY

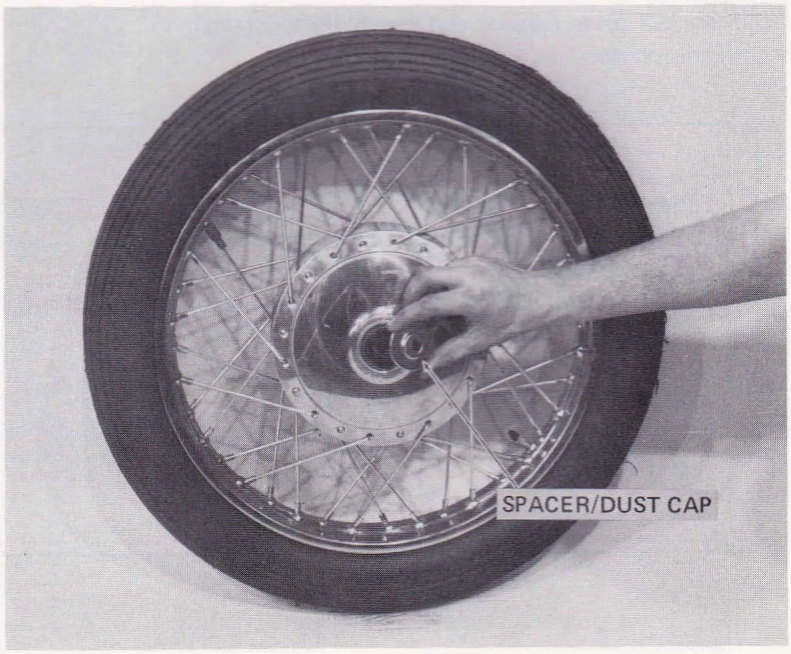
Turn the lower fork tubes so that the fender mounting lugs face inwards. Mount the front fender using the four 12mm long bolts with lockwashers.

Check for any loose parts inside the brake drum or panel and install the panel assembly in the front wheel. Caution: Misalignment or loose parts could damage the front wheel and panel assembly.

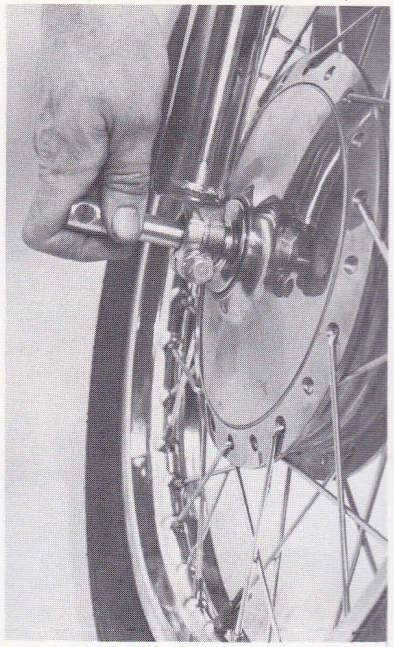
SAFETY NOTE: Loose parts inside the brake assembly could cause the front wheel to lock, resulting in loss of control.

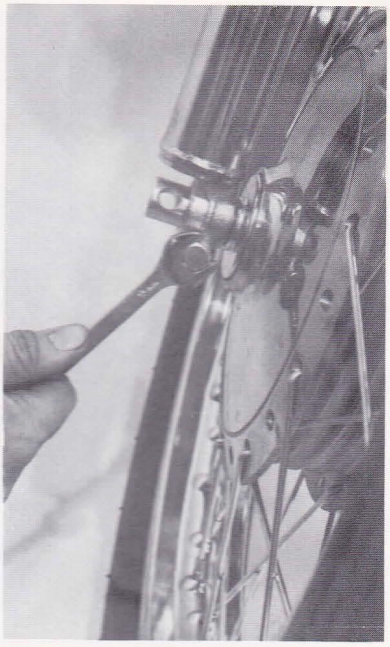


Grease the front axle spacer/dust cap and insert it into the seal in the center of the hub.

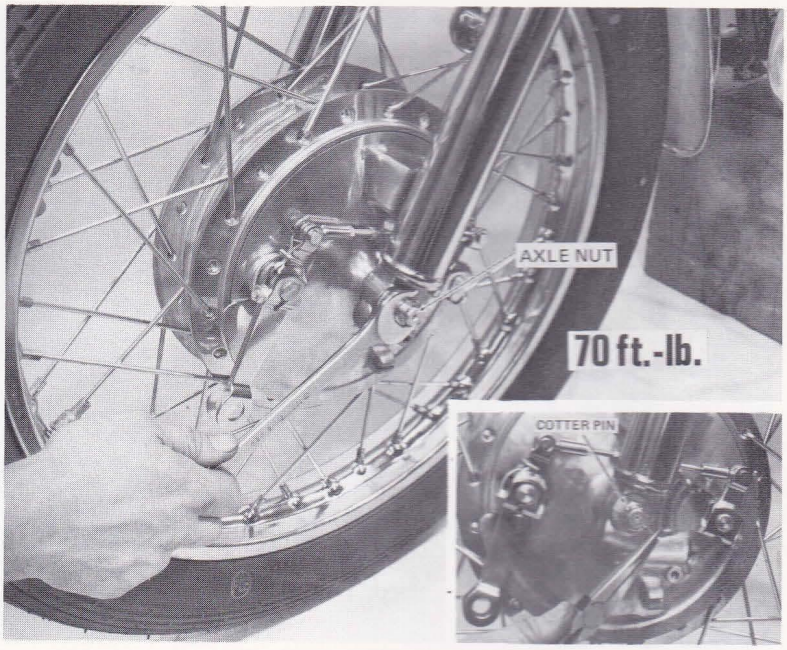


Position the front wheel between the fork legs, with the torque tongue on the left lower fork tube in the torque groove on the brake panel. Insert the axle from the right-hand side and thread on the castellated nut. After pressing down on the forks several times to align the front axle, tighten the axle clamp bolt to 18 lb.-ft. of torque.

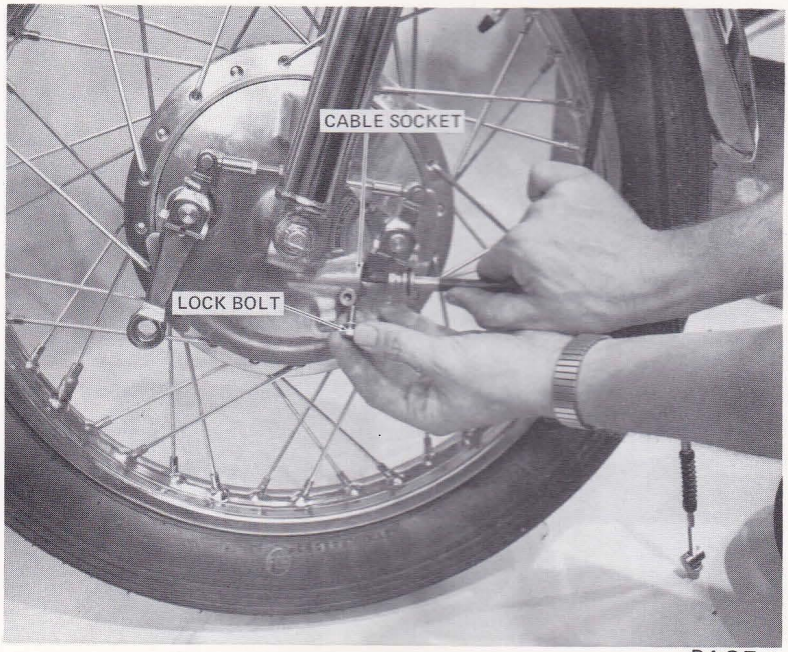




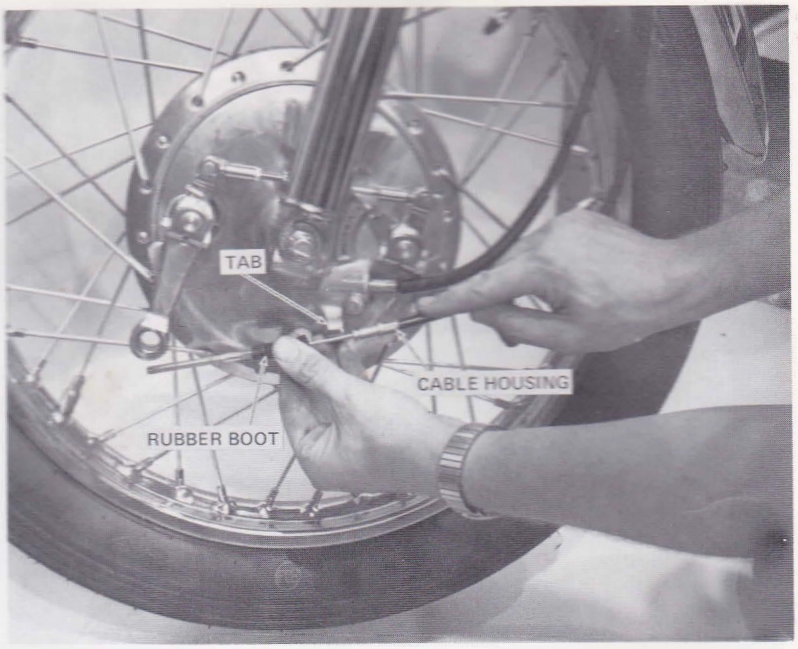
Tighten the axle nut to 70 lb.-ft. of torque. Be sure to insert a cotter pin in the axle nut as shown.



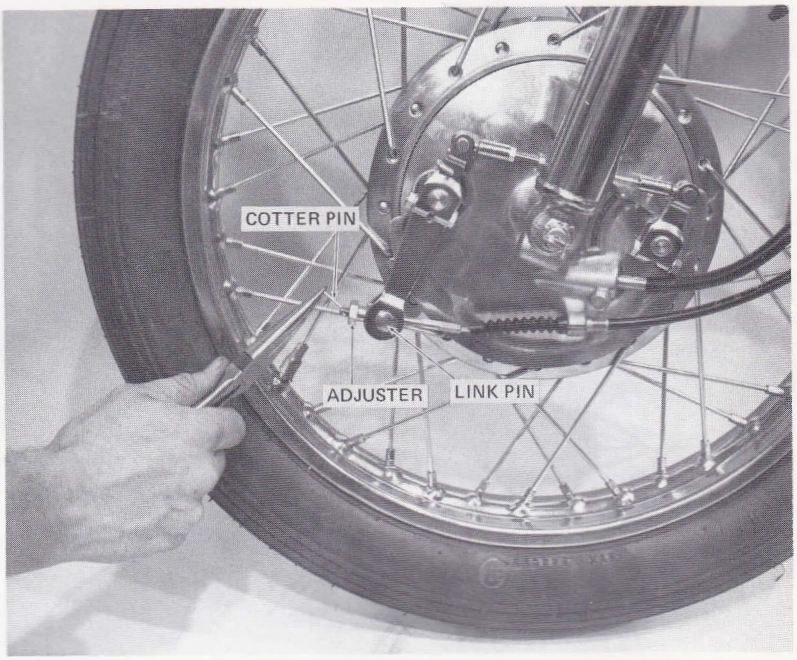
Insert the speedometer cable into its socket. Spin the wheel slowly to ease the installation. Insert the lock bolt and tighten it securely.



Remove the adjuster, link pin, and rubber boot from the front brake cable. Slip the cable housing into the tab on the brake panel and fit the rubber boot.

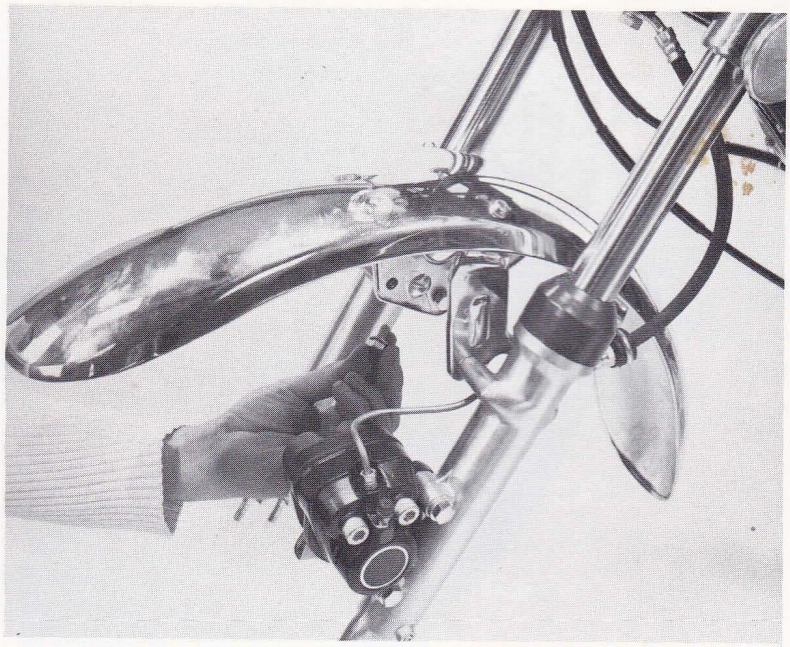


Place the link pin in the brake actuating lever, slip the cable through it, and thread on the adjuster, notched end first. Slip a cotter pin through the end of the cable and bend it over to keep the adjuster securely fastened.

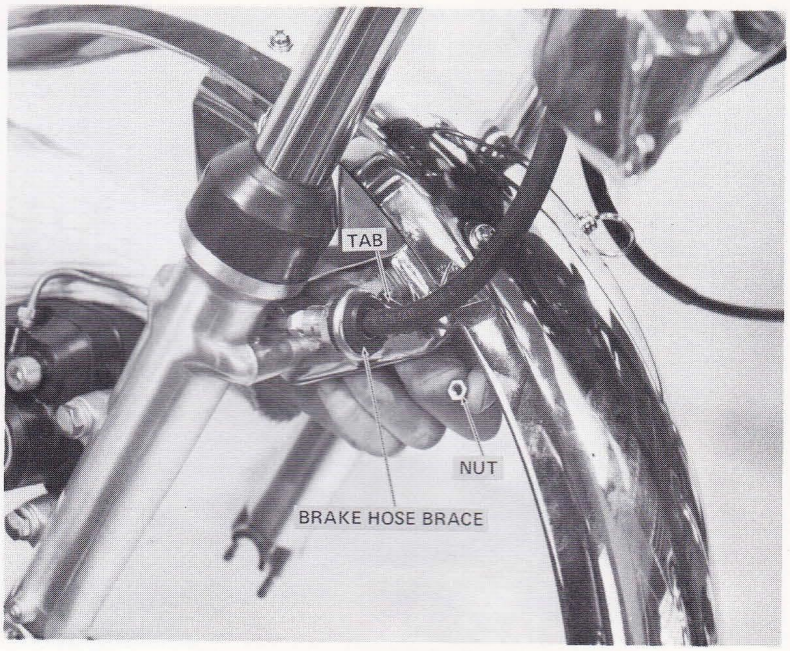


S3 FRONT WHEEL ASSEMBLY

Mount the front fender with four bolts, each with a lockwasher.

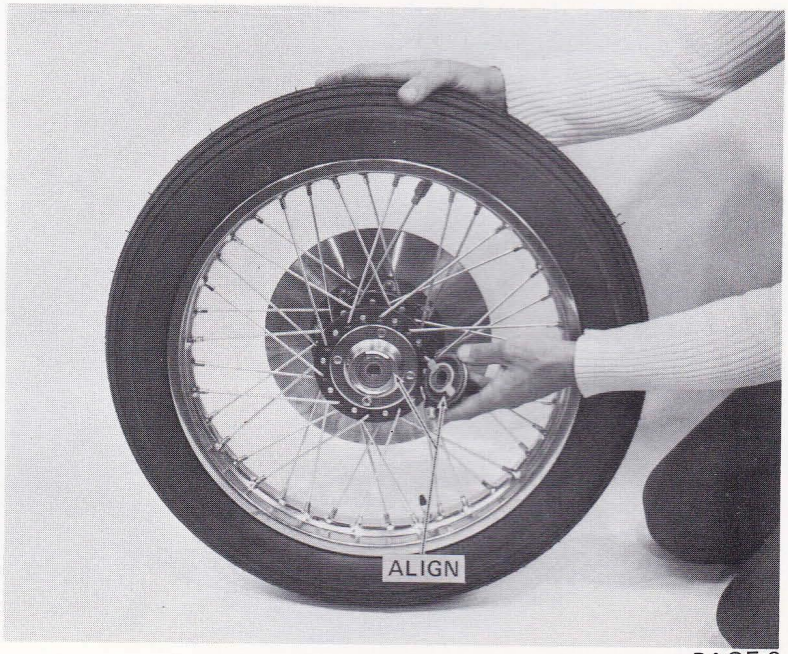


Fit the brake hose brace to the fender bracket and secure it with a washer and self-locking nut. The tab on the hose brace fits into the forward hole in the fender bracket.

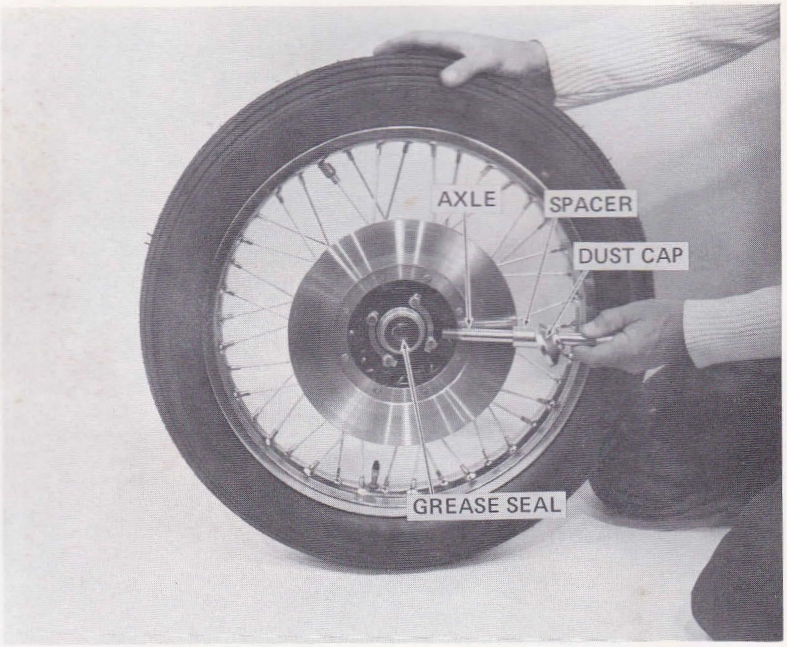


Check for any loose parts inside the speedometer drive gearbox and the front wheel hub and fit the gearbox to the hub. Be sure to align the tangs in the gearbox with the recesses in the center of the hub.

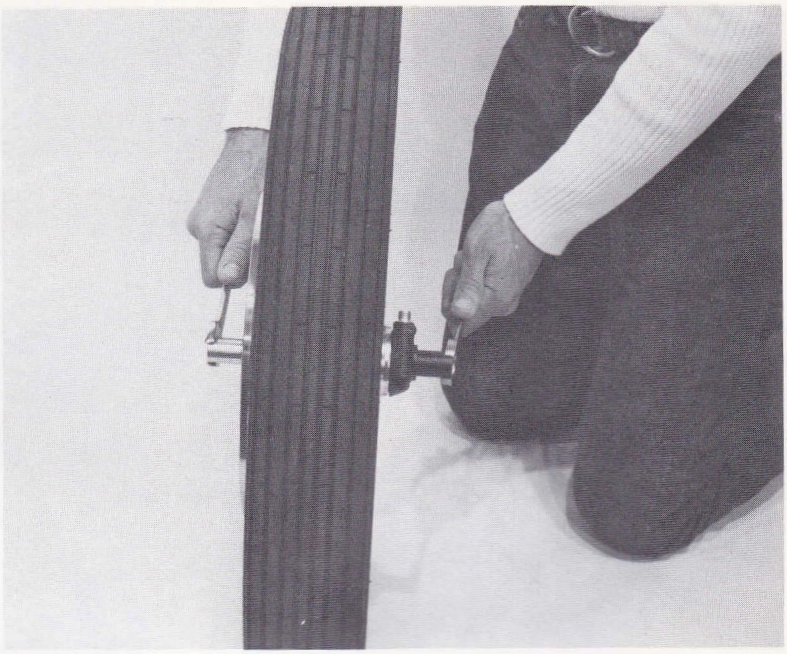
SAFETY NOTE: Loose parts inside the speedometer drive gearbox or the hub, or misalignment could cause the front wheel to lock, resulting in loss of control.



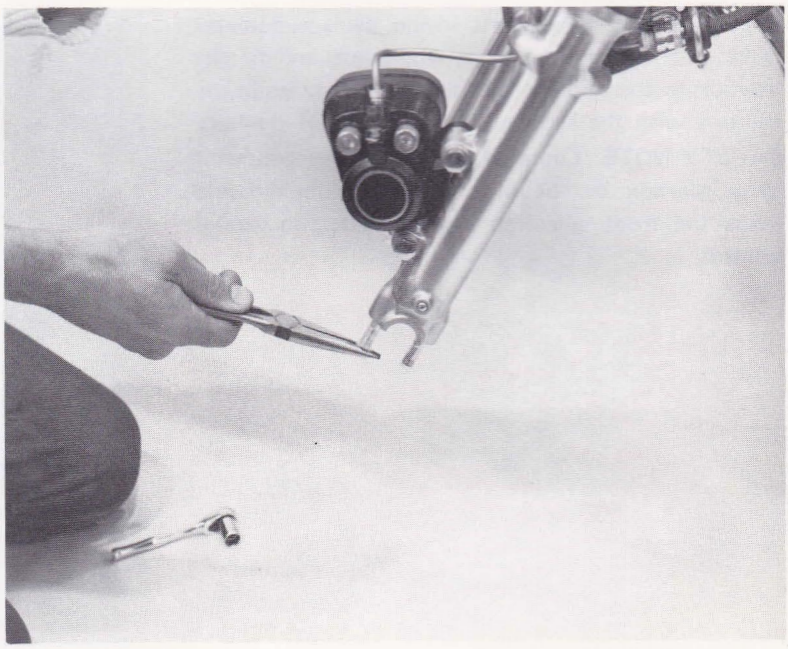
Grease the axle spacer and dust cover and slip them on the axle, as shown. Insert the axle into the center of the hub, making sure the spacer fits into the grease seal.



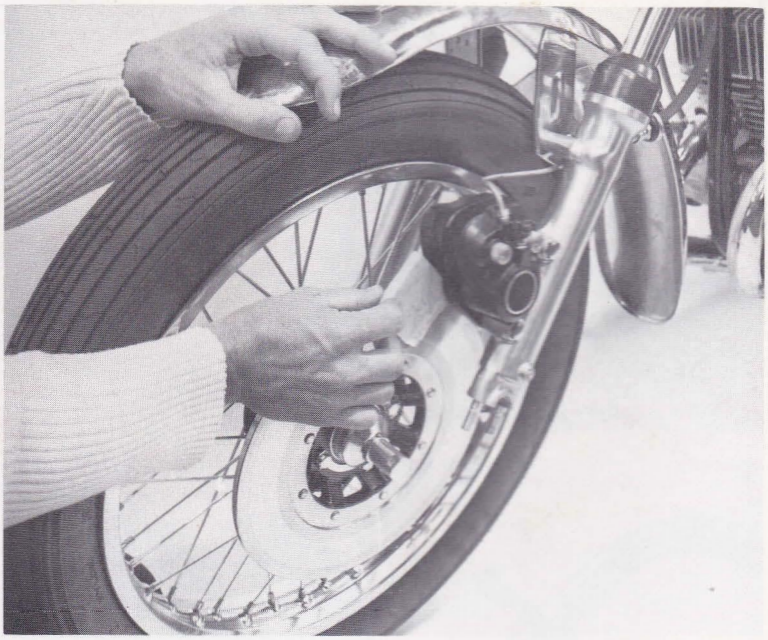
Thread the axle into the speedometer drive gearbox and tighten it securely with two 19mm open end wrenches. SAFETY NOTE: If the axle is not tightened, an unsafe riding condition may result at high speeds.



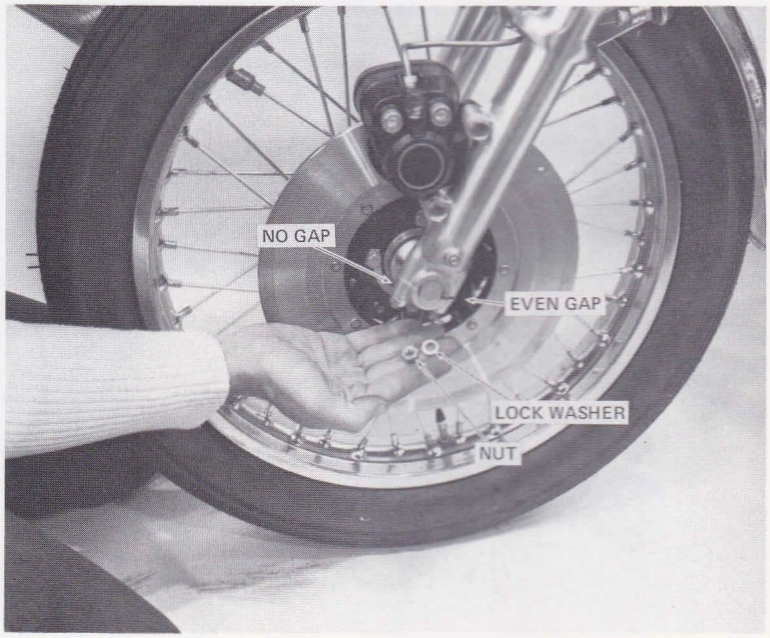
Remove the plastic sleeves from the axle clamp studs and check the studs for damaged threads.



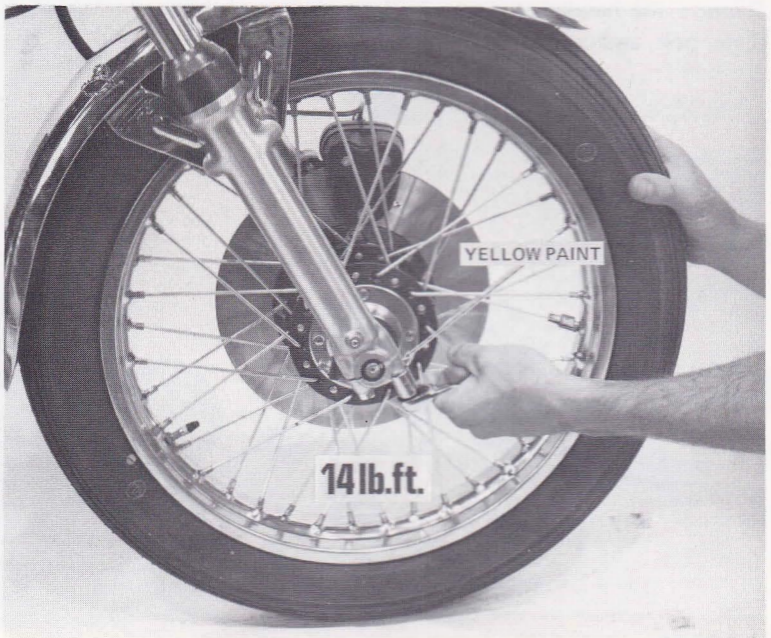
As the cardboard spacer is removed from between the disc brake pucks, slip the front wheel into place. The disc should fit into the caliper and the ends of the axle between the axle clamp studs.



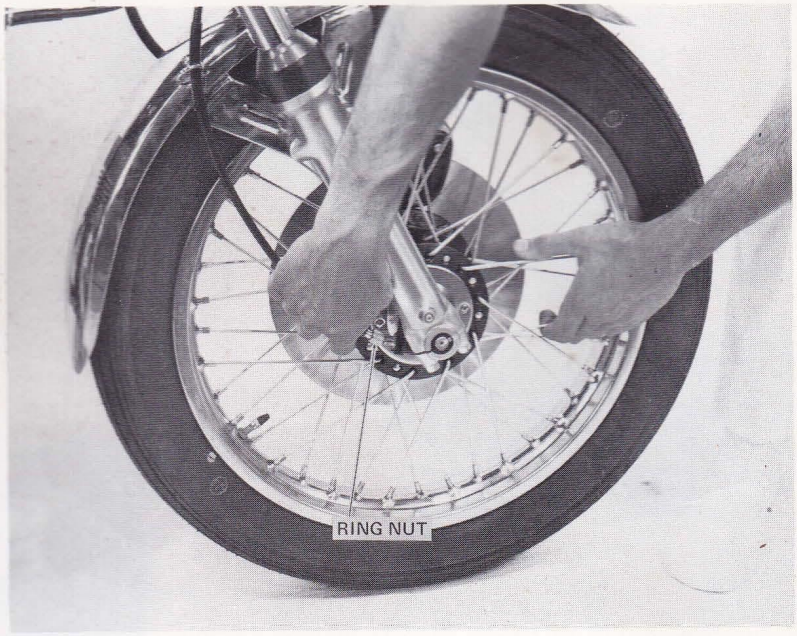
Mount the axle clamp caps, as shown, so that there is no gap in front and an even gap at the rear. Do not tighten the nuts yet.



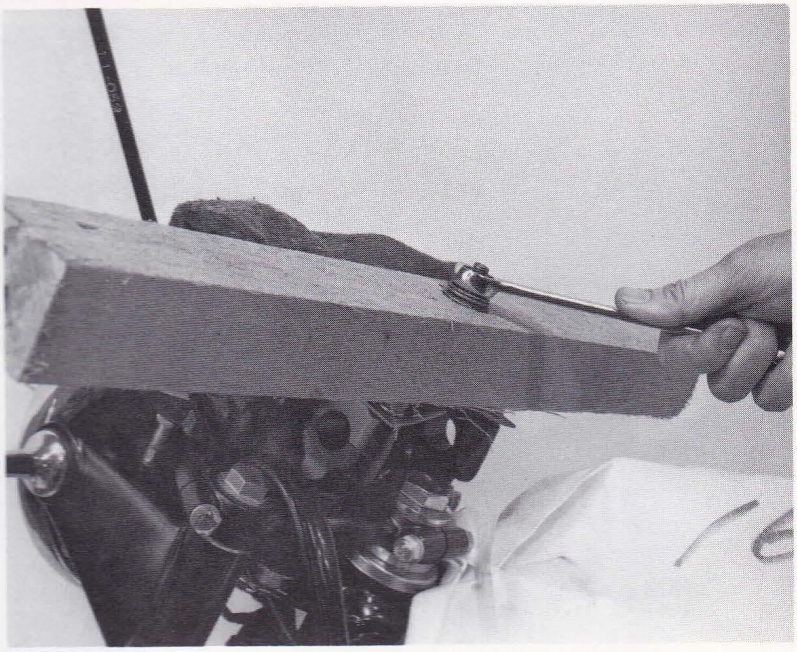
Align the yellow paint marks on the axle, speedometer drive gearbox and front fork. This will properly align the speedometer drive gearbox to prevent breakage of the speedometer drive cable. Tighten the right-hand axle clamp nuts to 14 lb.-ft. of torque. After pressing down on the forks several times to align the front axle, tighten the left-hand axle clamp nuts to 14 lb.-ft. of torque. NOTE: An unsafe condition may exist if the axle clamps are not properly tightened.



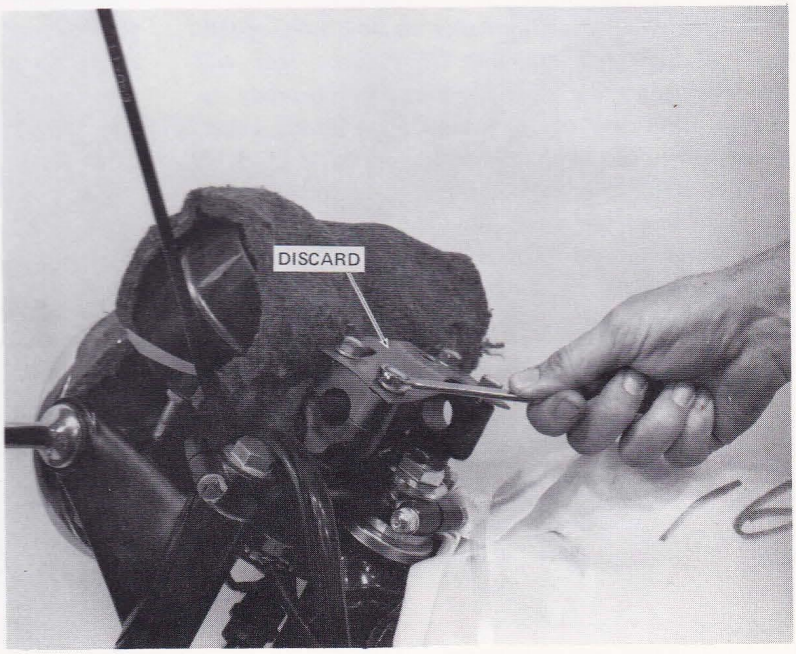
Insert the speedometer drive cable while slowly turning the front wheel, and tighten the ring nut securely.



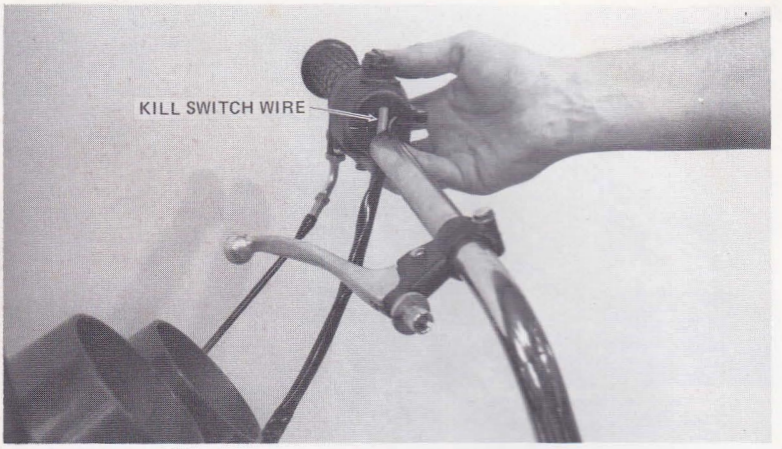
On the S3 only, remove the bolt holding the master cylinder assembly to the crate crossbrace. Remove the nut holding the cross-brace to the stering stem head.



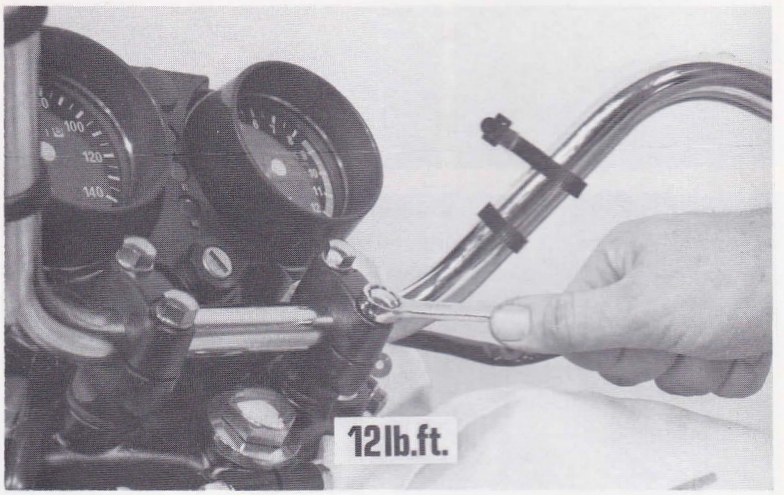
Remove the handlebar clamp bolts, and discard the plate, bolt, and crossbrace.



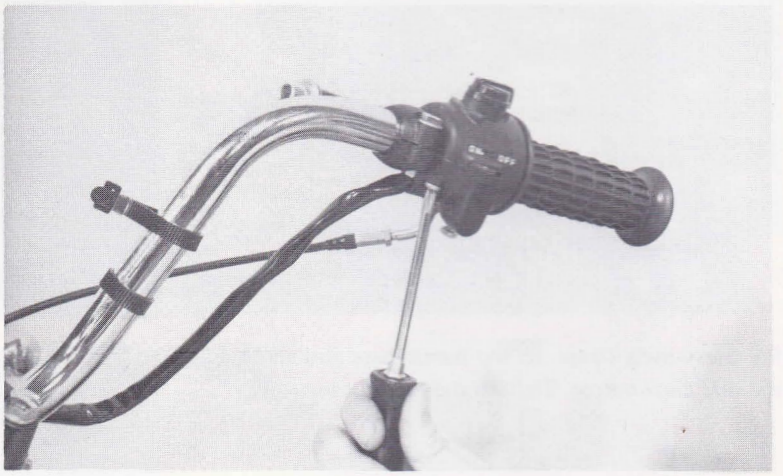
Before bolting the handlebars in position, slip the twistgrip assembly onto the right-hand end of the bars. NOTE: Be sure the kill-switch wire is pushed to one side of the housing so that it does not catch on the end of the bar.



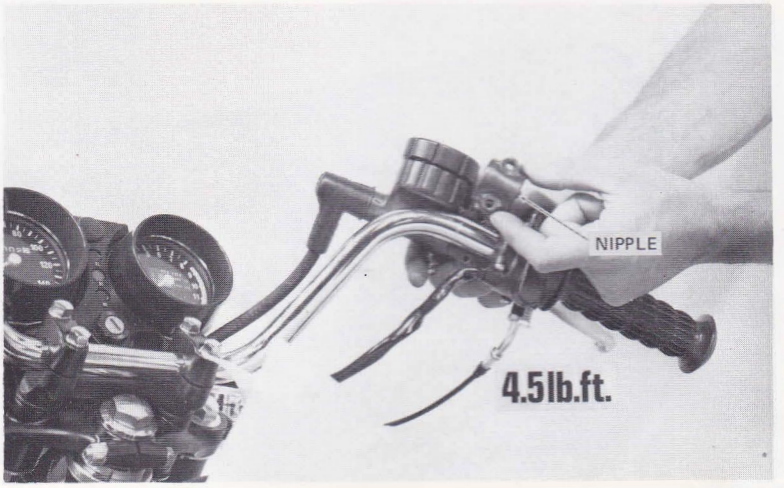
Set the handlebars in place and tighten the clamp caps to 12 lb.-ft. of torque.



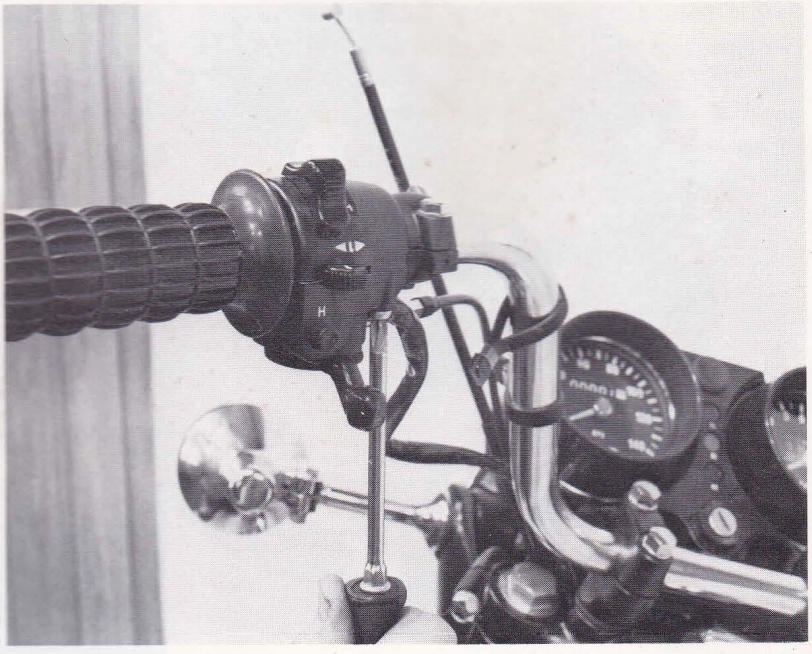
Tighten the twistgrip screws. Do **not** slide the throttle grip so far on the handlebar that the rubber grip contacts the end of the bar.



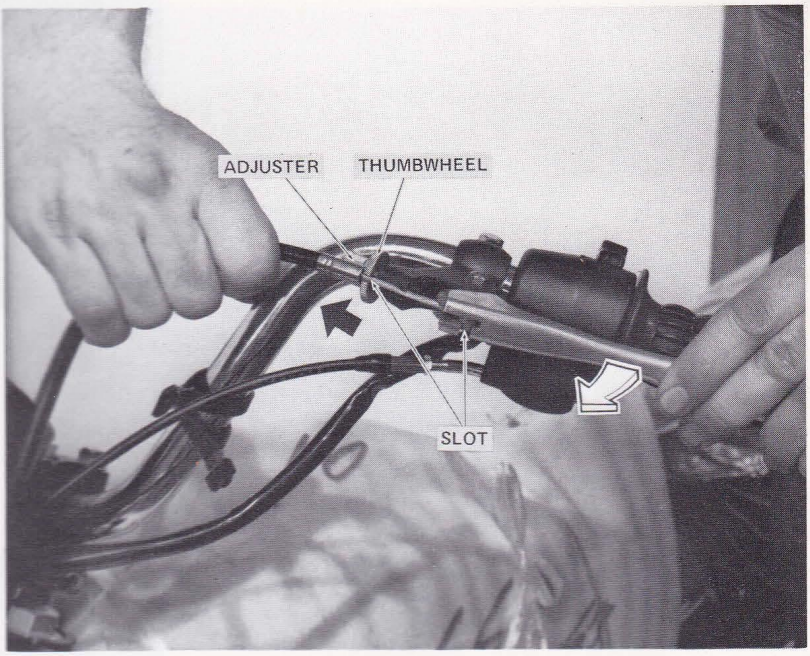
Tighten the lever bracket clamp bolt on the S1-B to 4.5 lb.-ft. of torque. Mount the **S3** master cylinder unit next to the twistgrip. Be sure the nipple on the side of the clamp cap is facing the twistgrip to properly space the master cylinder.



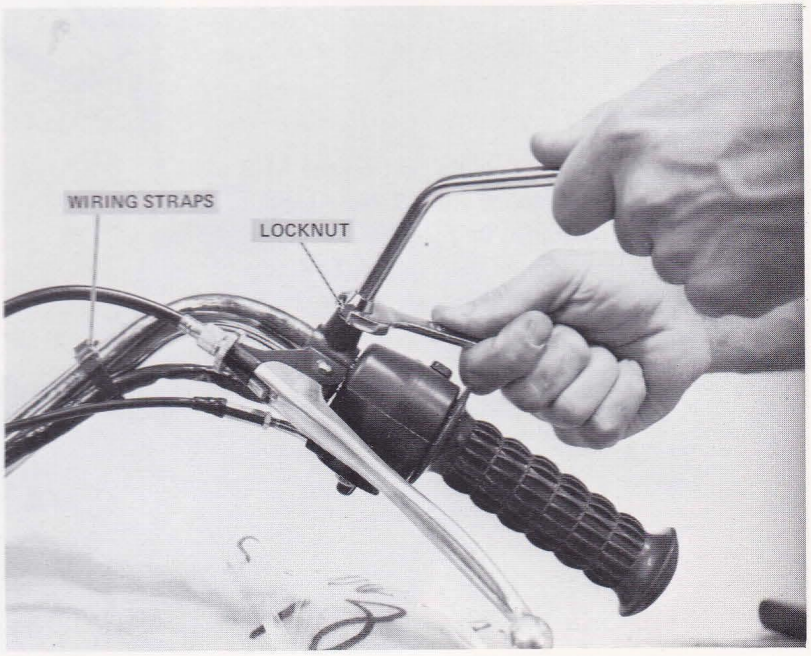
Mount the left hand switch case and tighten the screws securely.



To attach the clutch and front brake (S1-B only) cables, turn the adjuster and thumbwheel all the way into the lever bracket, and back them out until the slots align. Hook the cable nipple up into the lever socket, pull on the cable sheath, swing the cable into the slot, and release the cable sheath into the adjuster.

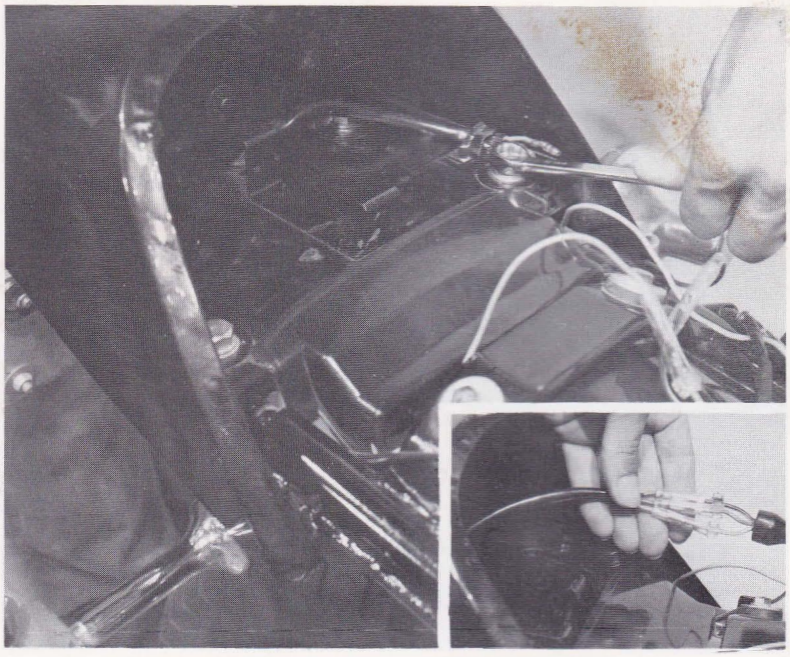


Fit the wiring straps to the handlebars and screw in the rear view mirror. Tighten the locknut securely.

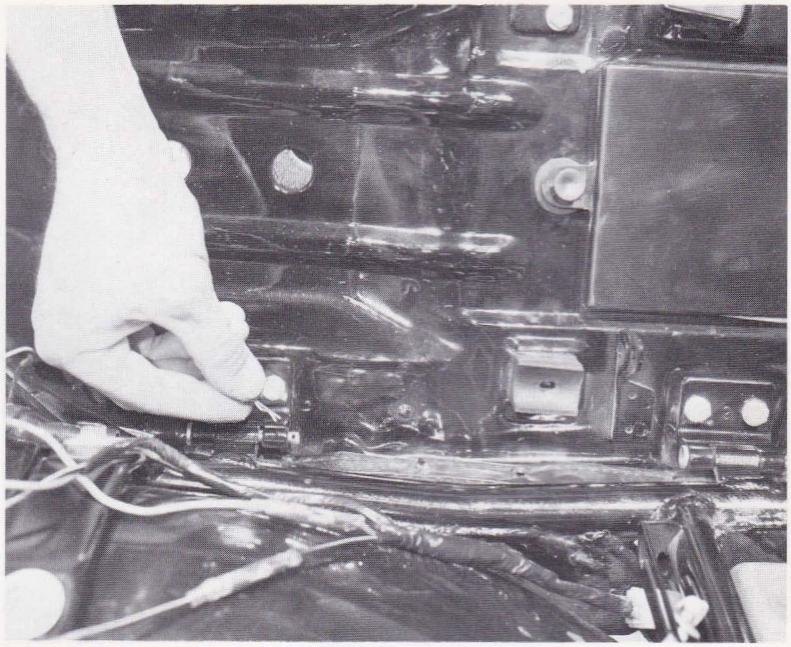


Install the seat backrest using four bolts, each with a lockwasher and flat washer. Then connect the tail-light wiring according to color codes and route the wires through the clips.

Black to Black/Red
Black/Yellow to Black/Yellow
Red to Red/White



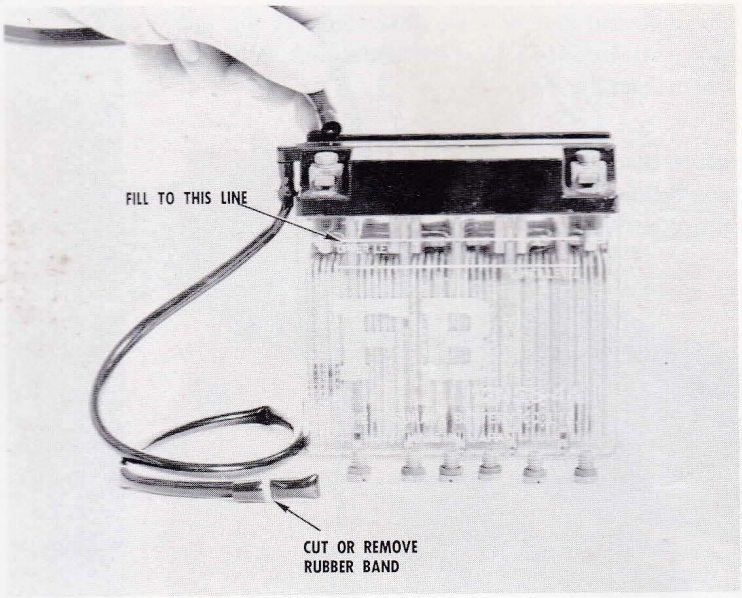
Attach the seat with two pins, each with a safety clip.



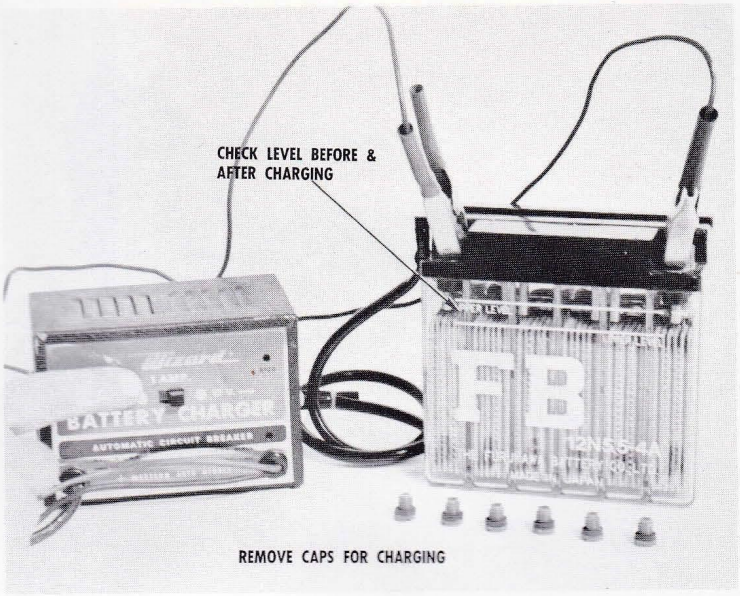
Remove the protective coverings from the rear view mirror, the tank and the seat.

BATTERY SERVICE

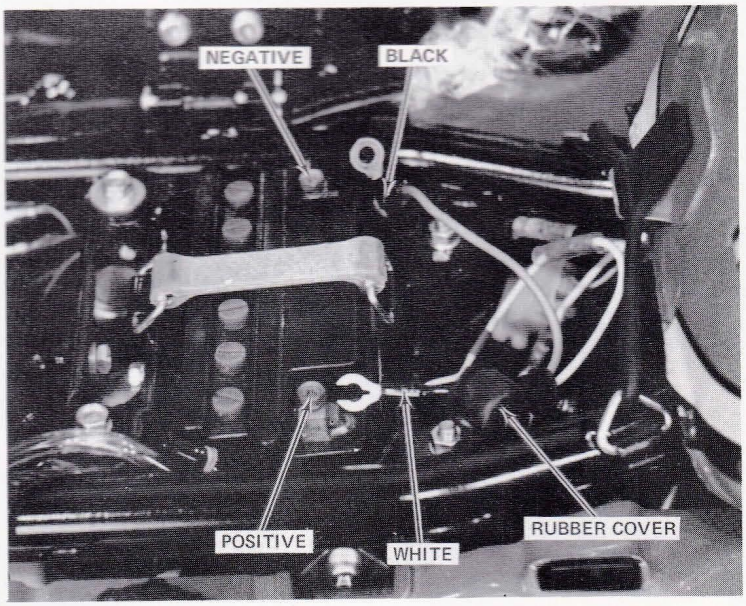
Lift the seat and remove the battery from the motorcycle. Cut the plugged end of the battery vent hose or remove the rubber band. Fill the battery to the top level line with fresh electrolyte at a temperature of 85° or less. Let the battery stand for two hours before charging. If the electrolyte level drops below the upper line, refill the battery with more electrolyte before charging.



An initial charging is necessary before placing the battery in service. Connect the battery leads (white to +, black to -) to a small 12 volt battery charger. Remove the battery caps. Charge for 15 to 20 hours at no more than 1 amp. Stop charging if the electrolyte temperature rises above 115°F. If the fluid level drops, refill the battery with **distilled water only!**

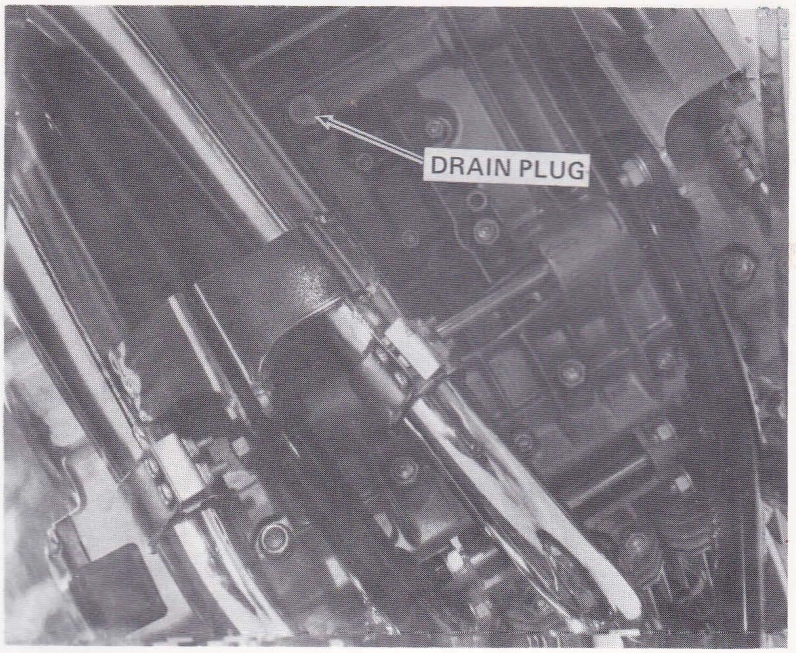


Wash off any spilled acid with water. Be sure that the battery mat is in position and slip the battery into the battery box with the vent tube to the right. Route the tube down between the engine case and the swingarm pivot and in front of the center stand pivot.



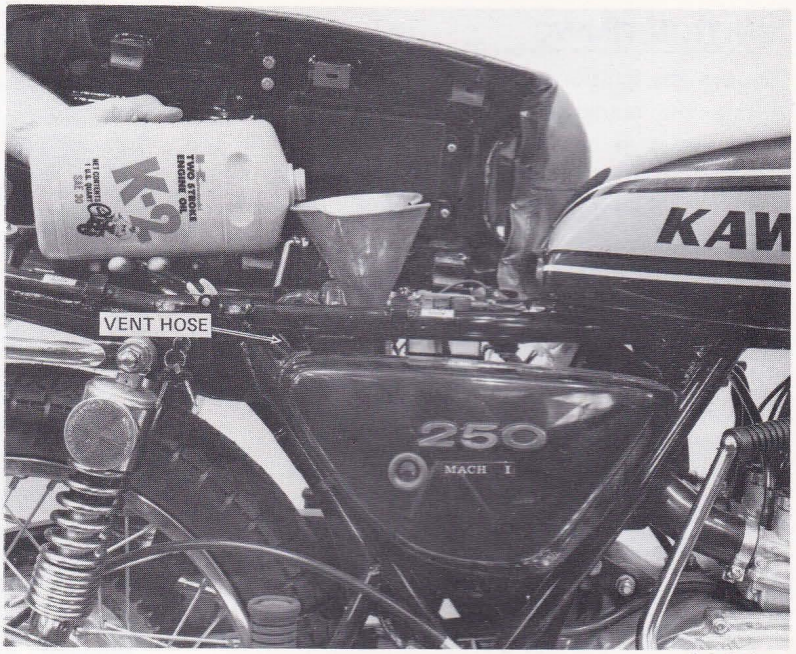
LUBRICATION

Remove the transmission drain plug and drain the shipping oil from the transmission. Replace the drain plug with gasket, and tighten it securely.

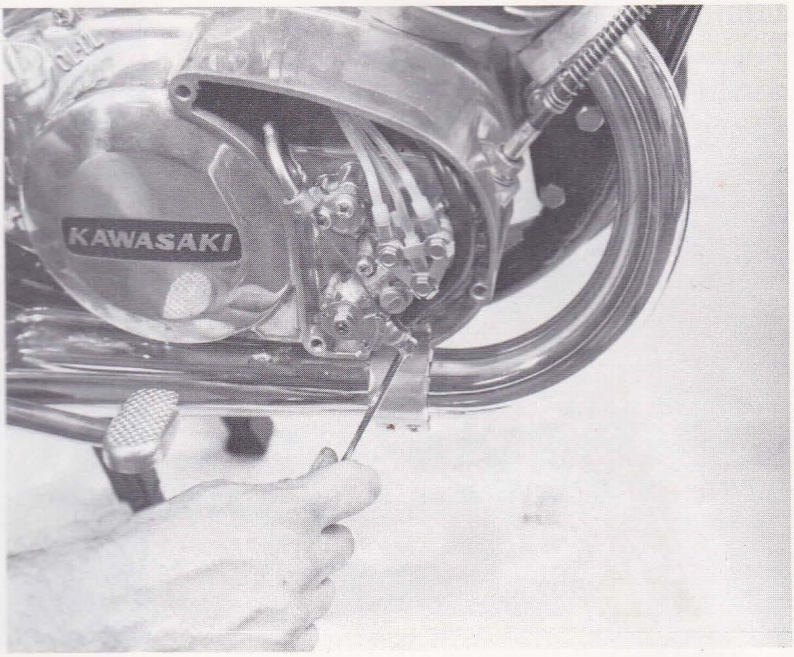


Fill the transmission with 1.1 liters, 1.2 qts., or 37 fl.-oz. of SAE 10W-40, 20W-50, or 10W-50 motor oil, marked SD or SE. The oil level should be between the marks on the dipstick when it is threaded all the way into the case. NOTE: Be sure the O-ring is in place.

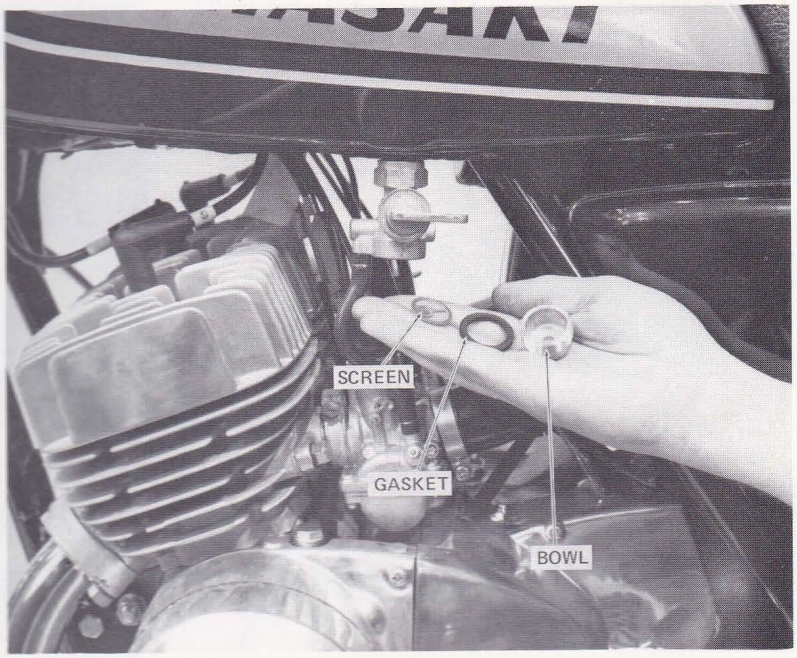
Remove the oil tank filler cap, and fill the oil tank with a good quality two-stroke oil, such as Kawasaki K-2. CAUTION: Be sure that the oil tank vent nipple and vent line are open. Route the vent line forward along the top right-hand frame tube, under the oil tank bracket, through the hole in the frame brace, down in front of the air cleaner housing and into the hole provided in the front sprocket cover. Be sure that the oil line is securely attached to the oil tank. Replace the oil tank filler cap after filling the oil tank. Be sure that the filler neck strainer screen is in place.



Remove the oil pump cover and the right hand engine cover grommet. Loosen the oil pump inlet banjo bolt and allow oil to flow freely from the fitting for two minutes. CAUTION: If the oil flows very slowly, or stops completely, check the oil line from the tank for blockage or pinching. Also check the vent hose for blockage. Tighten the banjo bolt securely.

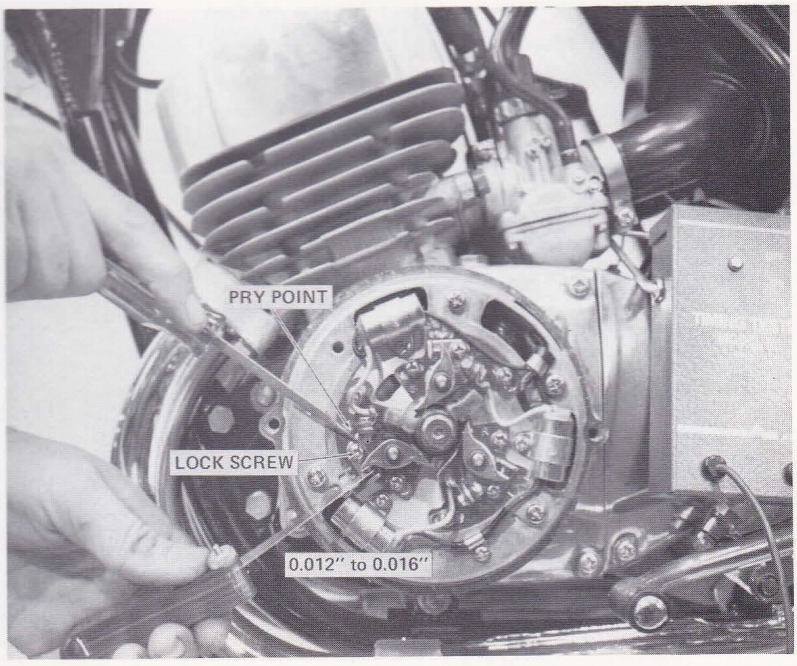


Remove the fuel cock sediment bowl and screen. Clean any foreign matter out of the bowl and screen, and reassemble the fuel cock.



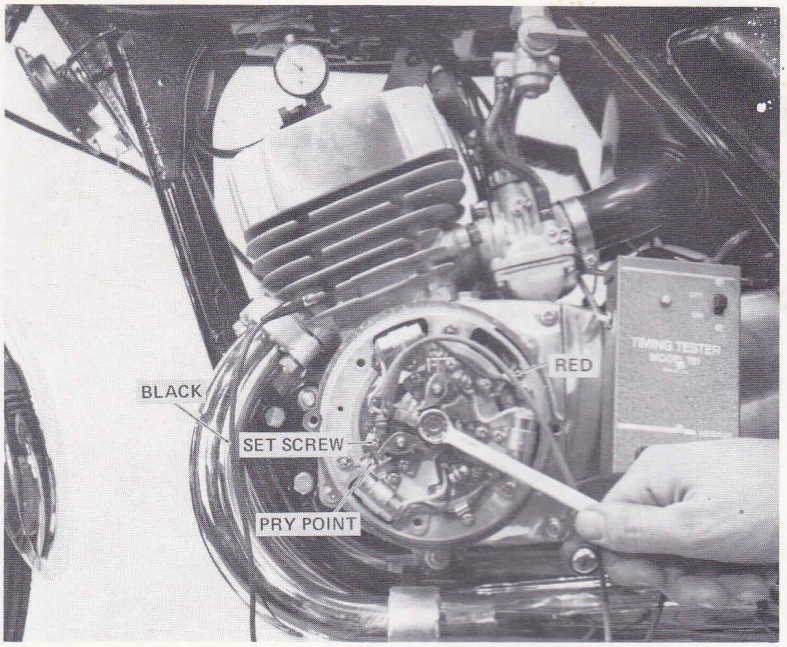
IGNITION TIMING

Remove the ignition cover and all three spark plugs. Rotate the crankshaft counterclockwise until one point set is at its widest gap. The gap should be 0.012" to 0.016". If it isn't, loosen the point plate lock screw and adjust the points with a screwdriver, as shown. Tighten the point plate lockscrew, recheck the gap, and repeat the above procedure with the other two sets of points.



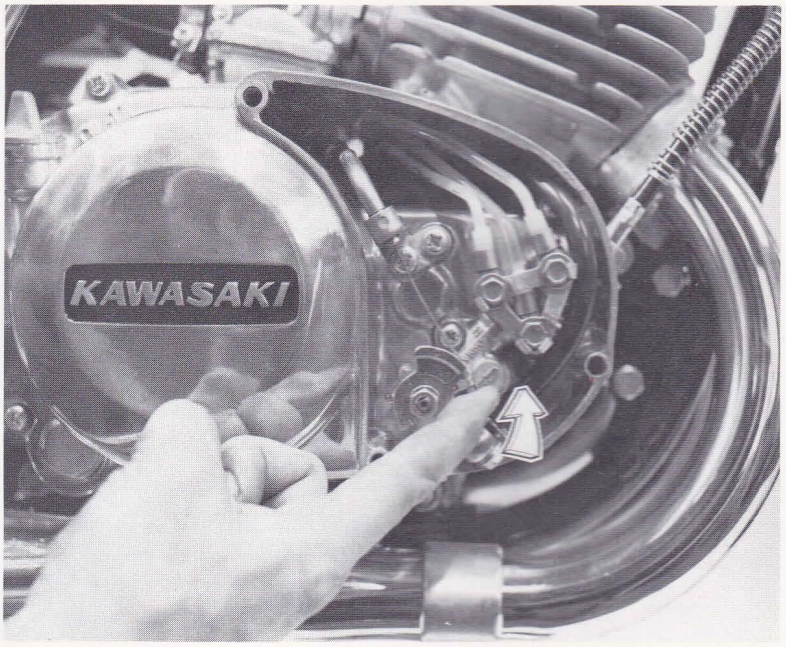
Insert a dial indicator in the left cylinder and attach a timing tester by connecting the black lead to a good ground and the red lead to the contact breaker point terminal shown in the photo. Rotate the crankshaft until the dial indicator shows top dead center. Turn on the timing tester and the ignition and rotate the crankshaft clockwise until the dial indicator shows that the piston is at a point 2.60mm (23°) before top dead center. If the timing is correct, the tone of the timing tester will change. If it does not, loosen the timing plate lock screws, and move the plate with a screwdriver inserted in the prypoint.

When the timing is adjusted, recheck the point gap, and tighten the lock screws. Move the dial indicator to the center and right cylinders and repeat the procedure on each of the other sets of points. Replace the ignition cover.



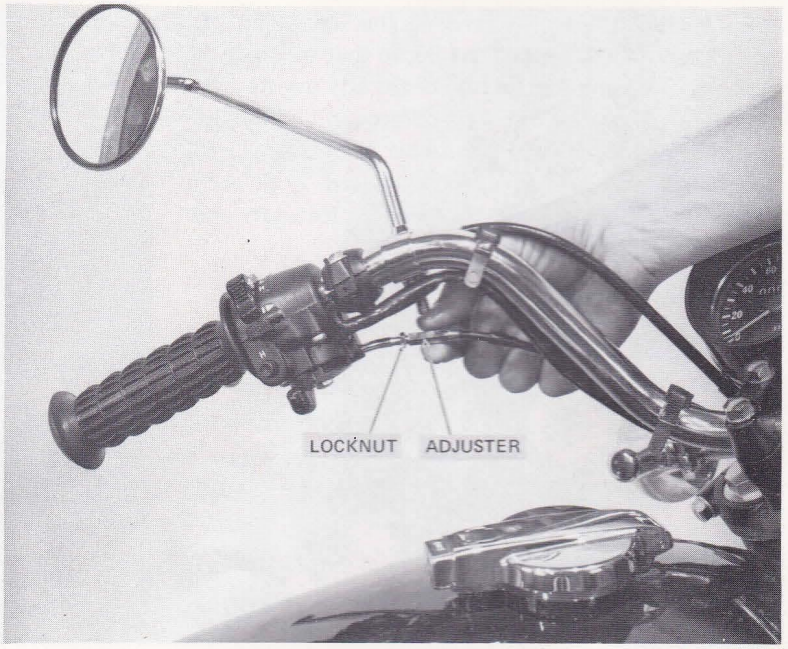
OIL PUMP BLEEDING

Start the engine and maintain engine speed at 1500 to 2000 rpm. Hold the oil pump lever in the full open position to bleed any air bubbles out of the oil pump and the oil pressure lines. When the exhaust smokes heavily, release the lever and stop the engine. **CAUTION:** If the exhaust does not smoke, or if bubbles are present in the oil pressure lines, check for blockage or loose connections.

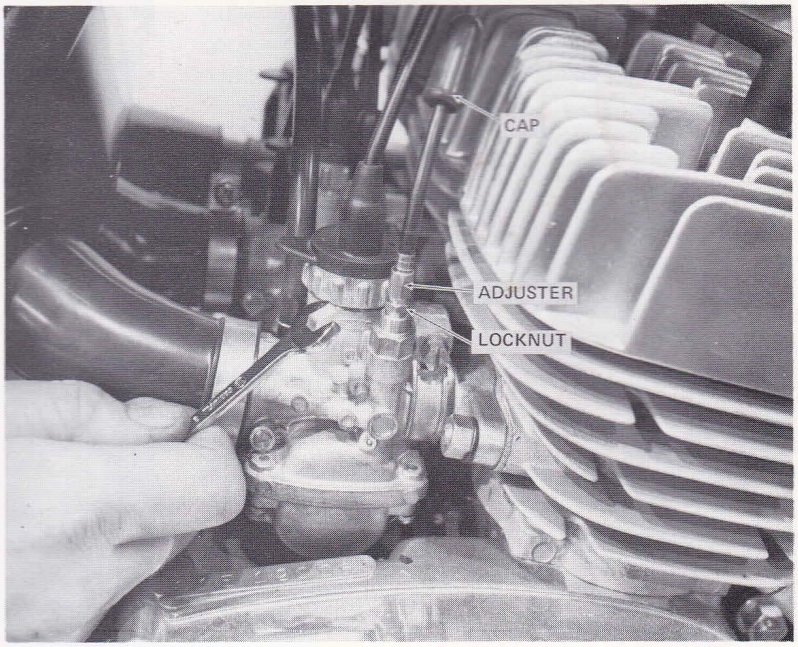


CARBUERTOR ADJUSTMENT

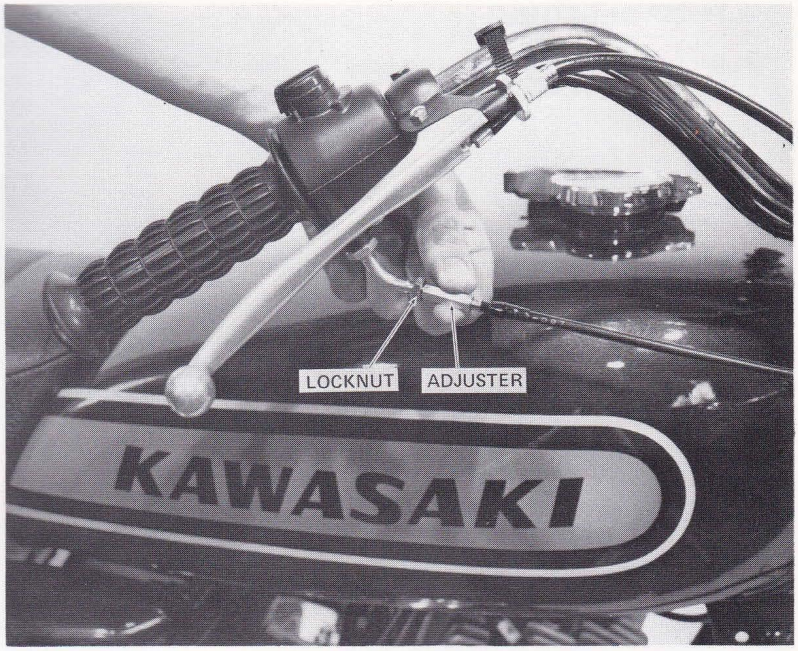
Loosen the locknut and turn the starter cable adjuster in until the starter cable has at least 1/4" of slack.



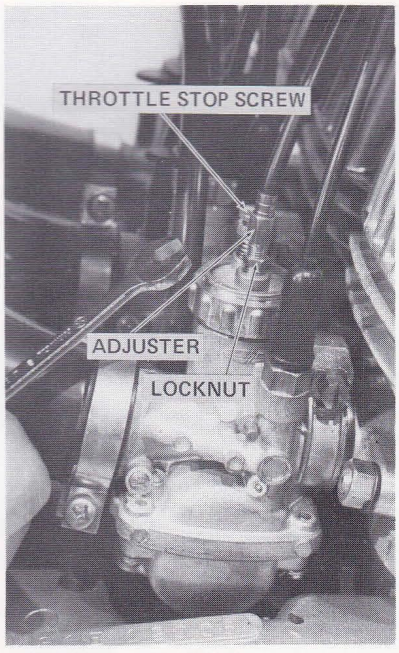
Tug on the starter cables for free play, which should be about 1/8" in each cable. NOTE: If there is no slack, the starter plunger will be held open slightly, causing rich mixtures from that carburetor. To adjust cable slack, pull up the rubber cap, loosen the locknut, and turn the adjuster. Tighten the locknut securely and push down the rubber cap.

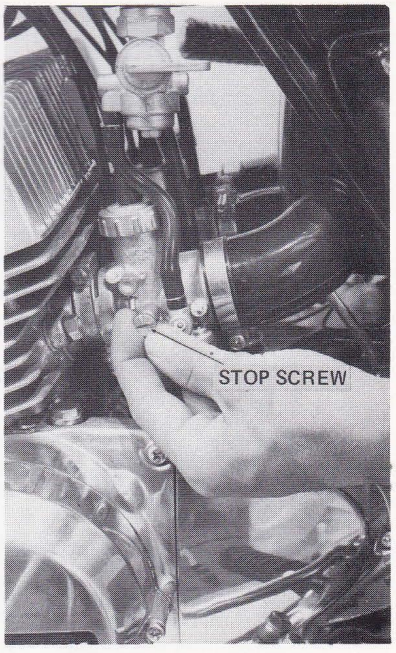


For smooth, reliable performance, the three carburetors must all have the same slide position at any throttle opening. To check synchronization, loosen the cable adjuster at the twistgrip to obtain about 1/4" of slack in the throttle cable.



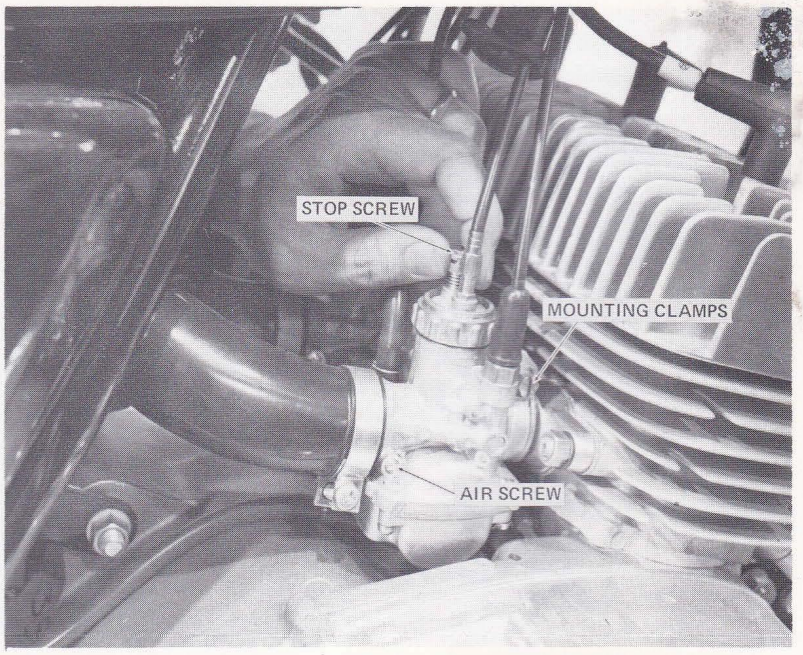
Turn the throttle stop screws all the way **in** on the S1, and all the way **out** on the S3, so that the throttle slides are completely closed. On the S1, the throttle stop screw is on top of the carburetor and on the S3, it's on the side. Slip up the rubber boots, loosen all three locknuts, and turn each adjuster until each cable has 1/16" of slack. Tighten the locknuts and push down the boots.





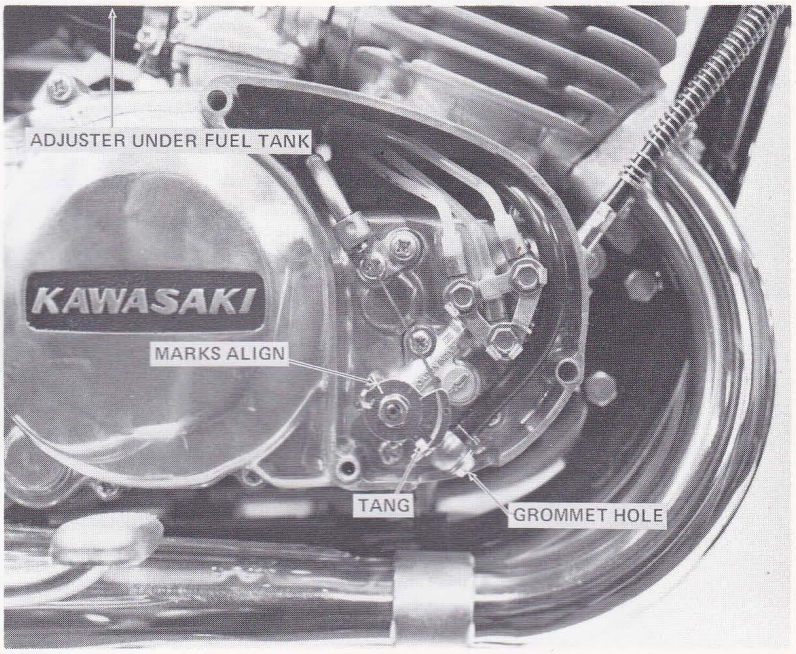
Turn in each air screw until it bottoms lightly and then back it out 1-1/4 turns on the S1B and 1-1/2 turns on the S3. Start the engine and warm it up. Then turn the throttle stop screws equally on all three carburetors until a stable idle of 1300 to 1500 rpm is obtained. Hold one hand over each of the mufflers in turn to see if the exhaust pressure is balanced among the three cylinders. To balance the exhaust on the S1B, turn the throttle stop screw in on a "strong" cylinder, and out on a "weak" cylinder. On the S3, turn the throttle stop screw out on a "strong" cylinder and in on a "weak" one.

When the idle is balanced, stop the engine and lengthen the adjuster at the twistgrip until there is 1/16" to 1/8" play in the throttle. Finally check that the carburetor mounting clamps are tight.



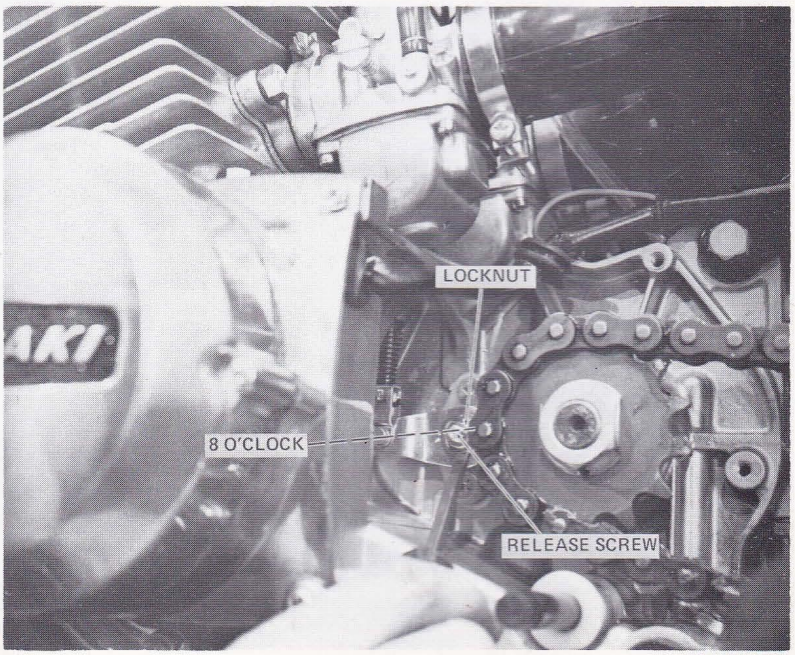
OIL PUMP ADJUSTMENT

Only after adjusting the carburetors, inspect the oil pump adjustment. Close the twistgrip completely and check that the mark on the oil pump lever aligns with the mark on the oil pump body. If the marks do not align, turn the adjuster under the fuel tank until the alignment is correct. Be sure to tighten the adjuster locknut after this operation. At the same time, make sure the lever tang is bent over the cable nipple. Refit the grommet and the oil pump cover.

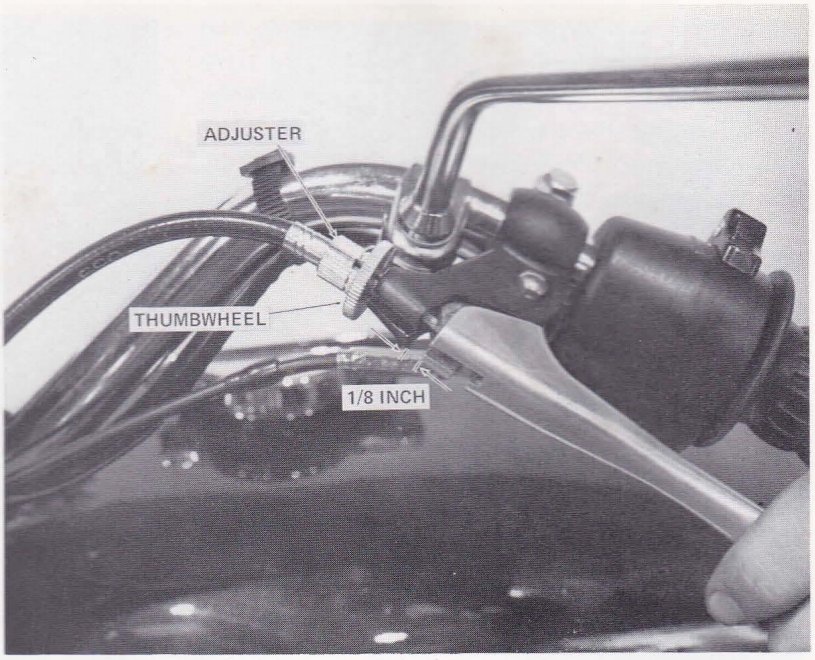


CLUTCH ADJUSTMENT

Remove the sprocket cover and check the position of the clutch release lever, which should be at approximately 8 o'clock. Correct the lever position by turning the clutch cable adjuster under the fuel tank. After adjusting, be sure to tighten the locknut securely. Loosen the locknut on the release screw and turn the screw clockwise until clutch spring tension is felt. Hold the screw in this position while tightening the locknut. Check the tightness of the sprocket nut, making sure the washer is bent, and replace the sprocket cover.



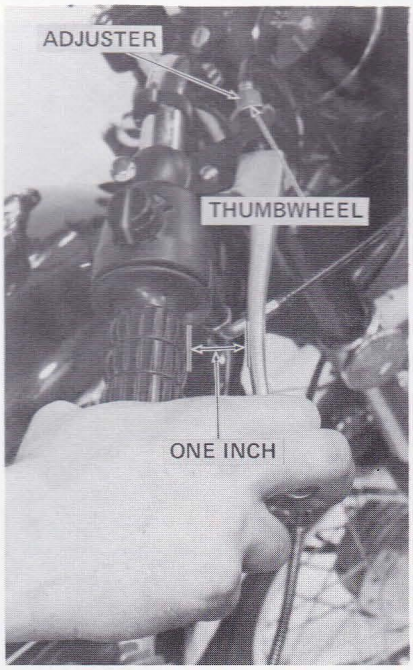
Loosen the thumbwheel and turn the adjuster until the clutch lever has a 1/8" gap when resistance is felt. Tighten the thumbwheel and fit the dust cover.

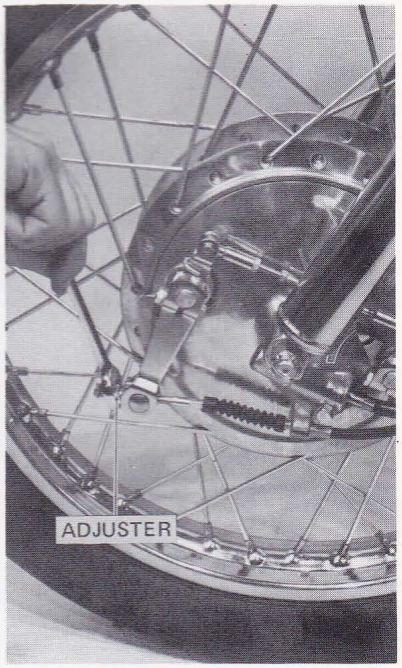


FRONT BRAKE ADJUSTMENT

S3: Check the fluid level in the brake master cylinder reservoir, with the reservoir held as nearly level as possible. If the fluid is below the line on the inside wall of the reservoir, fill it with a good quality brake fluid marked **D0T3.** Use fluid from a sealed container only. Check the banjo bolt on the master cylinder for proper (20 lb.-ft.) torque.

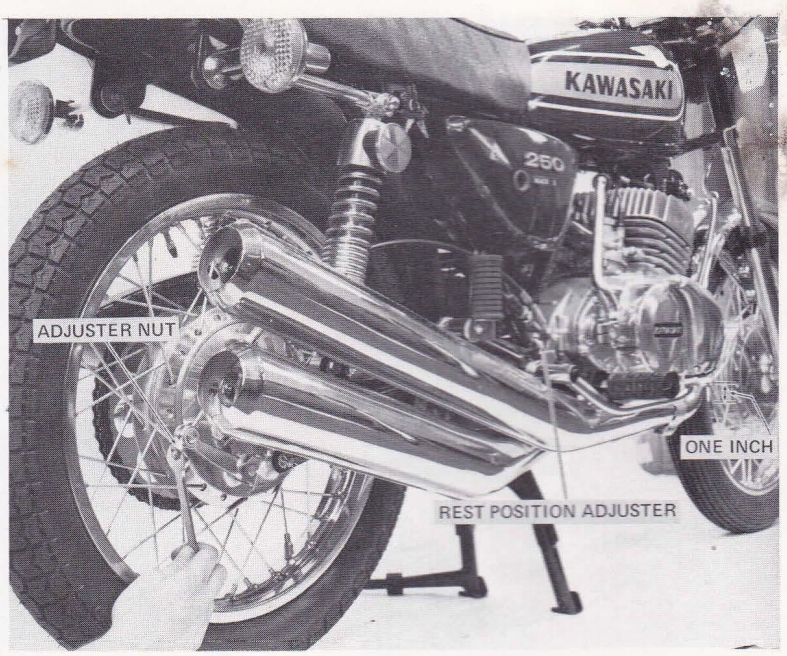
S1B: Loosen the locknut on the brake cable adjuster at the right handgrip. Turn the adjuster as far into the brake lever bracket as possible, back it out 2 turns, and tighten the locknut. Tighten the brake cable adjuster on the front brake panel until the hand lever clears the twistgrip by about 1 inch with the front brake applied.





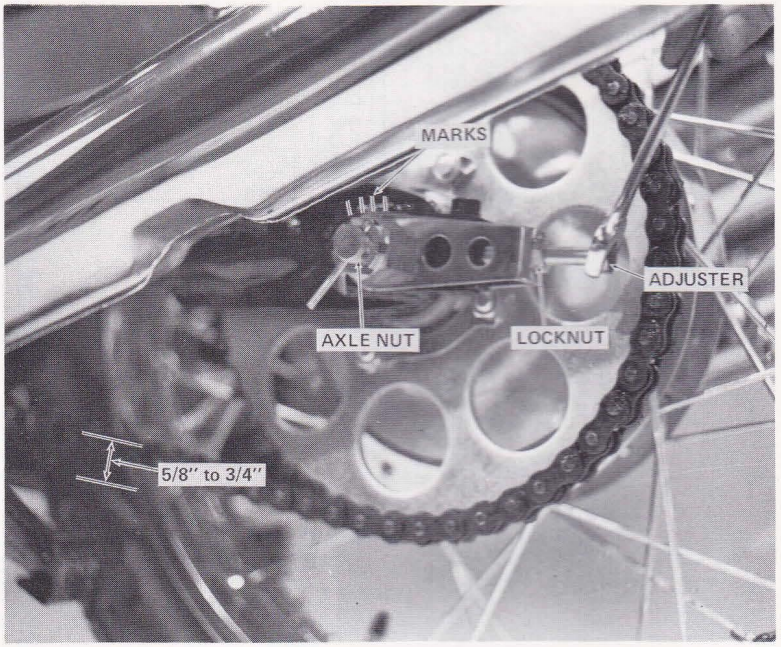
REAR BRAKE ADJUSTMENT

Before adjusting the pedal travel, turn the stop bolt to adjust the pedal rest position. The pedal arm should just clear the footrest. Tighten the locknut. Turn the brake cable adjuster at the rear brake panel so that the pedal has 1 inch of play.



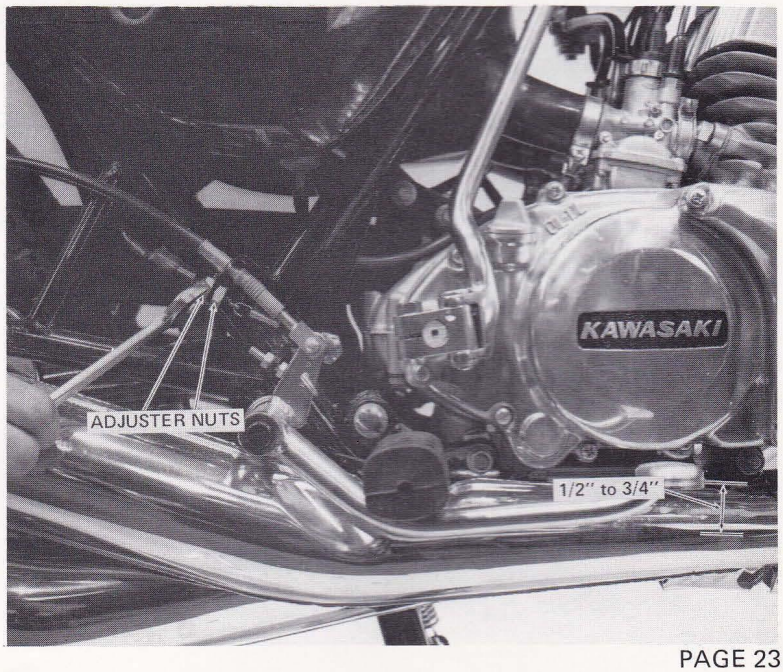
CHAIN ADJUSTMENT

Loosen the rear axle nuts and chain adjuster locknuts on either side of the swing arm. Turn the adjuster bolts until the drive chain has from 5/8" to 3/4" slack midway between the front and rear sprockets. Tighten the locknuts, and axle nuts after this adjustment. NOTE: To insure proper wheel and sprocket alignment, make sure the marks on the chain adjusters are equally spaced on the divisions of the swing arm tabs.

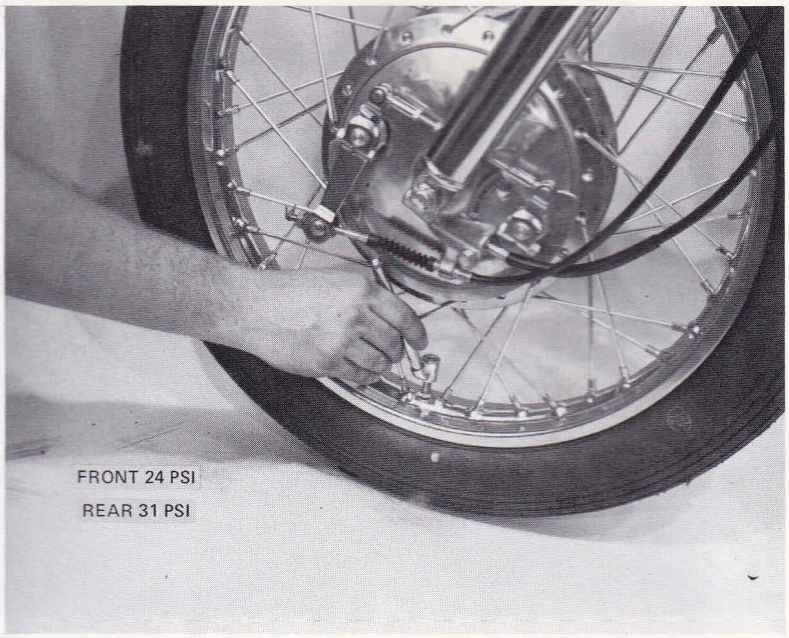


Turn on the main switch and operate the rear brake. The brake lamp should light when the pedal travels 1/2" to 3/4".

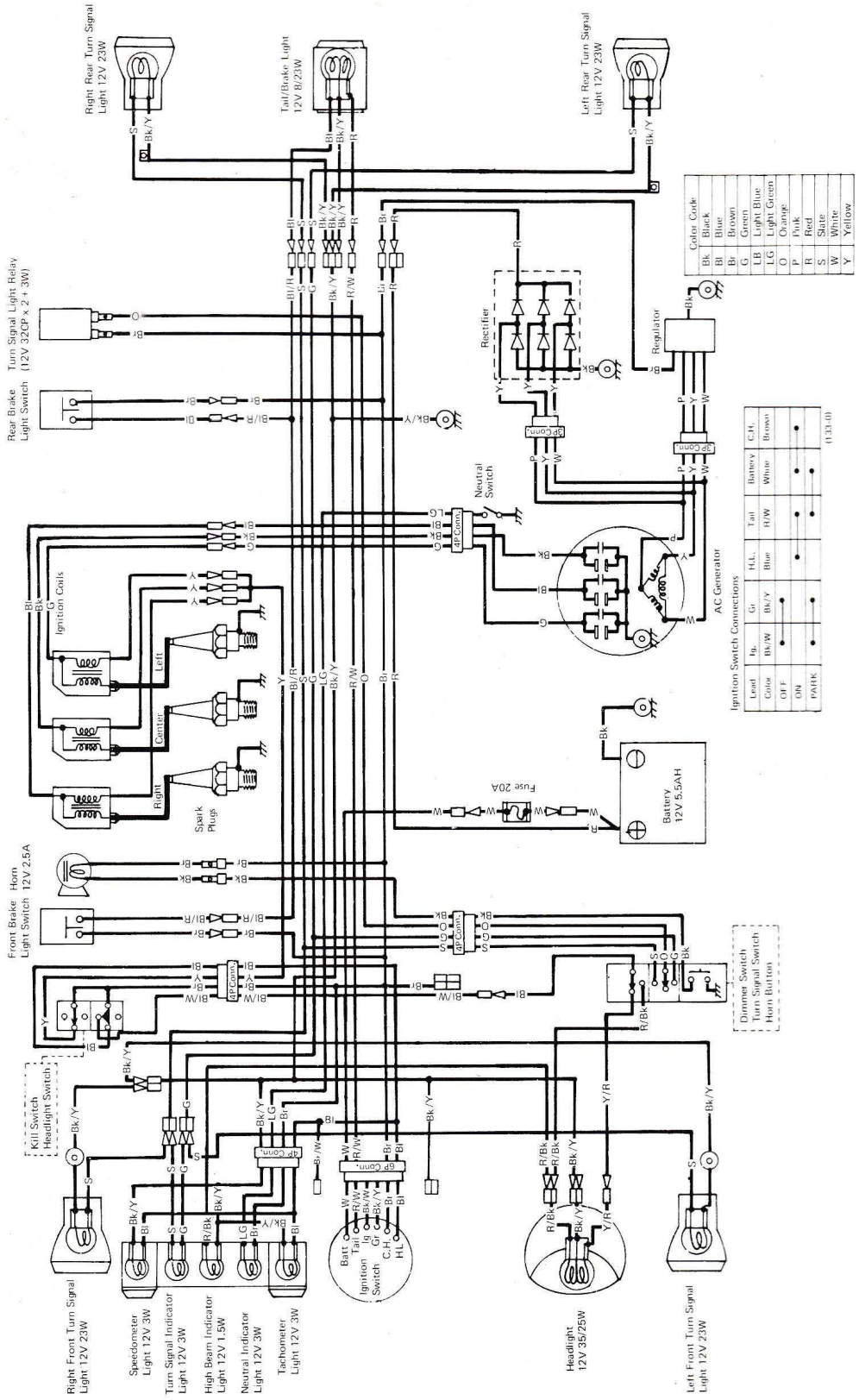
Adjust the brake lamp switch by loosening the locknut and turning the adjustment nut. Tighten the locknut after this adjustment. At this time, check the front brake light switch, the headlight high and low beam, and taillight, the turn signals and the horn. These require no adjustment.

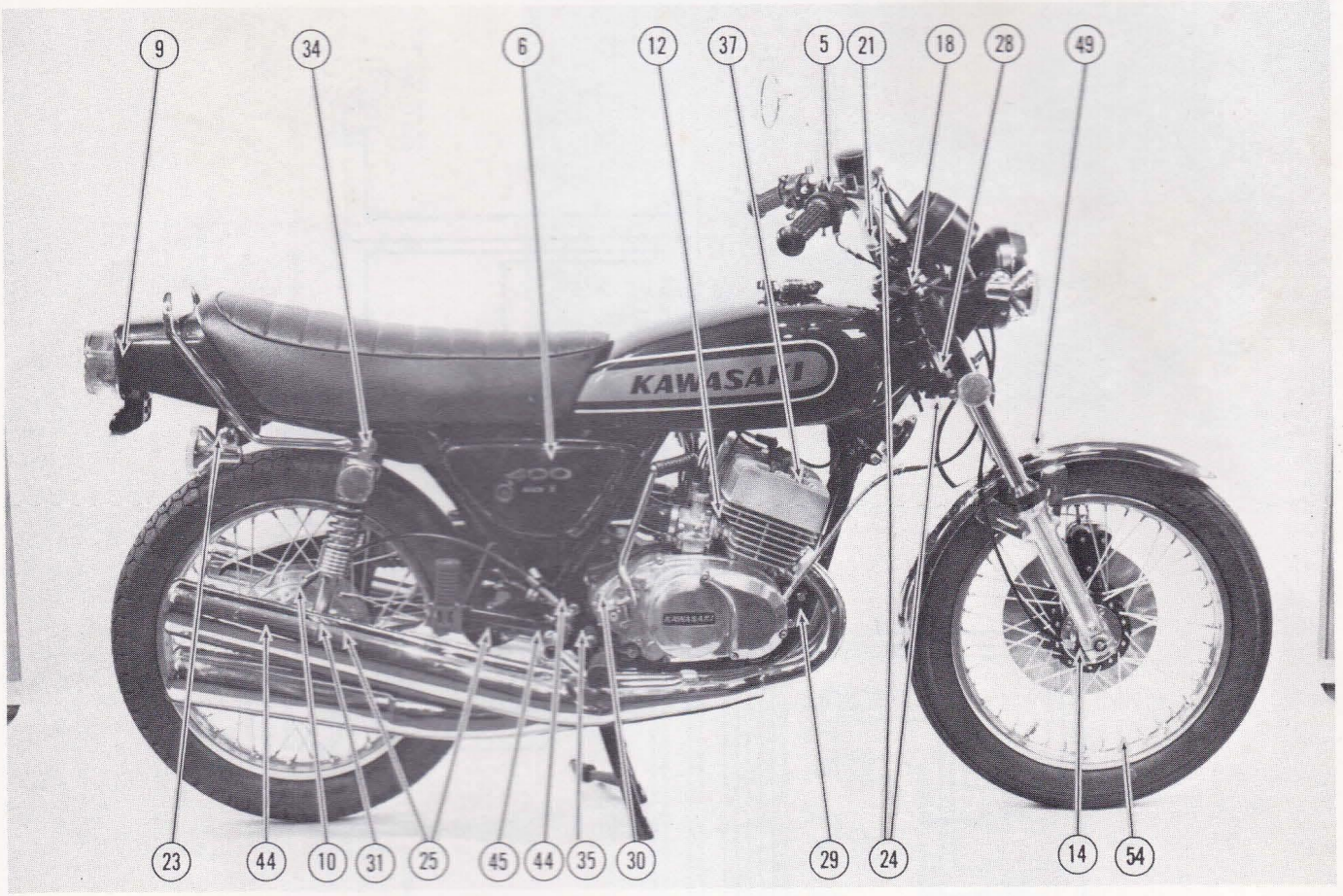


To prevent flat-spotting during shipment, the tires are overinflated before crating. Reduce the pressure to 24 psi in the front tire and 31 psi in the rear.



WIRING DIAGRAM

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KAWASAKI
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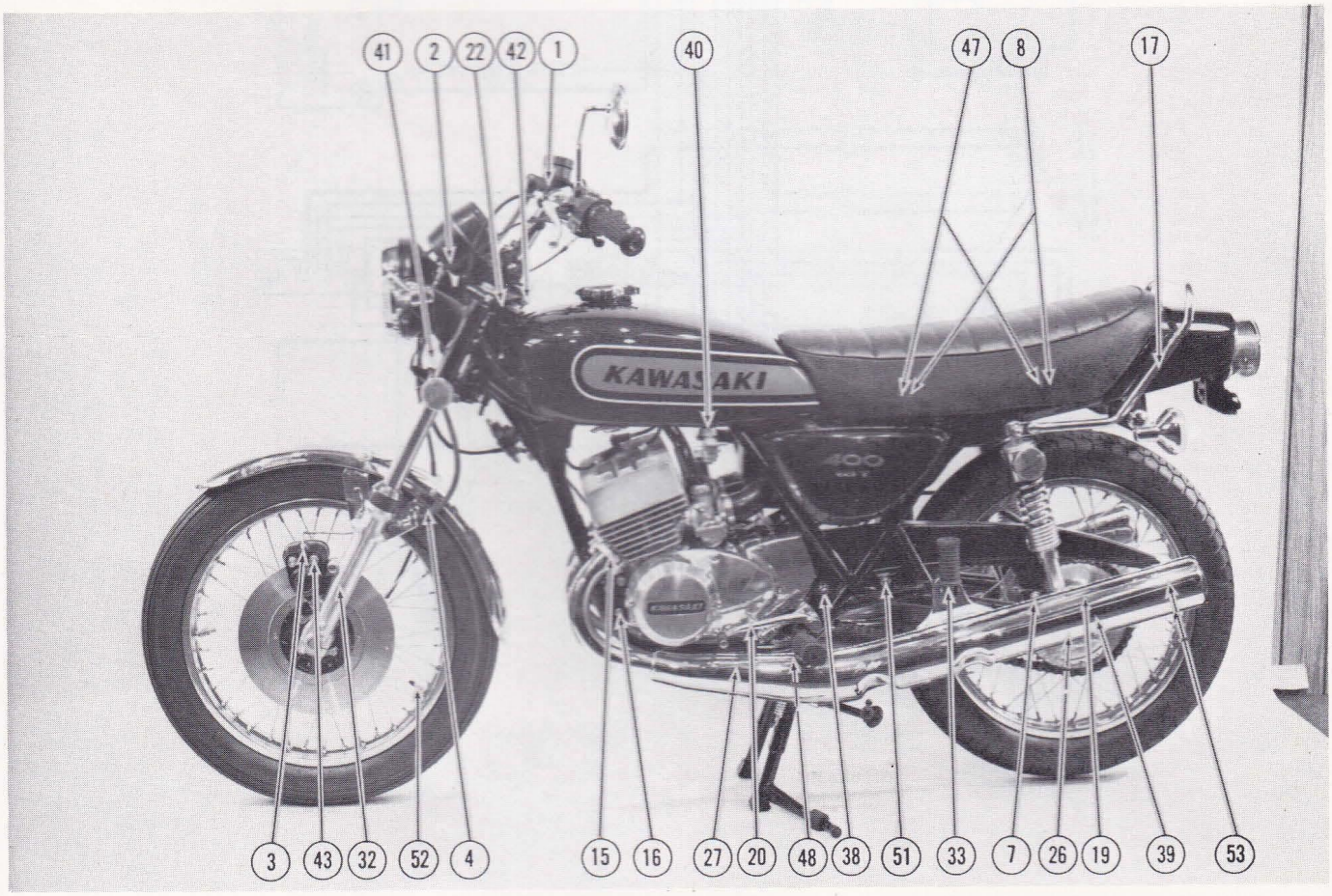
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KAWASAKI
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ITEM	DESCRIPTION	TOOL SIZE	REMARKS
1.	Lever Pivot Nuts (2)	8mm	
2.	Instrument Nuts (4)	8mm	
3.	Brake Bleeder Valve	8mm	S3 Only
4.	Hydraulic Pipe Fittings (2)	10mm	S3 Only
5.	Lever Bracket Clamp Bolts	10mm	4.5 lb.-ft. Two on S1, Three on S3
6.	Oil Tank Mount Bolts (3)	10mm	
7.	Chain Guard Bolt	10mm	
8.	Seat Latch & Hinge Bolts (6)	10mm	
9.	Taillamp Bracket Nuts (2)	10mm	
10.	Brake Lever Nuts	10mm	Three on S1, One on S3
11.	Cylinder Head Nuts (12)	13mm	16 lb.-ft. (S1 only)
12.	Carburetor Manifold Nuts (6)	13mm	
13.	Front Axle Clamp Bolt	13mm	S1 Only, 18 lb.-ft.
14.	Front Axle Clamp Nuts (4)	13mm	S3 Only, 14 lb.-ft.
15.	Exhaust Pipe Holder Nuts (6)	13mm	
16.	Engine Mount Bracket Nuts (4)	13mm	
17.	Seat Backrest Bolts (4)	13mm	
18.	Top Triple Clamp Bolts (3)	13mm	
19.	Chain Adjuster Locknuts (2)	13mm	
20.	Shift Lever Clamp Bolt	13mm	
21.	Handlebar Clamp Bolts (4)	13mm	12 lb.-ft.
22.	Handlebar Mount Nuts (2)	14mm	With Safety Clips
23.	Rear Turn Signal Mount Nuts (2)	14mm	
24.	Brake Hose Banjo Bolts (3)	14mm	S3 Only
25.	Torque Rod Nuts (2)	14mm	With Safety Clips
26.	Rear Sprocket Nuts (4)	14mm	
27.	Sidestand Nut	14mm	
28.	Bottom Triple Clamp Bolts (2)	14mm	
29.	Engine Mount Nuts (5)	14mm	
30.	Kickstarter Lever Bolt	14mm	
31.	Lower Shock Mount Bolts (2)	14mm	
32.	Caliper Bracket Bolts (2)	14mm	S3 Only, 20 lb.-ft.
33.	Passenger Peg Nuts (2)	17mm	
34.	Upper Shock Mount Nuts (2)	17mm	
35.	Footpeg Bolt	17mm	
36.	Front Axle Nut	19mm	S1 Only, 70 lb.-ft. with cotter pin
37.	Cylinder Head Nuts (12)	17mm	S3 only, 16 lb.-ft.
38.	Swingarm Nut	22mm	90 lb.-ft.
39.	Rear Axle Nut	27mm	
40.	Fuel Valve Nut	27mm	
41.	Hydraulic Brake Light Switch	27mm	S3 only, 13 lb.-ft.
42.	Steering Stem Ring Nut	42mm	Spanner Type. Do not bind. No excessive play.
43.	Caliper Bolts (2)	10mm Allen Head	S3 only, 24 lb.-ft.
44.	Rear Brake Cable Clevis Pin	Washer & Cotter Pin	
45.	Brake Pedal Pivot	Spring Clip	
46.	Front Brake Linkage Pins (2)	Washer & Cotter Pin	S1 Only
47.	Seat Hinge Pins (2)	Safety Clip	
48.	Center Stand Pivot	Cotter Pin	
49.	Fender Bracket Screws (4)	#2 Phillips	
50.	Exhaust Pipe Clamp Screws (6)	#2 Phillips	S1 Only
51.	Chain Guard Screw	#2 Phillips	
52.	Tire Pressure – Front	24 psi	
53.	Tire Pressure – Rear	31 psi	
54.	Spoke Nipples		Check & Tighten

	S1B	S3
CARBURETOR		
Manufacture and Type	Mikuni VM 22SC Primary	Mikuni VM26SC Primary
I.D. Mark	S1U	S3
Float Level	25 ± 1mm	25.5 ± 1mm
Fuel Level	28.0 ± 1mm	27.0 ± 1mm
Main Jet Size and Type	#75R	#85R
Needle Jet & Primary Choke	#0-2	#0-2/8mm
Jet Needle and Clip Position	4EJ9-3rd	4EJ4-3rd
Pilot Jet	#17.5	#22.5
Throttle Valve Cutaway	#2.5	#2.0
Air Screw (Turns out)	1-1/4	1-3/4
IGNITION		
Contact Point Gap	0.012" to 0.016"	0.012" to 0.016"
Ignition Timing	2.60mm (23°) BTDC	2.60mm (23°) BTDC
Spark Plug Type	NGK B-9HC	NGK B-9HC
Spark Plug Gap	0.024"	0.024"
LUBRICANTS		
Front Fork Oil Type	SAE 10W	SAE 10W
Front Fork Oil Quantity	210cc	170cc
Front Fork Oil Level (from top)	375mm	340mm
Transmission Oil Type	SAE 10W-40, 20W-50, 10W-50 SD or SE	
Transmission Oil Quantity	1100cc, 1.16 qt., 37 fl. ozs.	