



Harley-Davidson Motor Co., Inc.

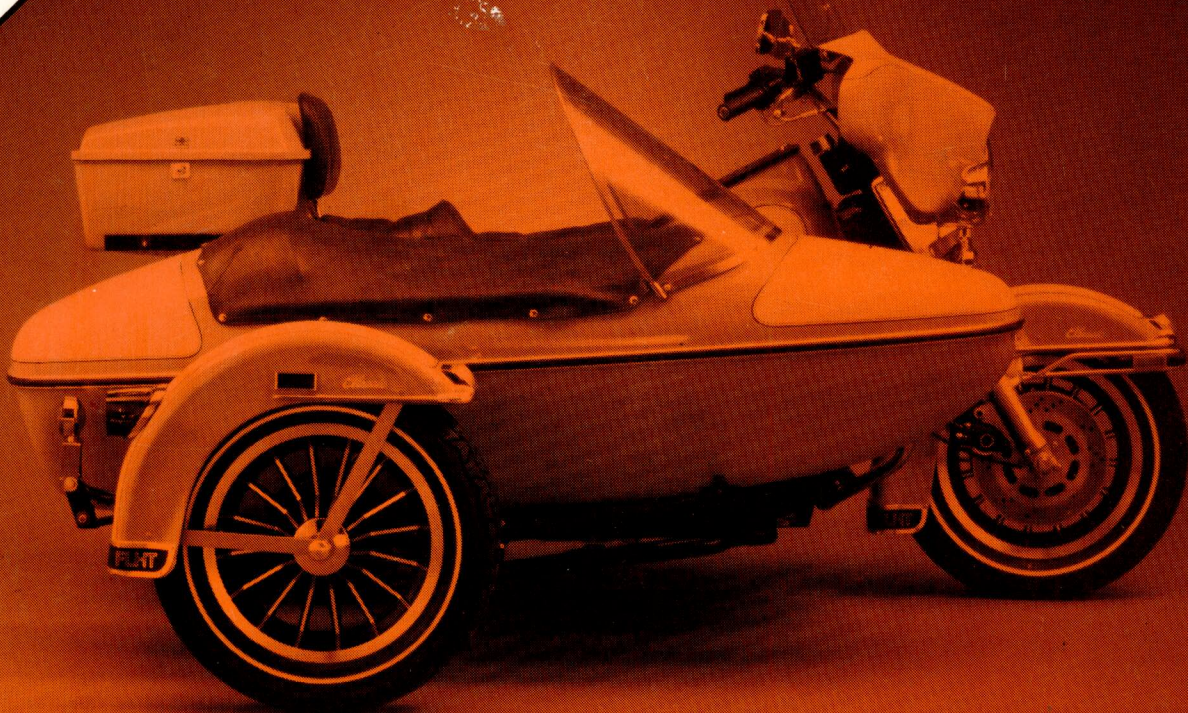
SERVICE MANUAL

CLE/TLE Sidecar Models

1979-1984 CLE; 1983 & 1984 TLE

Part No. 99485-84

OFFICIAL FACTORY MANUAL



**CLE/TLE Sidecar Models
1979-1984 CLE; 1983 & 1984 TLE**

SERVICE MANUAL

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FOREWORD

This manual contains service and repair information for Harley-Davidson sidecars and instructions for attaching and removing sidecars.

HOW TO USE YOUR SERVICE MANUAL

Your Service Manual is arranged for quick, easy reference. This manual is divided into numbered sections. Sections are then divided into subjects. Use this manual as follows:

1. Check the TABLE OF CONTENTS located in the front of each section to find subject desired.
2. Page number is listed across from subject. Page number consists of section number and page number.
3. Information is presented in a definite order as follows:

Adjustments
Removal
Disassembly
Cleaning, Inspection and Repair
Assembly
Installation

In figure legends, the number following a name of a part indicates the quantity necessary for one complete assembly.

Procedures that only apply to one model are identified with that model's designation.

SERVICE BULLETINS

In addition to the information given in this Service Manual, Service Bulletins are issued to Harley-Davidson Dealers from time to time, which cover interim engineering changes and supplementary information. Service Bulletins should be consulted for complete information on the models covered by this manual.

USE GENUINE REPLACEMENT PARTS

WARNING

When replacement parts are required, use only genuine Harley-Davidson parts or parts with equivalent characteristics including type, strength and material. Failure to do so may result in product malfunction and possible injury to the operator and/or passenger.

To ensure a satisfactory and lasting repair job, follow the manual instructions carefully and use only genuine Harley-Davidson replacement parts. Behind the emblem bearing the words GENUINE HARLEY-DAVIDSON is more than three-quarters of a century of designing, research, manufacturing, testing, and inspecting experience.

This is your insurance that the parts you are using will fit right, operate properly and last longer. When you use genuine Harley-Davidson parts, you use the best.

PRODUCT REFERENCES

When reference is made in this manual to a specific brand name product, tool or instrument, an equivalent product, tool or instrument may be used in place of the one mentioned.

All tools mentioned in this SERVICE MANUAL with HD or J preceding the part number must be ordered through:

Kent-Moore Tool Division
29874 Little Mack
Roseville, Michigan 48066

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All photographs and illustrations may not necessarily depict the most current model or component, but are based on the latest production information available at the time of publication.

Harley-Davidson Motor Co., Inc., reserves the right to change specifications, equipment, or designs at any time without notice and without incurring obligation.

WARNINGS AND CAUTIONS

Statements in this manual preceded by the words WARNING or CAUTION and printed in bold face are very important.

WARNING

Means there is the possibility of personal injury to yourself or others.

CAUTION

Means there is the possibility of damage to the vehicle.

We recommend you take special notice of these items.

WARNING

Proper service and repair is important for the safe, reliable operation of all mechanical products. The service procedures recommended and described in this Service Manual are effective methods for performing service operations. Some of these service operations require the use of tools specially designed for the purpose. These special tools should be used when and as recommended.

It is important to note that warnings against the use of some specific service methods are stated in this Service Manual. However, please remember that these warnings are not all inclusive. Harley-Davidson could not possibly know, evaluate and advise the service trade of all possible ways in which service might be done or of the possible hazardous consequences of each way. Accordingly, anyone who uses a service procedure or tool which is not recommended by Harley-Davidson must first thoroughly satisfy himself that neither his nor the operator's safety will be jeopardized by the service methods selected.

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PRODUCT

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SERVICE

REGULAR SERVICE INTERVALS

Regular lubrication and maintenance will help you keep your new Harley-Davidson operating at peak performance, and will give you lower operating costs, longer

motorcycle/sidecar life and greater riding pleasure. Your Harley-Davidson dealer knows best how to service your motorcycle/sidecar with factory approved methods and equipment assuring you of thorough and competent workmanship for every job.

REGULAR SERVICE INTERVALS	ITEM	SERVICE
Weekly	Tire	Check for wear and proper inflation
Every 2500 Miles	Electrical Components	Check all electrical equipment and connections
	Brake Shoes	Check for wear and adjust
	Brake lines	Check for leaks
	All Fasteners	Check for tightness
	Brake Fluid	Check level and condition
	Connector Bearings (TLE only)	Lubricate through grease fittings with a good quality, high temperature wheel bearing grease
Every 5000 Miles	Hydraulic Steering Damper (TLE only)	Check for leaks and smooth action
Every 10,000 Miles or annually prior to storage	Wheel Bearings	Lubricate needle bearing in sidecar wheel. Use HD-33006 WHEEL BEARING GREASER and Harley-Davidson WHEEL BEARING GREASE, Part No. 99855-80. Sidecar wheel must be removed and disassembled for greasing. Refer to wheel removal as covered later in this manual.

NOTES

TROUBLESHOOTING

HANDLING

To ensure proper handling, the sidecar must be attached and adjusted following the instructions given in Section 6 of this manual. Table I lists some possible alignment problems and their solutions.

TABLE I

Alignment Problems	Solutions
Motorcycle/Sidecar pulls to right on level road, and left turns require high steering effort.	Check the toe-in and lean-out. Refer to Section 6 for procedure. Increase toe-in to maximum of 1 in. on TLE and 3/4 in. on CLE. If pull to right still exists, adjust lean-out to 2° on both models.
Motorcycle/Sidecar pulls to left on level road, and right turns require high steering effort.	Decrease toe-in to 3/4 in. on TLE and 1/2 in. on CLE. If pull to left still exists, decrease lean-out to 1° on both models.
Sidecar lifts easily on right-hand turns.	Decrease lean-out. Add weight to sidecar.
Wobble	Adjust steering damper on FLH. Check steering damper for correct damping on FLT/TLE. Balance front wheel. Check for correct tire pressure. Check swing arm bushing/bearings for excessive play.

Purpose of Adjustments

TOE-IN

Sidecar wheel toe-in gives the sidecar a slight bias toward the motorcycle to counteract the drag of the sidecar. Too much toe-in will cause rapid tire wear. Not enough toe-in will cause the motorcycle/sidecar to pull toward the sidecar.

LEAN-OUT

The purpose of lean-out is to counteract the drag of the sidecar. Therefore, too much lean-out will cause the motorcycle/sidecar to pull away from the sidecar (left with a sidecar mounted on the right). Too little lean-out will result in a pull to the right.

RECOMMENDED REFERENCES

Additional sidecar information may be obtained by contacting the United Sidecar Association, at the address given below, and requesting a copy of the **Sidecar Manual**, written by Hal A. Kendall.

United Sidecar Association
 P.O. Box 8119
 Van Nuys, California 91409-8119

NOTES

SPECIFICATIONS

DIMENSIONS

Overall dimensions for both the FLHT/TLE and FLH/CLE are shown in Figure 1-1.

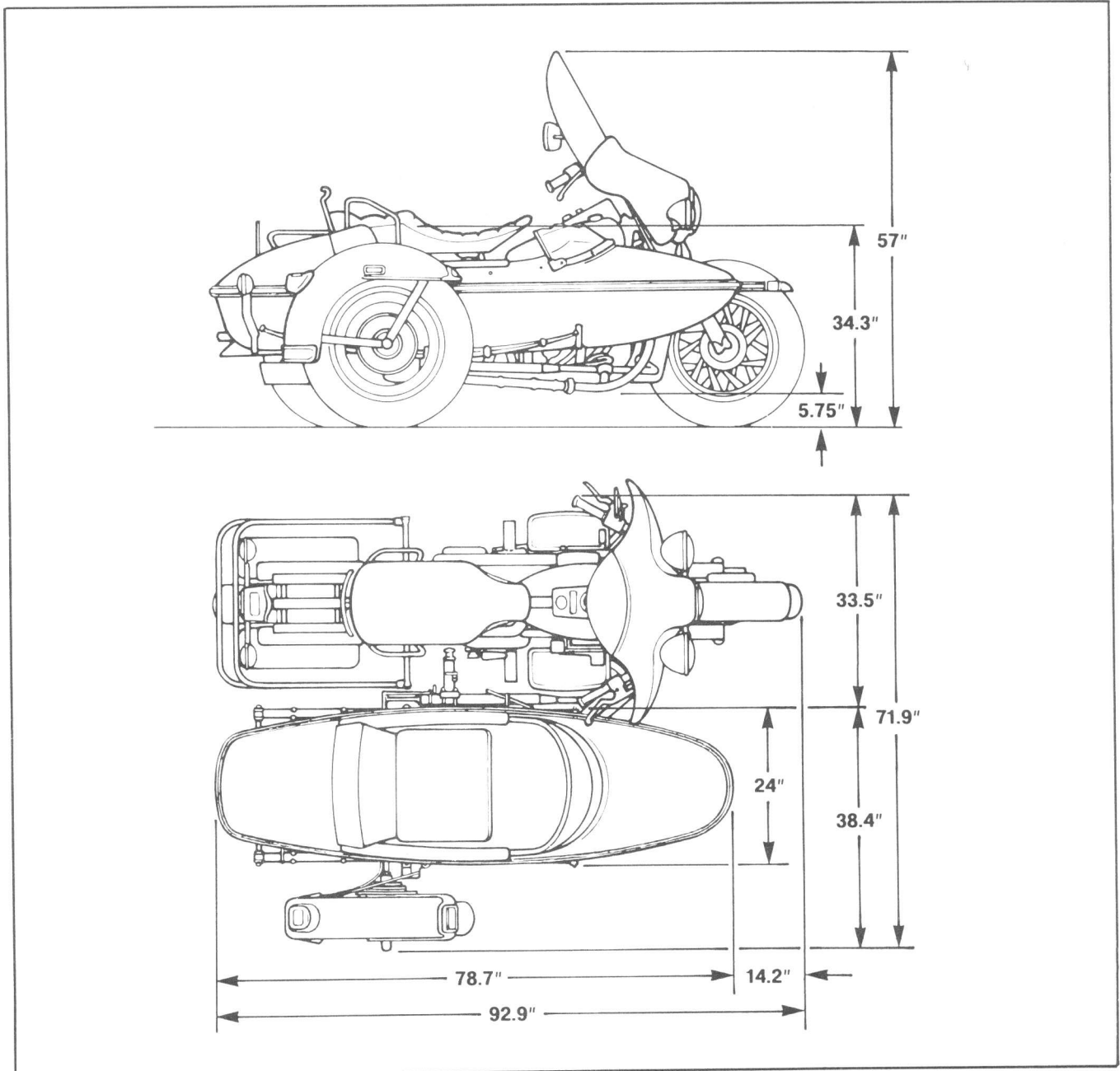


Figure 1-1. Dimensions

SERIAL NUMBERS

The serial number (VIN) of your Harley-Davidson sidecar

is stamped on the sidecar frame. Table I lists the VIN for 1979 and 1980 CLE's. Table II lists the VIN for 1981 thru 1984 CLE; 1983 and 1984 TLE.

TABLE I CLE-1979 and 1980 VIN

Model	First Two Digits (Model)	Next Five Digits (Sequential Number)	Second Last Digit (Manufacturer)	Last Digit (Model) (Season)
1979-CLE	2H	10000 and up	H = 1979	9 = 1979
1980-CLE	2H	10000 and up	J = 1980	0 = 1980

TABLE II CLE-1981 THRU 1984 and TLE-1983 & 1984 VIN

Made in U.S.A.

Harley-Davidson

Sidecar

Model Designation

Not used for sidecar

Regular Introduction Date

Check Digit (Factory use)

Model Year

Plant of Manufacture (Tomahawk)

Sequential Number

1 HD 8 SH X 1 * E T 00000

CLE:
 Purchased with
 FLH SA or SD
 Purchased with
 FLHX SH
 Purchased alone SE

TLE:
 Purchased with
 FLTC or FLHTC SF
 Purchased alone SG

Sample V.I.N. as it appears on sidecar - 1 HD 8SHX1 * ET010001 (CLE)

Sample V.I.N. as it appears on sidecar - 1 HD 8SFX1 * ET010001 (TLE)

ELECTRICAL SYSTEM

SUBJECT

PAGE NO.

1. Specifications2-1

SPECIFICATIONS

GENERAL

The electrical system on the CLE/TLE sidecars consists of a directional light, combination taillight and stop

light, a fender tip light and the associated wiring harness. The above lights are connected to the motorcycle by means of a harness.

Bulb Chart

LAMP DESCRIPTION (ALL LAMPS 12 V)	NUMBER OF BULBS REQUIRED	CURRENT DRAW	HARLEY- DAVIDSON PART NUMBER
Tail and Stop Lamp Tail Lamp Stop Lamp	1	.59 Amps/ 3 C.P. 2.1 Amps/32 C.P.	68165-64
Rear Turn Signal Lamp	1	2.1 Amps/32 C.P.	68572-64A
Fender Tip Lamp	1	.27 Amps/ 2 C.P.	53439-79

REPLACING BULBS

Tail and Stop Lamp

- See Figure 2-1.
- Remove the two tail lamp lens screws (4).
- Remove lens (5). Press bulb inward, turn the bulb 1/4 turn counterclockwise and remove the bulb.
- Check the contacts in the bulb socket. If corroded, the entire tail lamp assembly must be replaced.
- Replace the bulb (7) and gasket (3) if required.
- Reinstall lens (5) and screws (4).

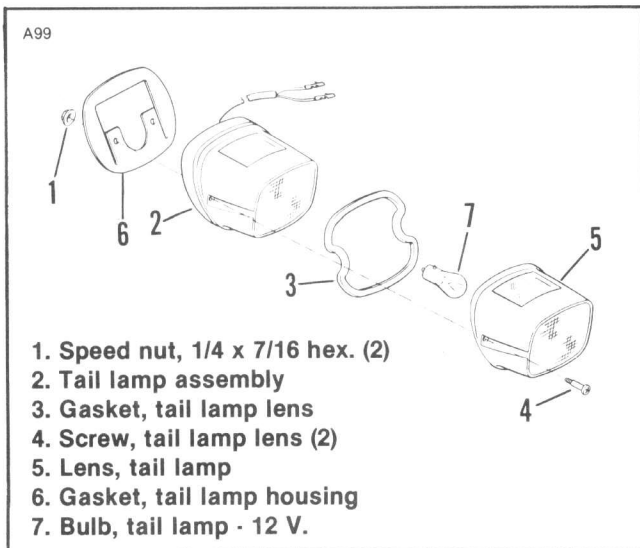


Figure 2-1. Sidecar Tail lamp

Turn Signal

- See Figure 2-2. Remove two screws (1) and lens (2).
- Press bulb inward, rotate bulb 1/4 turn counterclockwise and remove.
- Check socket for corrosion and replace the socket if necessary.
- Replace bulb and gasket (5) if required.
- Reinstall lens (2) and screws (1).

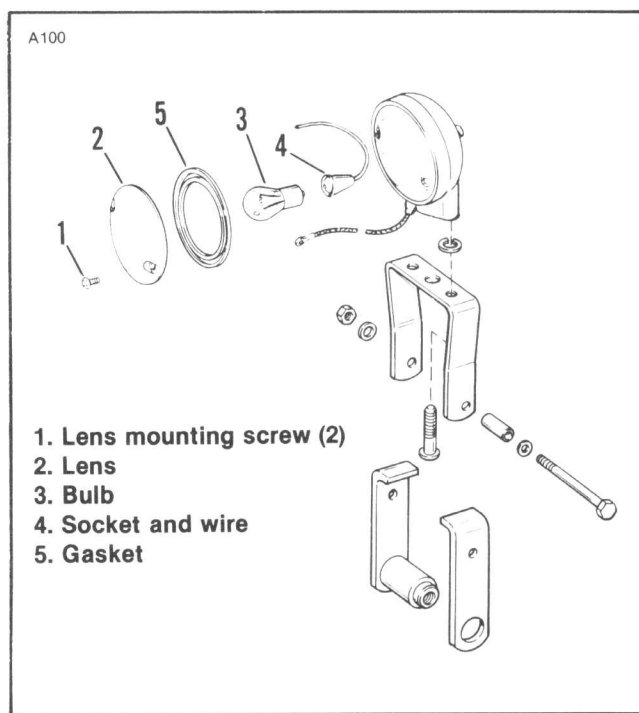


Figure 2-2. Sidecar Turn Signal

Fender Tip

1. See Figure 2-3. Insert a small screwdriver blade into the cut-out or notch on the upper edge of lens and gently pry downward to remove lens.
2. Pull bulb from socket.
3. Replace bulb by aligning base of bulb with socket opening and pressing bulb into socket.
4. Check gasket and replace if necessary.
5. Reinstall lens by inserting tab at bottom of lens into slot and pressing firmly at top of lens so two upper tabs engage housing.

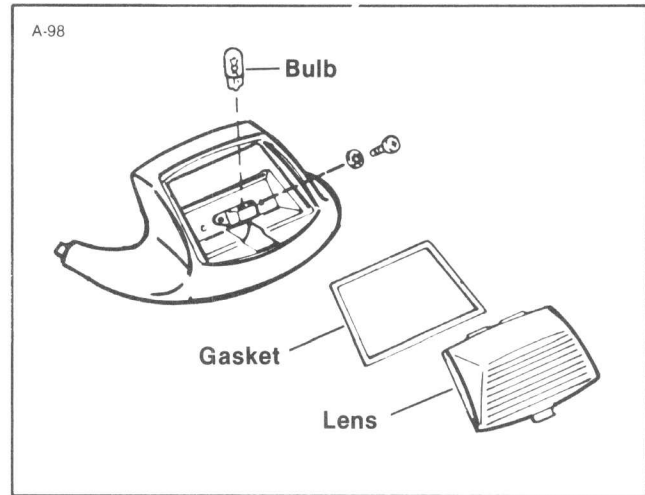


Figure 2-3. Fender Tip Light

SIDECAR HARNESS

General

The sidecar harnesses on both CLE and TLE are connected to connectors that contain the electrical wires for the motorcycle rear lights.

gain access to this connector, the seat and the battery must be removed. The connector is located under the seat next to the battery. Note that on 1984 models, only one pin terminal and commoning tab must be installed in the pin housing. Figure 2-5 shows the connector after the sidecar harness has been connected.

Wiring Diagrams

CLE

Figure 2-4 shows the connector on the motorcycle as it appears before the Sidecar Harness is connected. To

Removal and Installation of Sidecar Harness

1. See Figure 2-5. Remove the two sidecar harness socket terminals from the socket housing using SOCKET TERMINAL TOOL, Part No. HD-97364-71.
2. Unlatch Scotchlok connector that connects sidecar directional light (brown wire) and disconnect wire.

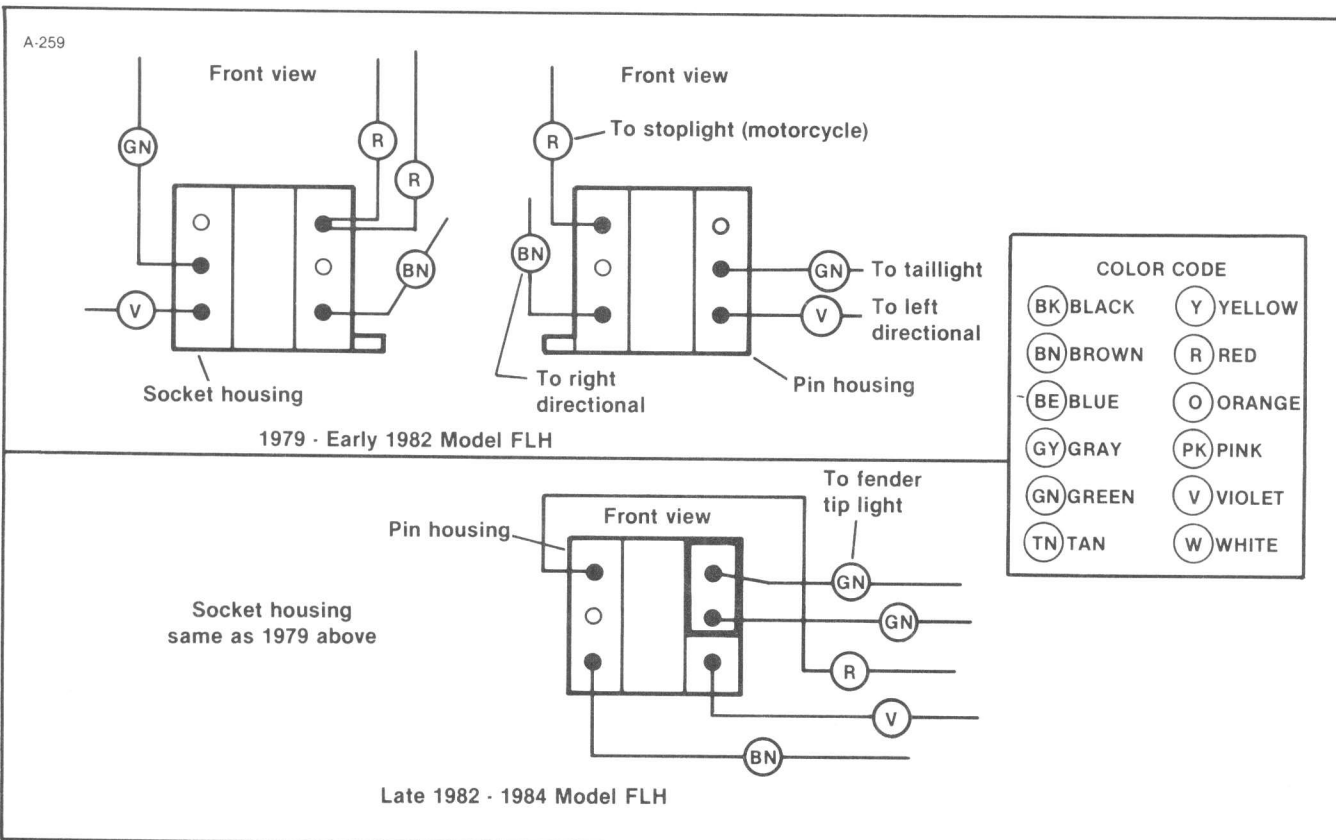


Figure 2-4. FLH Rear Light Connector

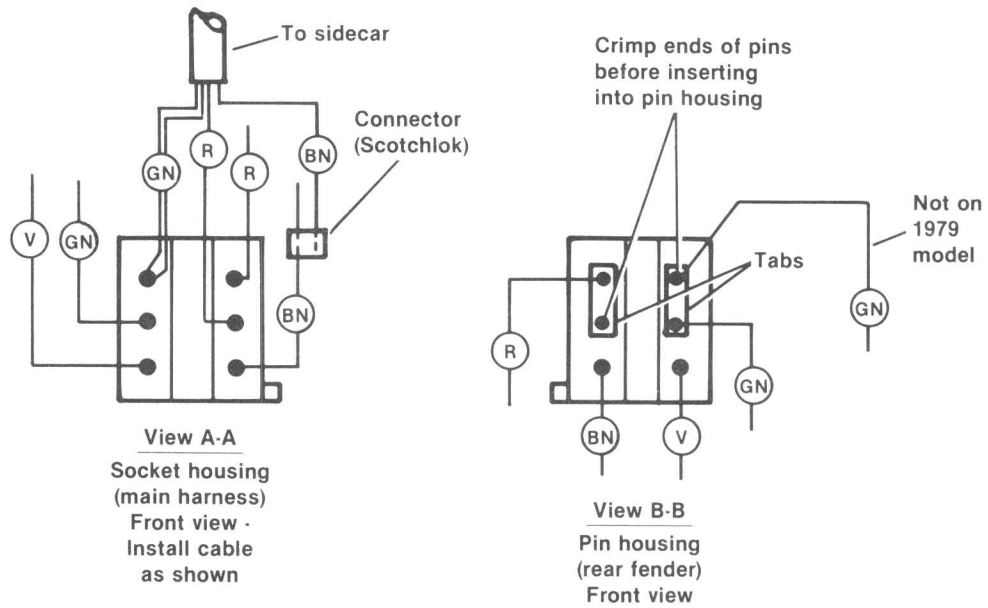


Figure 2-5. FLH Rear Light Connector with Sidecar Harness Connected

3. Remove straps (ty-wrap) that hold harness in position and remove harness.
4. Install new harness in same position as old harness and insert socket terminals into socket housing and reconnect sidecar directional light wire as shown in view A-A of Figure 2-5.
5. See view B-B, Figure 2-5. Pin housing connections must be as shown.

TLE

Figure 2-6 shows the pin housing wiring on 1983 and 1984 FLT and FLHT. Classics in 1983 and all 1984 models have Tour-Pak light lead. The connector is located behind the left sidecover as shown in Figure 2-7. See Figure 2-8 for a properly connected pin and socket housing.

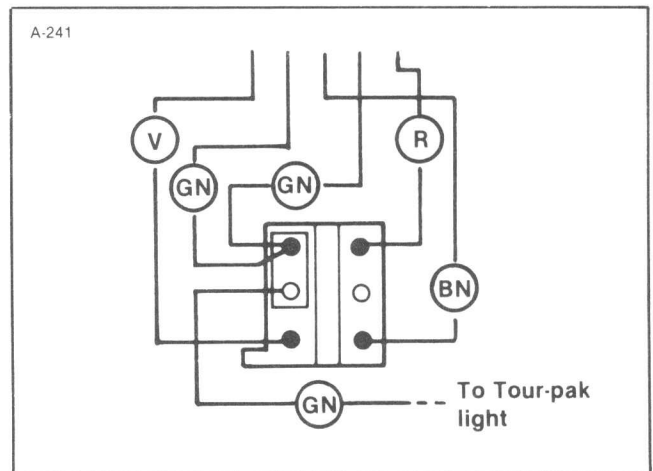


Figure 2-6. Pin Housing — Front View

Removal and Installation of Sidecar Harness

1. Remove seat and left side cover.
2. Unplug connector shown in Figure 2-7.
3. Remove the pin terminal that has the sidecar taillamp and fender tip lamp wires attached using PIN TERMINAL TOOL, Part No. HD-97362-71.

4. Unfasten the three connectors (Scotchlok) shown in Figure 2-8.
5. Remove straps (ty-wraps) and remove harness.
6. Install new harness in same position as old harness.
7. Connect harness as shown in Figure 2-8.

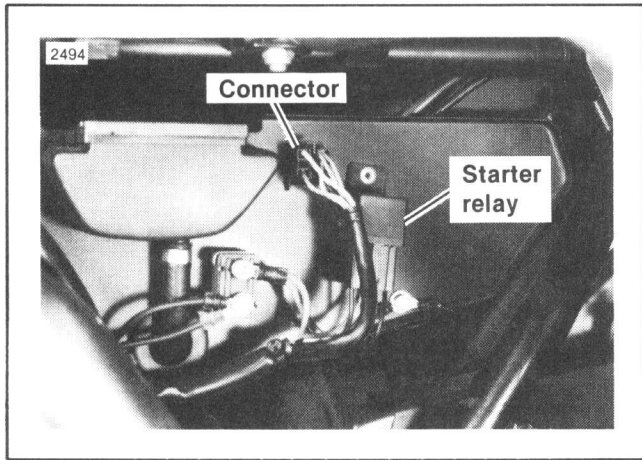


Figure 2-7. Connector Location
(Left Side Cover Removed)

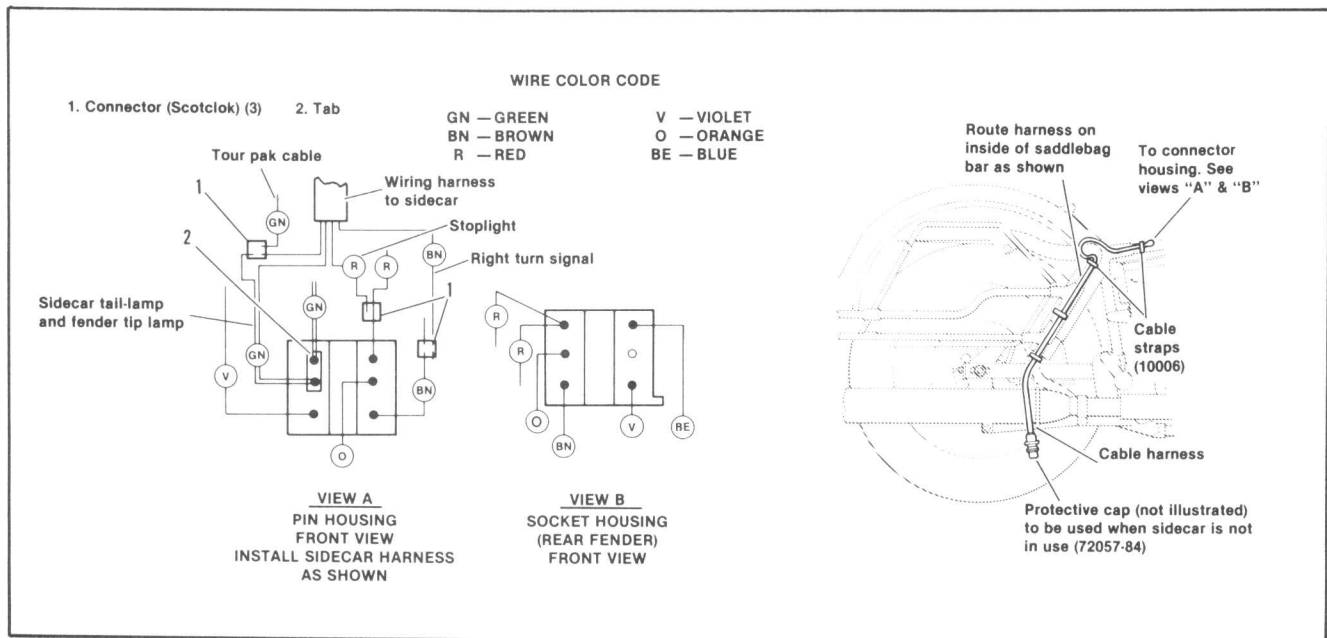


Figure 2-8. Connecting Sidecar Harness

CHASSIS

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BRAKES

GENERAL

The sidecar brake is a drum type brake that is actuated by the motorcycle rear master cylinder.

ADJUSTING SIDECAR BRAKES

1. Elevate sidecar wheel just enough to allow free rotation.
2. See Figure 3-1. The adjusting cams are located on the backside of brake drum. Turn the front brake shoe adjusting cam counter clockwise until brake lining surface contacts the drum with noticeable drag.
3. Turn wheel forward and backward several times to center the brake shoe, then turn cam clockwise to adjust shoe for very slight clearance.
4. Repeat Steps 2 and 3 for rear brake shoe except, turn rear cam clockwise to produce lining drag and counterclockwise for very slight lining clearance.

DISASSEMBLY

1. Raise and block sidecar chassis so wheel may be removed.
2. See Figure 3-2. Remove axle cap (6), roll pin (22) and axle nut (7).

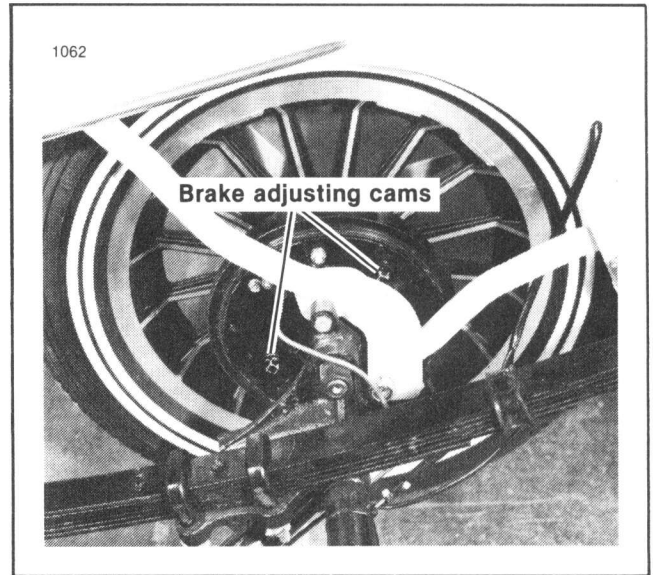


Figure 3-1. Brake Shoe Adjustment

3. Remove locknut (3) and bolt (15), nut (13) and lockwasher (14).
4. Remove fender and wheel.

NOTE

Do not depress rear brake pedal with brake drum removed because, pistons in wheel cylinder will be pushed out.

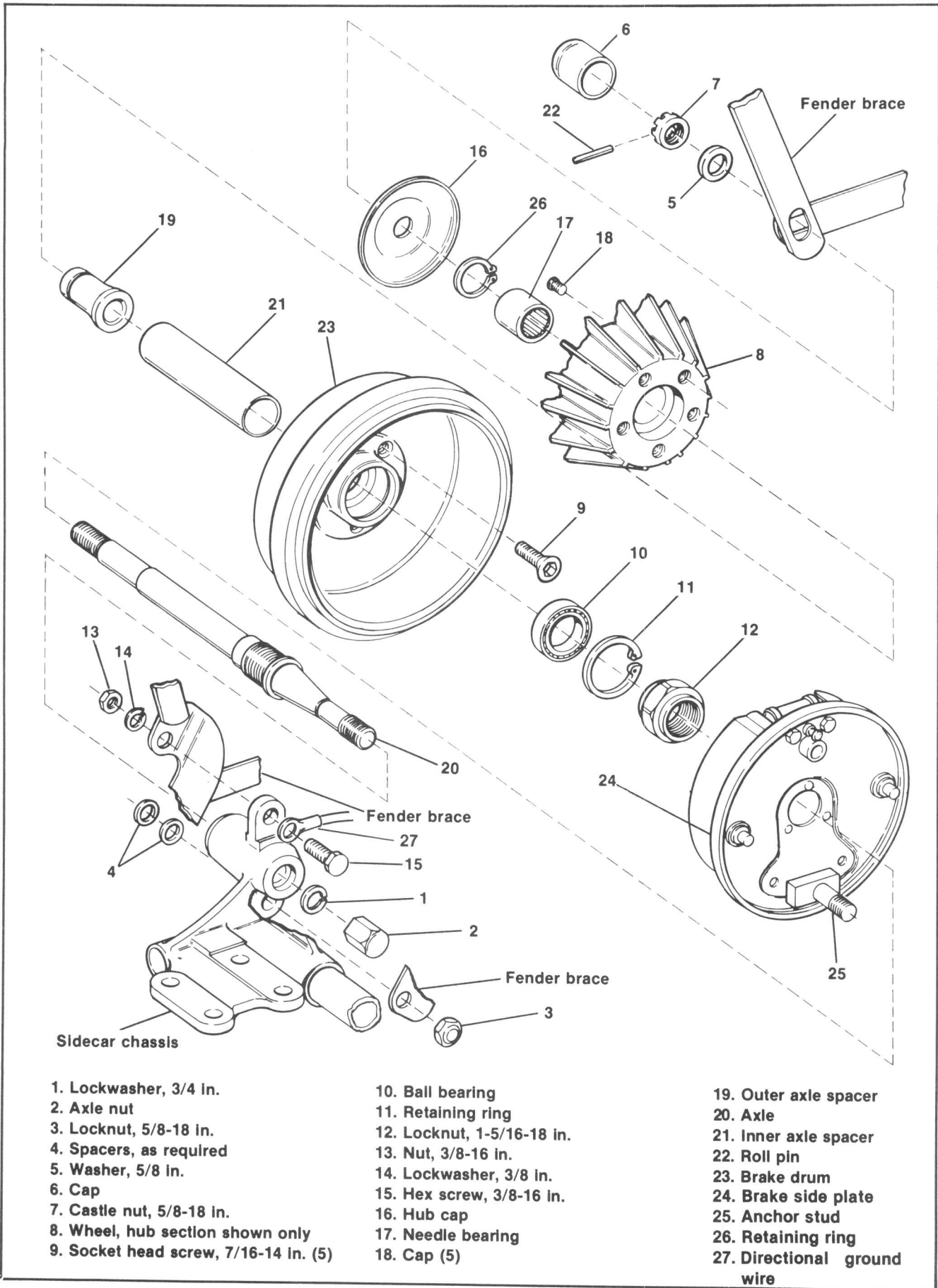


Figure 3-2. Wheel Exploded View

CLEANING, INSPECTION AND REPAIR

WARNING

Do not use compressed air to blow dust off brake shoes or brake drum. Brake linings contain asbestos and inhaling this dust can be dangerous to your health.

1. See Figure 3-3. Inspect brake shoes (2) and (3) for wear. Replace both brake shoes if brake lining thickness is 3/32 in. or less.
2. To remove brake shoes, remove hold-down springs (5) and springs (1) and (4).
3. Replace broken or badly rusted springs.
4. Inspect brake drum for grooves or roughness on the braking surface.
5. Scored or grooved brake drums should be refinished before installing new shoes.
6. See Figure 3-2. Remove five bolts (9) that attach brake drum to wheel.
7. Protect or remove retaining ring (11) and bearing (10) from brake drum before machining brake drum.
8. BRAKE DRUM TURNING ARBOR, Part No. 97280-60A can be used to hold the brake drum for

machining on a lathe. (Turning arbor is no longer available from Kent-Moore.) Only remove sufficient metal to remove grooves and provide a round brake surface for the shoes.

9. After machining, check inside diameter (ID) of brake drum. The maximum ID permissible is 8.060 in. If the ID is greater than 8.060 in., replace the brake drum.
10. See Figure 3-3. Check the wheel cylinder for leakage by lifting the boots (7). If brake fluid is present, disassemble the wheel cylinder.
11. Remove old boots (7), pistons (8), cups (9) and spring (10). Be sure cylinder wall and pistons are free from burrs. Dip replacement parts in brake fluid and assemble. Never dip or wash hydraulic brake cylinder parts in gasoline, kerosene or oil. If necessary to clean parts use denatured alcohol.

ASSEMBLING DRUM BRAKE (Figure 3-3)

1. Assemble brake in reverse order of disassembly; except, apply a light coat of grease on hold-down springs (5) and spots on side cover (13) where shoes touch when in operating position.

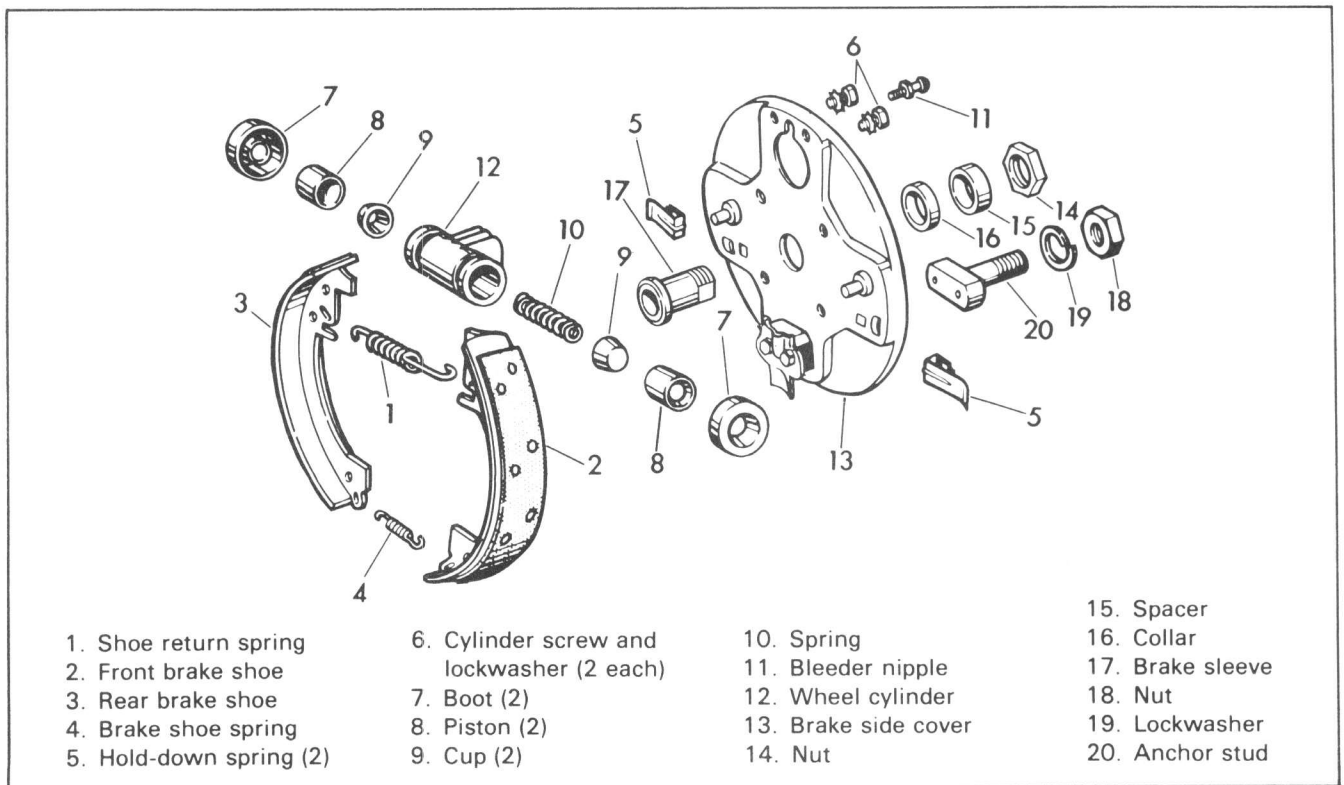


Figure 3-3. Drum Brake Exploded View

CAUTION

Front shoes (2) and rear shoe (3) are of different widths. Narrow shoe must be in rear position and wide shoe in front position.

2. Assemble shoes (2 and 3) to lower return spring (4), position shoe assembly on plate anchor block at bottom of side cover and install top spring (1). Short hook is inserted in elongated hole on front shoe. Install hold-down springs (5).
3. Before installing wheel, check wheel bearings in brake drum and wheel.
4. If bearings must be replaced, refer to the WHEEL BEARING SERVICING procedure in this manual.
5. If bearings do not need replacing, grease needle bearing following Step 6.

NOTE

To grease needle bearing, the brake drum, spacer, and inner race must be removed. See Figure 3-5.

6. Grease needle bearing with special GREASE, Part No. 99855-80 using HD-33006 WHEEL BEARING GREASER shown in Figure 3-4.
7. Reinstall inner race, spacer and brake drum. Tighten five bolts that attach brake drum to wheel to 34-42 ft-lbs torque.

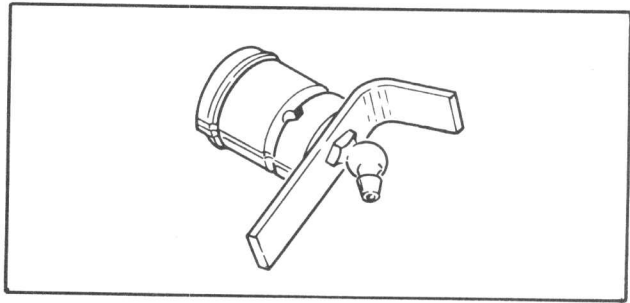


Figure 3-4. HD-33006 Wheel Bearing Greaser

8. Install wheel assembly on axle. Make sure the five plastic caps (18) are in the outboard tapped holes to prevent moisture from entering the hub.
9. Install hub cap (16) on axle.
10. Reinstall fender. The outer fender braces fit over the axle. Fasten inner fender support and ring terminal of directional light ground wire to the chassis with fasteners (13), (14) and (15). Tighten to 24 ft-lbs torque.
11. Secure inner fender brace with locknut (3). Tighten to 85 ft-lbs torque.
12. Install castle nut (7) and tighten to 20 ft-lbs torque. Secure with roll pin (2)) and install cap (6).

SIDECAR WHEEL BEARING SERVICING OR REPLACEMENT

Inner Bearing (Figure 3-2)

The inner bearing is mounted in the brake drum and is permanently lubricated and sealed. If replacement is required, proceed as follows:

1. Raise and block sidecar chassis high enough to permit wheel to be removed.
2. Remove axle cap, roll pin, castle nut, washer and hub cap.
3. Remove fender.
4. Remove wheel assembly.
5. Remove snap ring from brake drum and pull out ball bearing.
6. Install new bearing by pressing against the outer race.
7. Reinstall snap ring.

Outer Bearing

The outer bearing is mounted in the sidecar wheel. If replacement is required, proceed as follows:

1. See Figure 3-5. Remove the spacer (2) from the wheel (1).
2. Remove the seal (3) and the bearing race (4) from the right side of the wheel.
3. If the bearing (5) has to be removed, use BEARING PULLER, Part No. HD-95760-69. Do not reuse this bearing.

Cleaning, Inspection and Repair

1. Clean all parts, except oil seal, in solvent and inspect for damage or wear.
2. Check the bearing race (4). If it is pitted or grooved, replace the race and the bearing following the next procedure.

Installing Wheel Bearing and Seal (Figures 3-6 and 3-7)

Assembly requires the use of special WHEEL BEARING INSTALLATION TOOL, Part No. HD-94440-81 and a front axle from a 1980 or 1981 FLT.

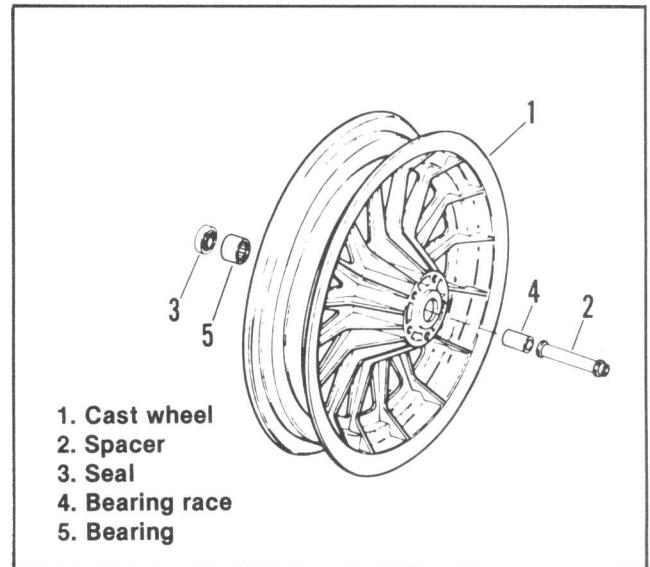


Figure 3-5. Sidecar Wheel — Exploded View

1. Place the 2-1/4 in. diameter pilot from the tool on the axle with the knurled side of the pilot against the head of the axle as shown in Figure 3-6. Insert the axle into the side of the wheel opposite the valve stem with the collar inside the counterbore of the wheel hub.

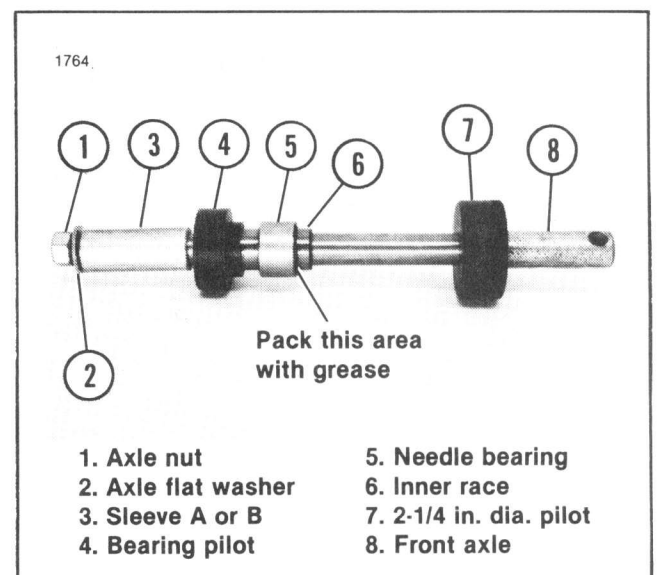


Figure 3-6. Wheel Bearing Installation

2. Lightly coat the outside diameter of the inner race (6, Figure 3-6) with the special WHEEL BEARING GREASE, Part No. 99855-80, and insert it into the cavity of the bearing pilot (4) of the tool as shown

in Figure 3-6. Pack the needle bearing with the special grease and install it over the inner race with the lettered side facing the bearing pilot. Place a ridge of grease around the edge of the bearing as shown.

WARNING

Be sure to install the bearing with the flat/lettered side facing the bearing pilot. Pressing on the wrong side of the bearing case could cause damage to the bearing case and destroy the bearing. For the same reason, do not pound on the bearing, axle or pilot to install the bearing.

CAUTION

Be sure to keep dirt away from the bearing and inner race. Take care not to damage the bearing or inner race during installation.

3. See Figure 3-6. Place this assembly on the axle followed by sleeve A, the axle flat washer and the axle nut. Tighten the nut until it bottoms on the axle threads.
4. Remove the nut, washer and sleeve A. Install sleeve B, washer and nut. Tighten the axle nut until the bearing pilot contacts the wheel hub. The bearing should now be recessed into the hub enough to allow room for the seal. Remove the sleeve, bearing pilot, inner race and axle.
5. See Figure 3-7. Place the bearing pilot (5) on the axle with the axle head recessed inside the bearing pilot. Place the seal (4) over the axle with the numbered side facing the flat side of the bearing pilot. Place the inner race (3) on the axle and inside the seal. Insert the axle through the valve stem side of the wheel and through the 2-1/4 in. dia. pilot (1).

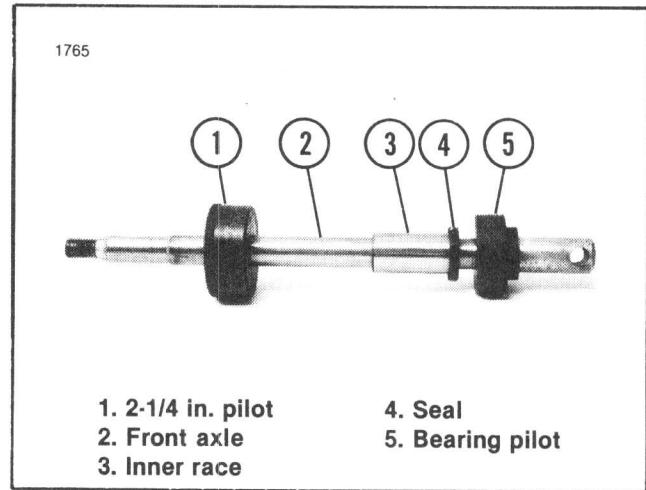


Figure 3-7. Wheel Seal Installation

6. With the 2-1/4 in. dia. pilot in place in the wheel hub, tap the seal in place by tapping the axle head with a mallet until the pilot is flush against the wheel hub. This will ensure the seal is not cocked or damaged during installation.
7. Remove the axle, bearing pilot and 2-1/4 in. dia. pilot, but leave the inner race inside the bearing and seal.
8. See Figure 3-5. Using moderate thumb pressure, insert the spacer (2) as far as it will go into the opposite side of the wheel with the flatter end against the inner race (4). The inner race should project slightly from the wheel hub and seal (3).
9. Install wheel following Steps 8 thru 12 in the ASSEMBLING DRUM BRAKE procedure.

SIDECAR SPRINGS

INSPECTION

Check sidecar springs for broken leaves and worn bushings. If spring leaves are broken, replace the entire spring. If spring or shackle plate bushings are worn, they should be replaced following the procedure that follows spring removal.

REMOVAL

1. See Figure 3-8. Remove nut (1), lockwasher (2) and washer (3) from front spring end.
2. Remove bolt (4), washer (5), nut (6), and washer (7) from rear spring end.
3. Remove directional light and nut (1), lockwasher (2) and washer (3).
4. Remove shackle plate (8).

5. Remove nuts (9), lockwashers (10) and U-bolts (11) that attach spring to sidecar frame.
6. Place blocking under sidecar body and slide spring outward.

BUSHING REMOVAL AND REPLACEMENT

1. Press or drive bushings from spring ends and shackle plates.
2. Press or drive new bushings into spring ends and shackle plates.
3. Reinstall spring and directional light.
4. If required, repeat procedure for other spring.

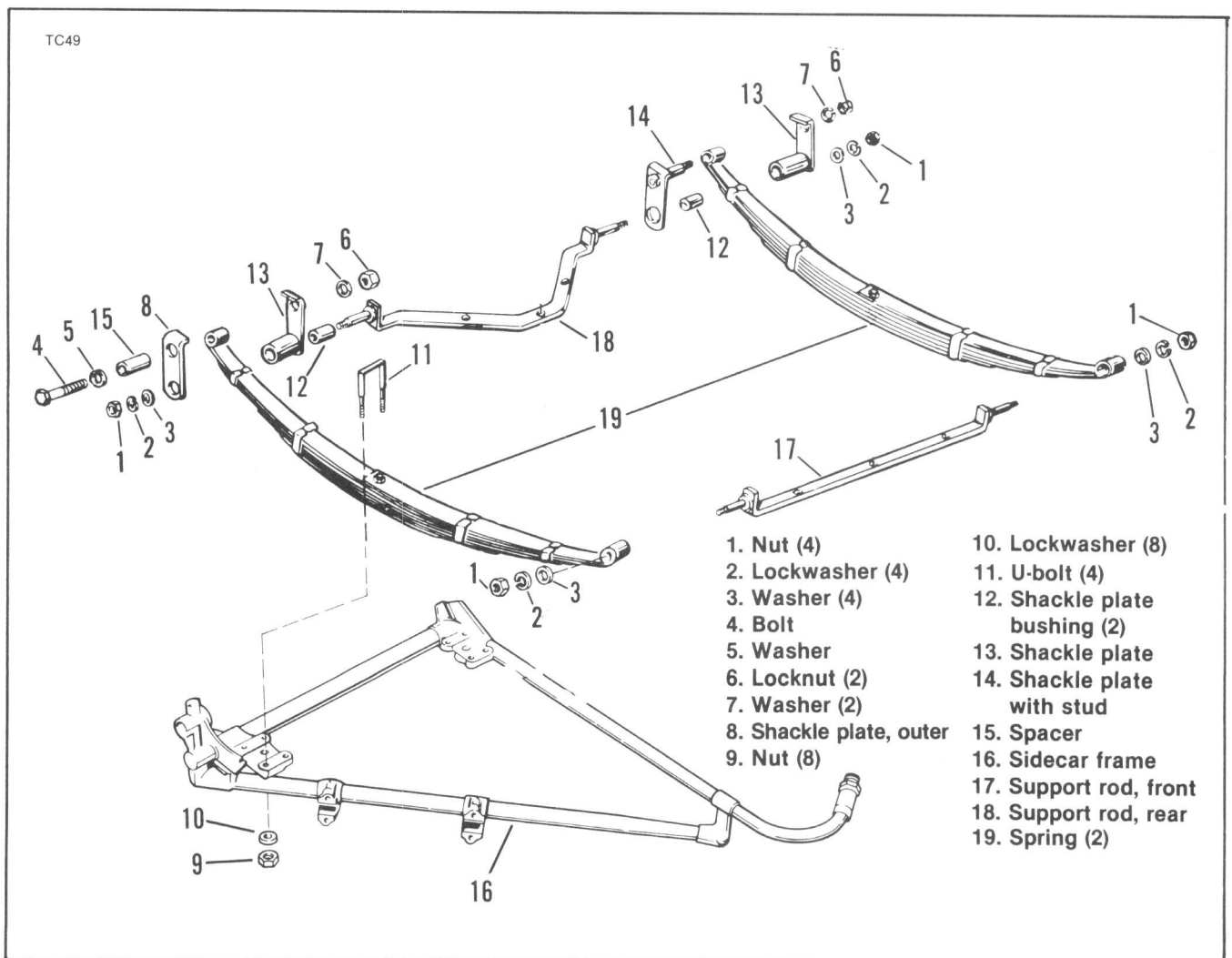


Figure 3-8. Removing Sidecar Springs

NOTES

FIBERGLASS REPAIR

SUBJECT

PAGE NO.

1. Fiberglass Body Care and Repair	4-1
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FIBERGLASS BODY CARE AND REPAIR

TYPES OF FINISHES

There are two types of fiberglass material finishes:

1. *Gel Coat finish:* This finish is made of a special pigment and blended polyester resin several thousandths of an inch thick.
2. *Painted finish:* This finish is painted on a "paintable" grey colored Gel Coat using standard painting procedure.

Identifying Finish

It is difficult to identify which finish has been used on a sidecar body. Generally, standard colors; e.g., black or white, are Gel Coat finishes. Most other colors are painted finishes.

If the finish had been damaged and a grey undercoat is visible, a painted finish is indicated. (The grey undercoat is a paintable Gel Coat.)

CARE OF FINISHES

The Gel Coat finish requires minimum care and can be kept new looking by following these easy maintenance rules:

Clean, buff and wax the exterior periodically to renew finish.

An automotive wax type cleaner containing fine rubbing compound is suitable for removing minor scratches and scuffs. Scratches which are not removed by the rubbing compound can be removed by wet sanding with 400 grit sandpaper. Then wet sand with 600 grit sandpaper, re-buff and apply wax polish.

Care should be taken not to cut through the gel coat surface when buffing. A power buffer may be used with care or the surface may be buffed by hand, using a rubbing compound.

REPAIRS

Patch and fill in deep scratches, scars and small breaks.

Repair any major breaks as soon as possible, to avoid any additional damage.

For damage to the gel coat finish, a can of **Gel Coat** of the same color and a small amount of catalyst is needed. For deeper holes, breaks, or gouges, some fiberglass mat and pre-accelerated polyester resin will

also be required. Gel Coat, catalyst and the other materials including fiberglass mat, and pre-accelerated polyester resin are available at most marine or automotive supply stores.

NOTE

If Gel Coat of matching color cannot be obtained, the entire body must be painted.

Damage to the painted type finish can be repaired by sanding, priming and painting using regular painting procedure.

SURFACE FINISHING

Gel Coat Touch-Up and Surface Repairs

This type of damage may be classified as damage to the gel coat only, or a hole or gouge that is deep enough to slightly penetrate fiberglass material. Repair as follows:

1. To be sure that the area to be patched is dry, clean and free of any wax or oil, wash with lacquer thinner.
2. Roughen the bottom and sides of the damaged area, using a power drill with a burr attachment. Feather the edge surrounding the scratch or gouge, being careful not to undercut this edge. See Figure 4-1.

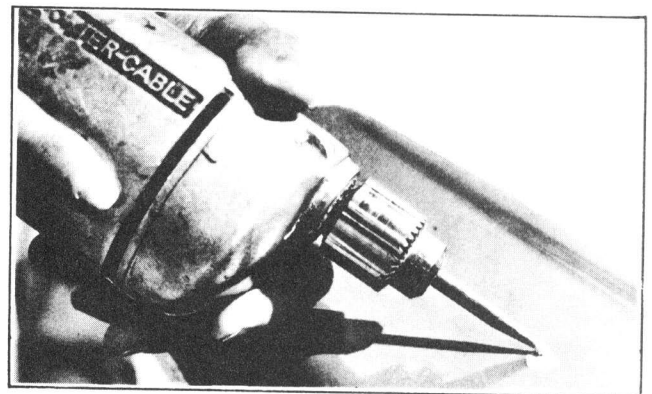


Figure 4-1. Roughing Damaged Area

3. A small amount of gel coat, the same color as the finish should be placed in a small can lid or on a piece of cardboard. Use just enough to fill the damaged area. If damage has penetrated through to fiberglass material, an equal amount of fibers, which can be taken from glass mat and shredded into small fibers, should be mixed with the gel coat — using a putty knife or flat stick. Add three drops of catalyst per teaspoon of gel coat using an eye

dropper. Be sure to mix the catalyst thoroughly for maximum working time. Maximum working time (pot life) will be about 15 to 20 minutes at which time it begins to "gel". See Figure 4-2.

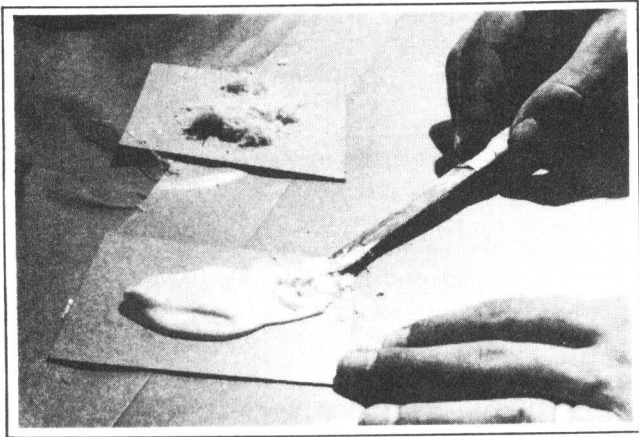


Figure 4-2. Mixing Gel Coat Glass Fibers

4. Fill the scratch or hole above the surrounding undamaged area about 1/16", working the material into the damaged area with the sharp point of a knife. Be careful to puncture and eliminate any air bubbles which may occur. See Figure 4-3.

NOTE

If fiberglass fibers have not been used in mixture, skip Steps 5 thru 7 and proceed with Step 8.

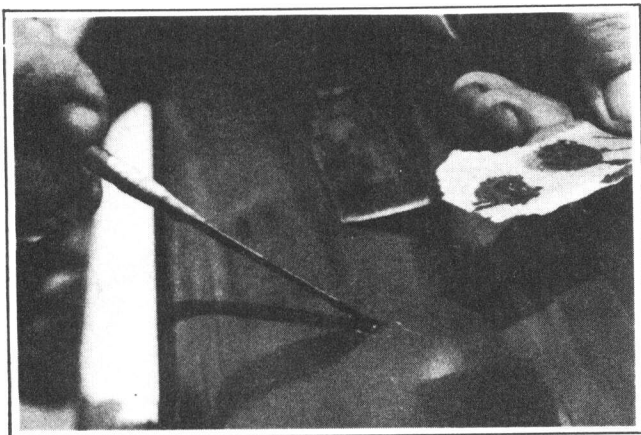


Figure 4-3. Filling Hole or Scratch

5. When the patch feels rubbery to touch, (10 - 15 minutes), trim the patch flush with the surface, and then allow to cure completely (30 - 60 minutes). Patch will shrink slightly as it cures, making a depression. See Figure 4-4.
6. Carefully roughen up the bottom and edges of the depression, using the electric drill with burr attachment, as in Step 2. Feather into surrounding gel coat; do not undercut.

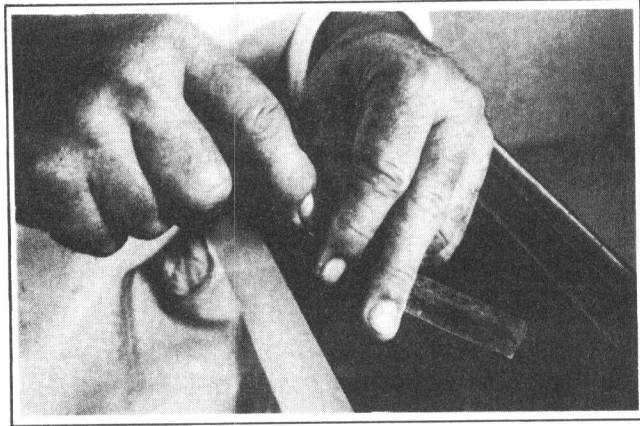


Figure 4-4. Trimming Patch

7. Again mix a small amount of gel coat with catalyst — do not use glass fibers. Using your finger or putty knife, fill the depression with gel coat 1/16 in. above the surrounding surface.
8. Spread the gel coat level with the surrounding area and allow to cure (30 - 60 minutes). See Figure 4-5. Gel coat can be covered with cellophane, if desired, to aid in spreading evenly. Remove cellophane after gel coat has cured.

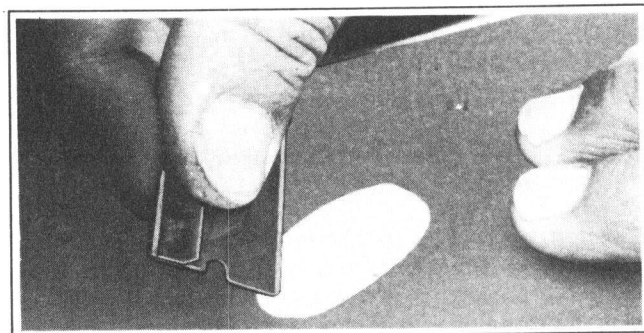


Figure 4-5. Spreading Gel Coat Evenly.

9. Sand the patched area, using a sanding block with 600 grit wet sandpaper. Finish by buffing with fine rubbing compound such as DuPont #606 and waxing. Weathering will aid to blend touch-up if a slight color difference can be observed. See Figure 4-6.

NOTE

Where surface color of part has changed due to weathering, color match of patch may not be satisfactory. In this case, entire panel must be sprayed.

Thin Gel Coat with acetone (1 to 1 ratio) and spray panel, blending sprayed area into a radius or corner on the part. Use a touch-up spray gun such as the Binks Model 15. After Gel Coat is hard, buff and polish sprayed area.

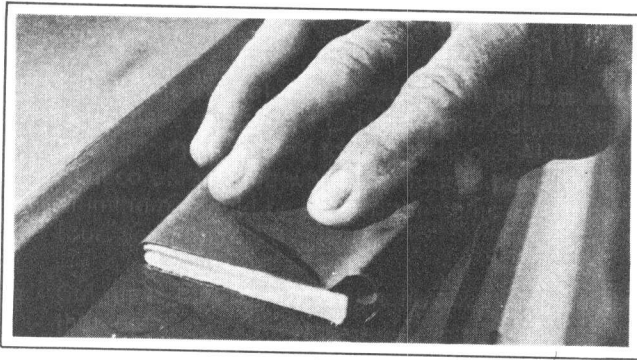


Figure 4-6. Sanding Patch

Patching of Holes, Punctures and Breaks

If possible, work in shaded spot or in a building where the temperature is between 70° and 80° F.

1. Be sure surface is clean and dry where repair is to be made. Remove all wax and dirt from the damaged area.
2. Prepare injured area by cutting back fractured material to the sound part of the material. A key-hole or electric saber saw can be used to cut out the ragged edges. See Figure 4-7.

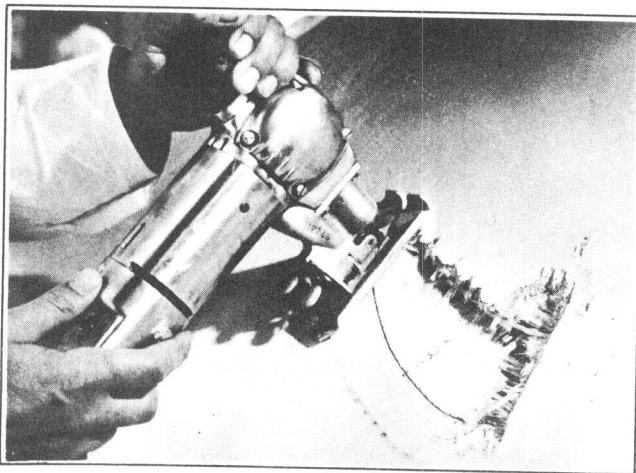


Figure 4-7. Sawing Out Damaged Area

3. Rough sand the inside surface, using 80 grit dry sandpaper, feathering back about two inches all around the hole in the area the patch will touch. See Figure 4-8.
4. Cover a piece of cardboard or aluminum with cellophane and tape it to the outside surface with the cellophane facing toward the hole. Aluminum is used as backing where contour is present. The aluminum should be shaped the same as the contour. See Figure 4-9.
5. Cut glass mat to shape of hole, about 2 in. larger than hole.

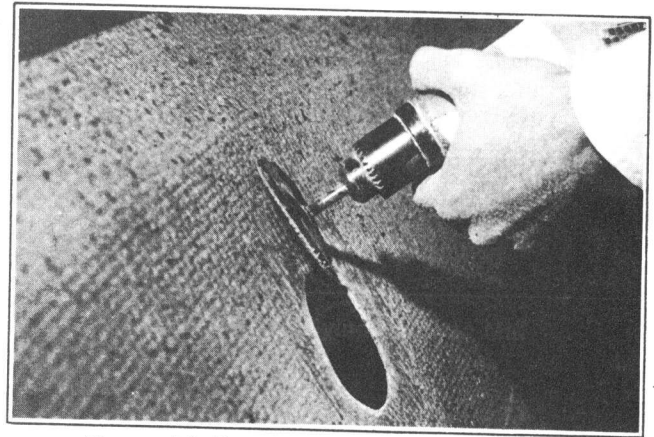


Figure 4-8. Rough Sanding Inside Surface

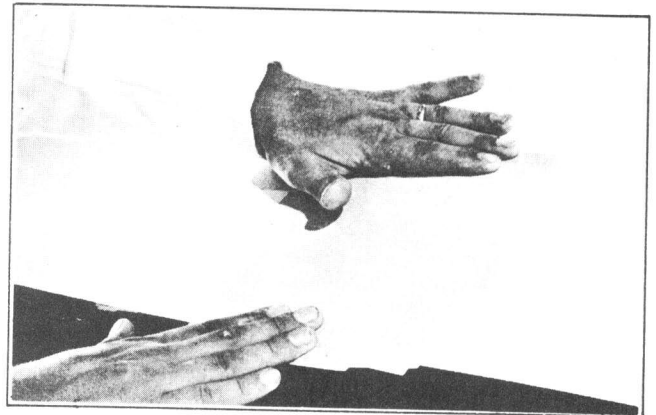


Figure 4-9. Taping on Backing

6. Mix a small amount of pre-accelerated resin and catalyst and daub resin on mat to thoroughly wet the mat. This may be done on a piece of cellophane or wax paper. See Figure 4-10.

NOTE

Mix resin 100 parts to 1 part catalyst for an approximate 30 minutes working time. Only mix enough resin for a given patch.

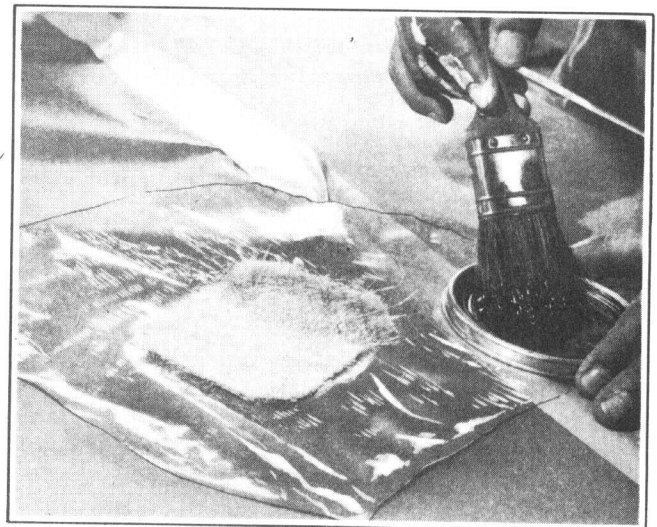


Figure 4-10. Applying Resin to Mat

- Lay patch over hole, cover with cellophane and squeegee out air bubbles. Allow one to two hours to cure, then remove cellophane. See Figure 4-11.

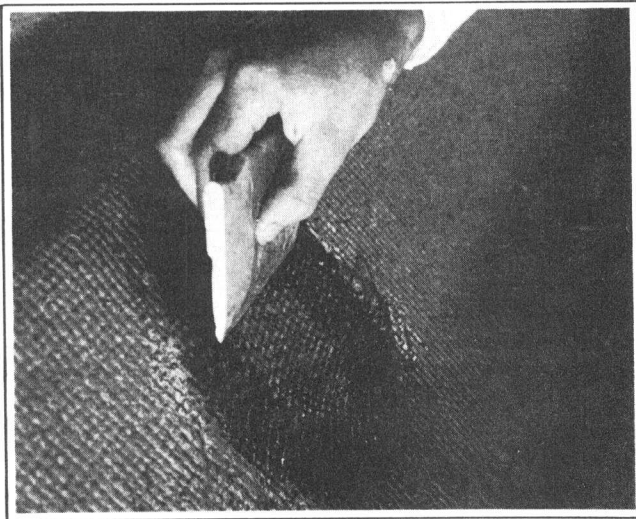


Figure 4-11. Squeegeeing Patch

- After the patch is cured, remove the cardboard from the outside of the hole and rough sand outside surface, feathering the edge of the hole. See Figure 4-12.

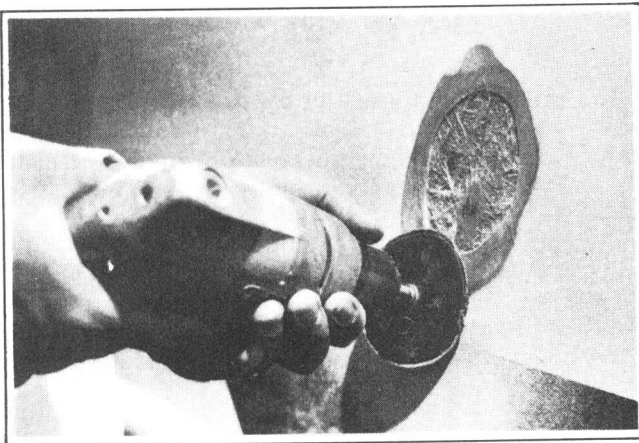


Figure 4-12. Rough Sanding Outside Surface

- Mask area with tape and paper to protect the surrounding surface; then repeat Steps 5, 6, 7, and 8, applying patches to outside surface until enough material has been laminated to re-establish the original thickness of the section.
- Allow the patch to cure overnight; then sand with dry 80-grit paper on power sander. Smooth the patch and blend it with surrounding surface. If air pockets are present, puncture and fill with catalyzed resin. Let cure and re-sand. See Figure 4-13.
- Mix gel coat with catalyst. Work Gel Coat into patch with fingers. See Figure 4-14.

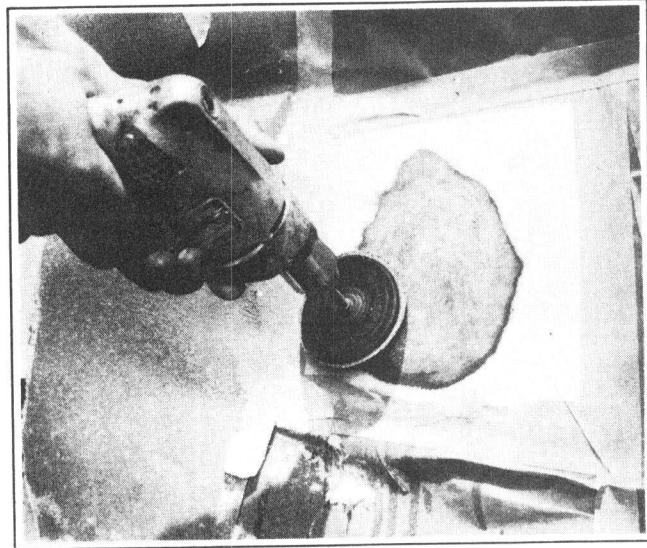


Figure 4-13. Blending Patch with Sander

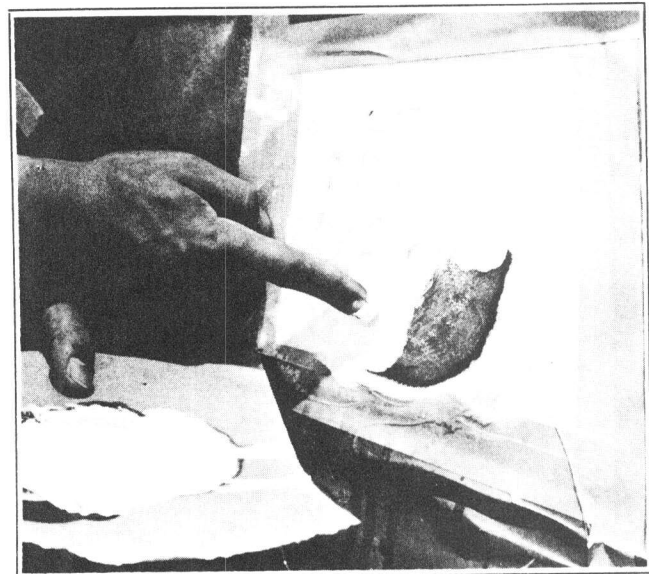


Figure 4-14. Working Gel Coat into Patch

- Cover with cellophane and squeegee smooth. Allow to cure completely before removing cellophane.
- Sand the patch with 220 grit wet sandpaper; then use 600 grit for finish sanding. On painted type surface, paint can be applied at this time. Buff with polishing compound and wax.

NOTE

On Gel Coat finish, it may be necessary to repeat Steps 12 and 13 to insure a smooth even gel coat surface. See Figure 4-15.

For large areas the gel coat can also be sprayed.

Where surface color of part has changed due to weathering, color match of patch may not be satisfactory. In this case, entire panel must be sprayed.



Figure 4-15. Buffing Finish

Thin Gel Coat with acetone (1 to 1 ratio) and spray panel, blending sprayed area into a radius or corner on the part. Use a touch-up spray gun such as the Binks Model 15. After Gel Coat is hard, buff and polish sprayed area.

Heat lamps may be used if working conditions are cold.

CAUTION

Do not place lamp bulb closer than 14 inches to surface or the resin may blister.

NOTES

INSTALLING CONNECTION KITS ON MOTORCYCLES

SUBJECT	PAGE NO.
1. FLH (CLE) Connection Kit	5-1
2. FLT (TLE) Connection Kit	5-3

FLH (CLE) CONNECTION KIT

Part No. 87106-79

KIT CONTENTS

This kit contains the following parts:

ITEM	QTY	DESCRIPTION
1	1	Upper clamp, front
2	1	Upper clamp, rear
3	1	Lockwasher, tabbed
4	1	Clamp bolt
5	1	Lower conn., right
6	1	Lower conn., left
7	4	U-bolts
8	8	Lockwashers, 3/8 in.
9	8	Nuts, 3/8-24 x 5/16 in.
10	1	Tie rod
11	1	Nut, 13/16-18 x 15/32 in.
12	2	Nut, 3/4-18 x 7/32 in.
13	1	Shoulder washer
14	1	Lockwasher, 3/4 in.
15	1	Tee fitting
16	1	Tee plug
17	1	Mounting bracket, rear
18	1	Washer, 1/2 x 1-1/16 x 3/32 in.
19	1	Spring
20	1	Washer, 5/8 x 1-1/2 x 1/16 in.
21	1	Nut
22	1	Cotter pin

NOTE

See Figure 5-1. The item numbers above correspond with the "callout" numbers in Figure 5-1.

INSTALLING CONNECTIONS

1. Drain gasoline from gas tanks and remove tanks from motorcycle.

WARNING

Drain gasoline into proper red metal container and keep gasoline away from sparks or open flame to avoid explosion or fire.

2. See Figure 5-1. Install front and rear upper clamp (1 and 2) on front of frame above gas tank mounting lug. Beveled edge of rear clamp and bent tabs of lockwasher should be to the right side of motorcycle. Fasten clamp halves using lockwasher (3) and bolt (4). Bend tab of lockwasher over flat side of bolt head. Re-install gas tanks.
3. See Figure 5-1. Install lower connections (5 and 6) on frame 10.75 in. below bottom edge of upper safety guard bracket, using u-bolts (7), lockwashers (8) and nuts (9). Right side connection (5) has ear with hole for installing hydraulic brake tubing.
4. See Figure 5-1. Insert tie rod (10) through right connection (5). Place large nut (11) on rod and turn one thin nut (12) all the way onto threaded left side of rod. Insert tie rod through left connection (6) and tighten large nut (11) securely on socket end.

Install shoulder washer (13), lockwasher (14) and other thin nut (12) on left end of tie rod. Shoulder washer flatside should register against roll pin in lower connection. Tighten both nuts (12) evenly so frame tubes are not stressed.

5. See Figure 5-1. Replace the tee fitting located between engine and transmission under right side of motorcycle with tee (15) from kit. Install brake line supplied with sidecar to bottom hole in tee. Route brake line over cross-brace, under gearcase to ear in lower right connection (5). Brake line may require bending to fit.
6. See Figure 5-1. Remove right side passenger footrest and mounting bracket from frame. Use the footrest mounting hardware to install rear mounting bracket (17) with ball socket to the front.

INSTALLING SIDECAR HARNESS

Refer to Section 2 for instructions covering harness installation and connections.

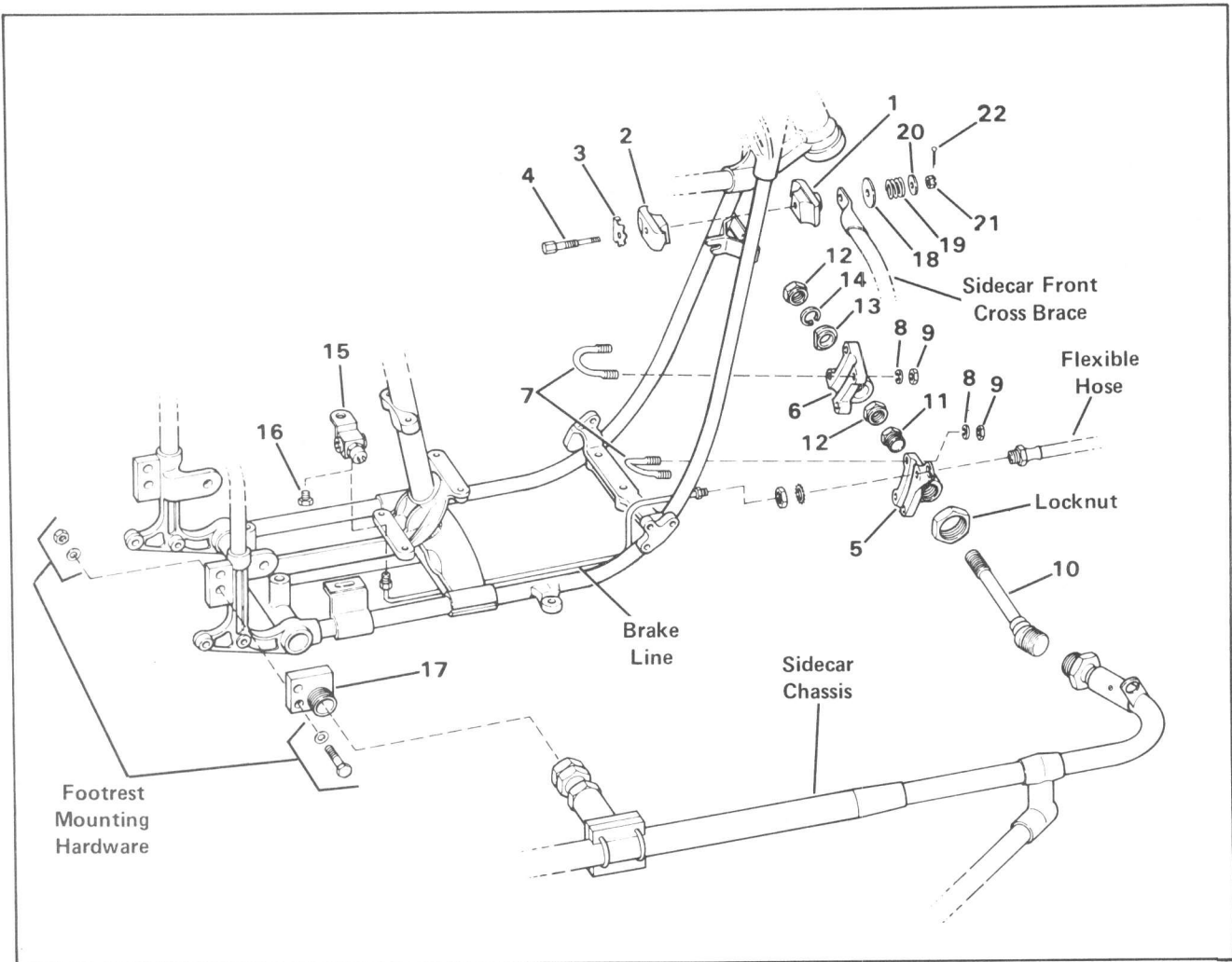


Figure 5-1. FLH (CLE) Connection Kit

FLT (TLE) CONNECTION KIT

Part No. 87166-83B

General

This connection kit is designed for 1983 and later FLT and FLHT motorcycles and provides the mounts and hardware necessary to attach the TLE sidecar.

KIT CONTENTS

This kit contains the following items:
(See Figure 5-2 for parts illustration)

ITEM	QTY	DESCRIPTION
1	1	Rear mount assembly
2	1	Lower front mount
3	1	Right stabilizer
4	1	Left stabilizer
5	1	Backing plate
6	1	Front upper clamp
7	1	Rear upper clamp
8	1	Brake line tee
9	1	Plug, 3/8-24 thread
10	1	Bolt, 1/2-20 x 2-1/4 in.
11	1	Bolt, 1/2-20 x 1-3/4 in.
12	1	Lockwasher, 1/2 in., inside diameter (ID)
13	1	Washer, 17/32 x 1-1/2 x 9/64
14	4	Bolt, 3/8-16 x 2-1/4 in.

15	4	Bolt, 3/8-16 x 2 in.
16	8	Locknut, 3/8-16
17	2	Bolt, 3/4-16 x 2-1/2 in.
18	2	Nut, 3/4-16
19	2	Lockwasher
20	1	Bolt, 7/16-20 x 1-1/4 in.
21	1	Lockwasher, 7/16 ID
22	2	Washer, shim, .031" thick
23	2	Washer, shim, .015" thick
24	2	Washer, shim, .007" thick
25	2	Washer, shim, .004" thick
26	1	Stabilizer adjuster
27	1	Steering damper
28	1	Block, frame mounting
29	1	Washer, 1/2 x 1-1/16 x 3/32
30	1	Locknut, 1/2-20
31	1	Hose, air suspension
32	1	Plug, 1/8-27 pipe thread
33	1	Tee, all 1/8-27 pipe threads
34	1	Steering damper mounting kit

(The Steering Damper Mounting Kit contains the following parts.)

35	1	Rod end
36	1	Bracket
37	1	Spacer
38	2	Bolt, 3/8-24 x 1-3/4 in.
39	2	Locknut, 3/8-24
40	3	Washer, 3/8 ID

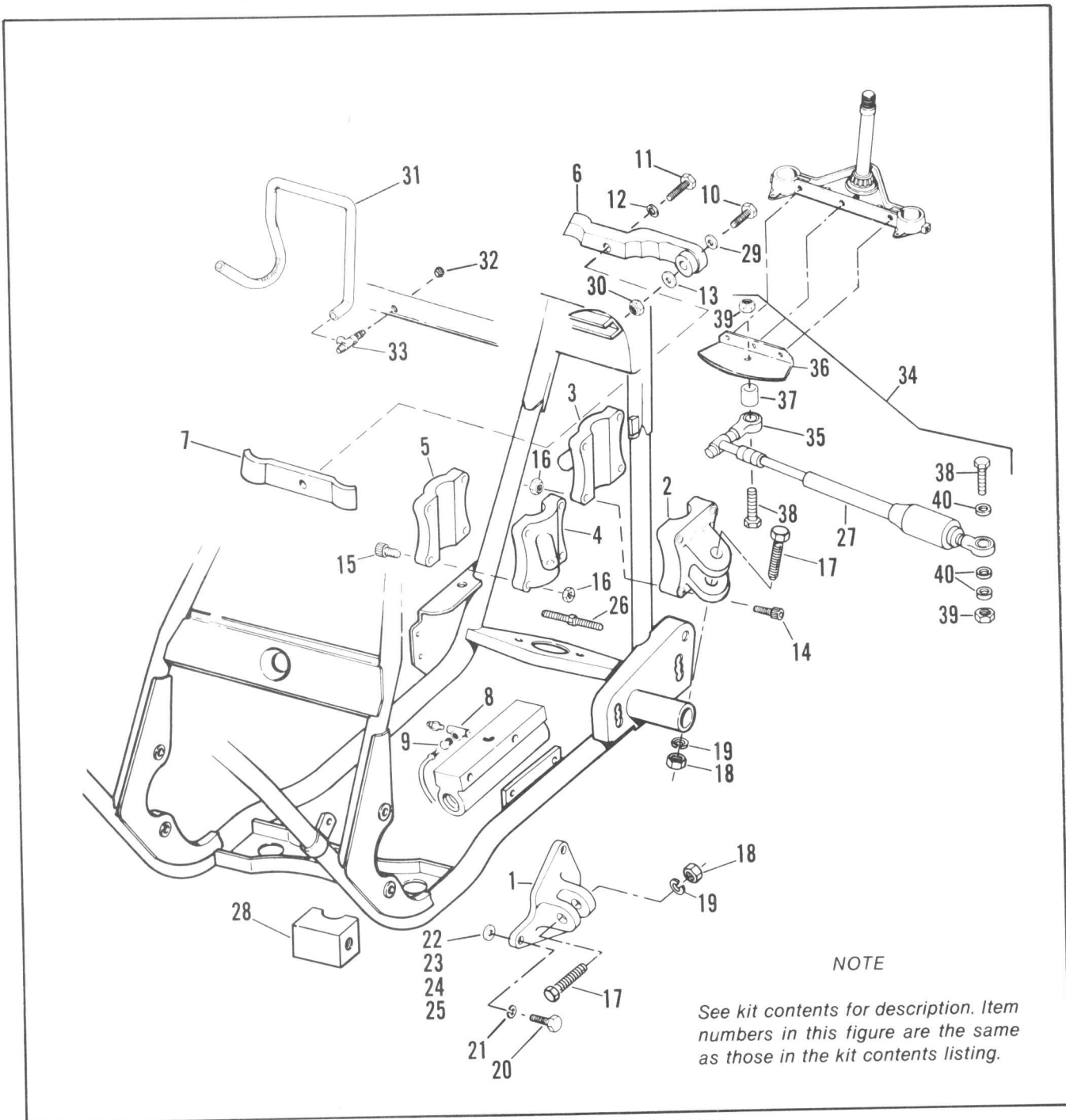


Figure 5-2. Connection Kit — Exploded View

INSTALLATION

The 1984 FLT and FLHT have front air suspension and the hose connecting the highway bar to the solenoid valve must be rerouted to prevent interference with the steering damper. If kit is being installed on a 1983 model, go to Installing Upper Mount.

Rerouting Air Suspension Hose (Figure 5-3)

1. Loosen hose clamps at solenoid valve and highway bar and remove hose. Save hose clamps for attaching new hose.

2. Remove hose nipple from front of highway bar. Coat threads of plug (32) with Loctite Pipe Sealant with Teflon and install plug in hole from which hose nipple was removed.

CAUTION

Do not install plug (9); because it is used to seal tee at master cylinder when sidecar brake line is removed. Plug (32) has pipe threads and hex socket drive.

3. Remove air valve from left-rear of highway bar.
4. Coat male threads of tee (33) with Loctite Pipe Sealant and install in highway bar.

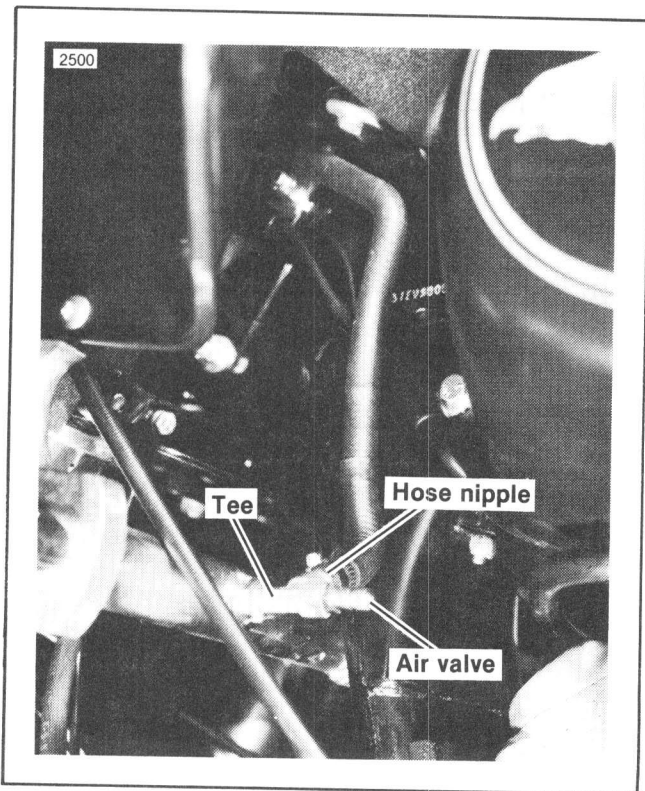


Figure 5-3. Rerouted Air Suspension Hose

CAUTION

Do not install tee (8). To identify tee (33), check the opening that is at a right angle to the male (external) threads on both tees. Tee (33) has a large opening into the tee body; tee (8) has a small hole with tapered outer walls around the hole.

5. Tighten the tee to a point where approximately one-quarter turn will complete the tightening required and right angle opening is facing upward.
6. Coat threads of hose nipple, removed in Step 2, with Loctite Pipe Sealant and install in right angle opening of tee.
7. Apply Loctite Pipe Sealant to the threads and install the air valve, removed in Step 3, in the tee so it faces the rear of the motorcycle.
8. Slip hose clamp over end of hose (31) next to 90° bend.
9. Install hose on hose nipple and tighten tee until hose just touches frame.
10. Route hose up along frame and forward to solenoid valve as shown in Figure 5-3.
11. Slip hose clamp over hose end at solenoid valve and install hose on valve.
12. Tighten hose clamps, pressurize air suspension system and check for leaks.

Installing Upper Mount (Figure 5-4)

1. Position the rear half of the upper clamp (7) on the rear of the frame down tubes. The mount is self-aligning, that is, the mount is correctly located when the grooves in the mount mate fully with the frame tubes.
2. Move wiring harness so it will not be pinched in upper mount or contact exhaust pipe.
3. Place the front upper clamp in position and secure with bolt (11) and lockwasher (12). Tighten bolt to 50-60 ft-lbs torque.
4. Check that wiring harness is not pinched in mount.

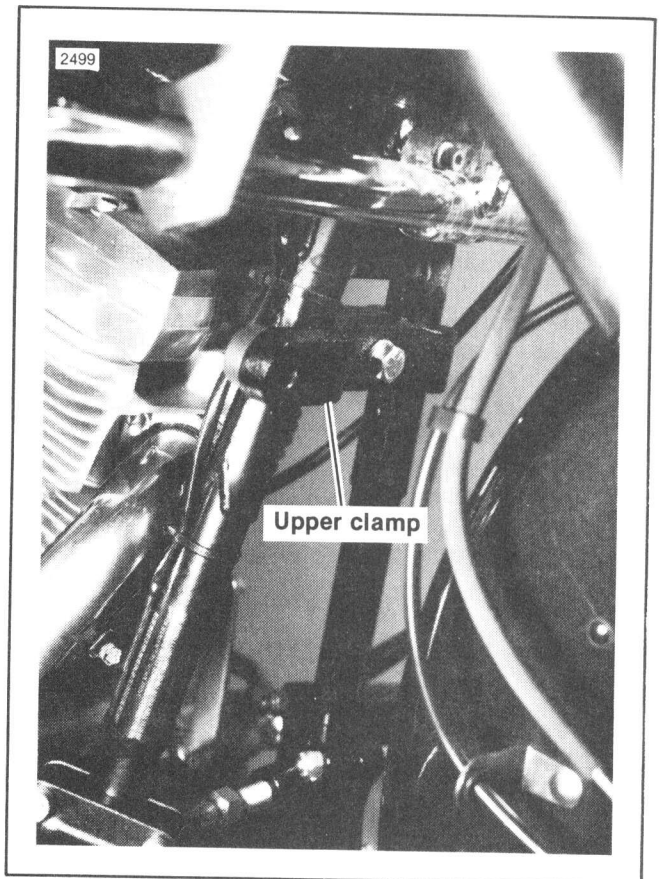


Figure 5-4. Upper Clamp Installed

Installing Front Lower Mount

1. Push cable straps holding wiring harness to right-frame downtube up and disconnect connector. Move harness out of the way and take care not to pinch harness when installing the front lower mount.

2. See Figure 5-5 and 5-6. Thread the stabilizer adjuster (26) into the right and left stabilizers (3 & 4). The stabilizers are marked with an "R" and "L" to indicate right and left, respectively. The right stabilizer has right hand threads, the left, left hand threads.
3. Place the stabilizer assembly between the frame down tubes from the backside.
4. Lightly tighten the stabilizer adjuster to hold the assembly in place.
5. Position the lower front mount (2) on the right frame downtube opposite the right stabilizer and insert four bolts (14) thru mount and stabilizer.
6. Install four locknuts (16) and finger tighten.
7. Install backing plate (5) on left stabilizer with four bolts (15) and four locknuts (16). Tighten finger tight.
8. See Figure 5-5. Check clearance between lower front mount (2) and footboard bracket and front exhaust pipe. Engine may move approximately 3/8 in.
9. Position the entire front mount assembly so the clearance between the lower front mount (2) and footboard bracket is 1/4 - 1/2 in.
10. See Figure 5-6. Check clearance between backing plate (5) and front alignment stabilizer and check that alternator to regulator wires are not pinched in left stabilizer (4).
11. Move entire front mount up if interference with front stabilizer or wires exists.
12. With a wrench, turn the stabilizer adjuster so the stabilizers press, not pull, firmly against the frame down tubes.

CAUTION

Do not over-tighten stabilizer adjuster or frame down tubes will be forced apart.

13. Tighten the four bolts in each stabilizer to 35-40 ft-lbs torque.
14. Check that harness (sensor to ignition module) is not pinched in front mount. Also check that harness is not too close to front exhaust pipe.

Installing Rear Mount

1. Shut off fuel valve and run engine until gas in carburetor is used up. (Welding requires tilting motorcycle and fuel might leak from overflow.)
2. Raise rear wheel and place supports under frame.

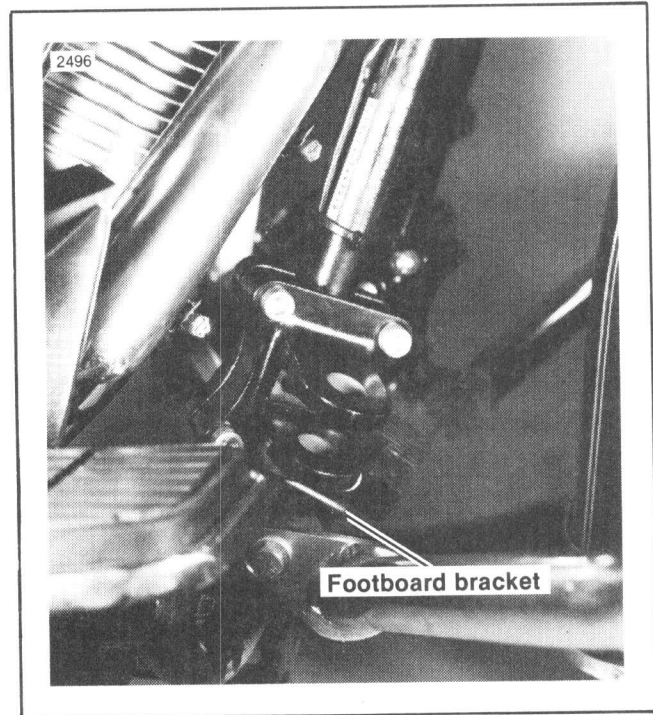


Figure 5-5. Lower Front Mount (Right Side)

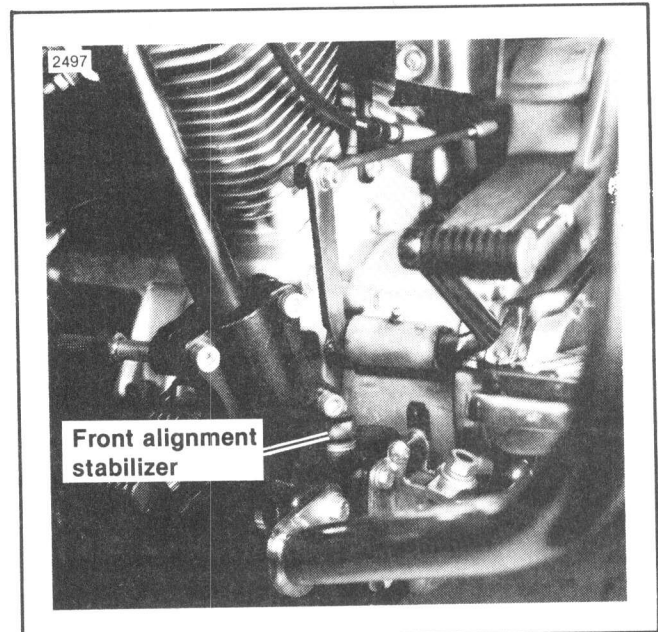


Figure 5-6. Lower Front Mount (Left Side)

WELDING FRAME MOUNTING BLOCK

1. Remove right rear exhaust pipe shield and right muffler.
2. Remove left-exhaust pipe shield located behind rear cylinder head.
3. Remove right-rear exhaust pipe.
4. Remove right side cover and both saddlebags.

- Loosen and remove the two bolts and lockwashers securing the right passenger footrest bracket and remove the footrest and bracket.
- See Figure 5-7. Attach the frame mounting block (28) and two .031 in. thick shims (22) to the rear mount assembly (1) with bolt (20) and lockwasher (21). Tighten bolt finger tight.

CAUTION

The frame mounting block must be positioned as shown in Figure 5-7 or the block could interfere with rear fork travel.

- Position rear mount assembly (1) so roll pin in rear mount enters alignment hole in rubber mount of pivot shaft (see Figure 5-8) and groove in frame mounting block aligns with frame tube. Remove plug from left passenger footrest bracket and check that the left rubber mount of the pivot shaft did not move out of position.
- Insert the bolts and lockwashers removed in Step 5 through the front holes of the rear mount assembly and tighten to 34-42 ft-lbs torque.
- Position frame mounting block (28) so groove in block mates with frame tube and tighten bolt to hold it in position.

WARNING

Before welding the mounting block to the frame tube, do the following:

- Drain gasoline from fuel tanks and remove fuel tanks.
- Remove battery.
- Plug carburetor overflow tube with a golf tee or other suitable plug.

Failure to follow Steps A, B, and C could result in an explosion and/or fire and personal injury.

- Tack weld block to frame tube using a metal-inert gas (MIG) wire welder and welding wire conforming to American Welding Society (A.W.S.) Standard E70S-G. Welding wire conforming to Standard E70S-G is available from the following manufacturers:

Manufacturer	Wire Designation
Brite-Weld International	ER70S-G
Welding Products (Linde Union Carbide)	Interweld ER70S-G
SLM Industries	H1-84
Westinghouse	70-S-G
	MS-32

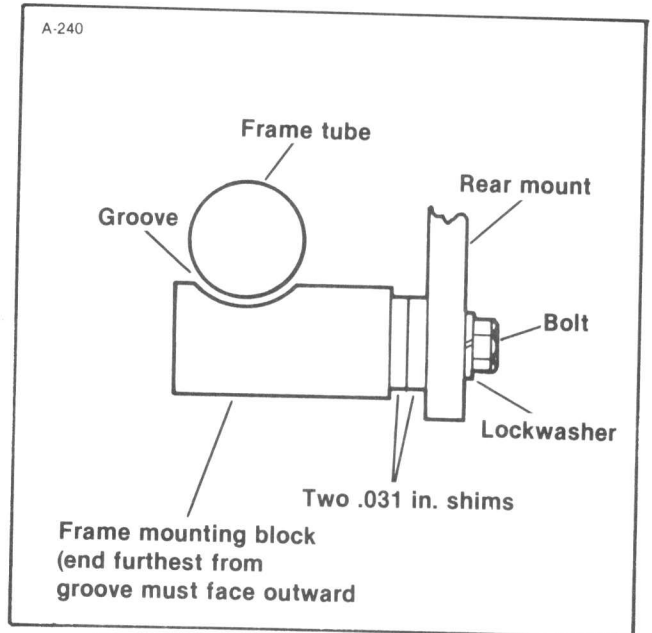


Figure 5-7. Positioning Mounting Block

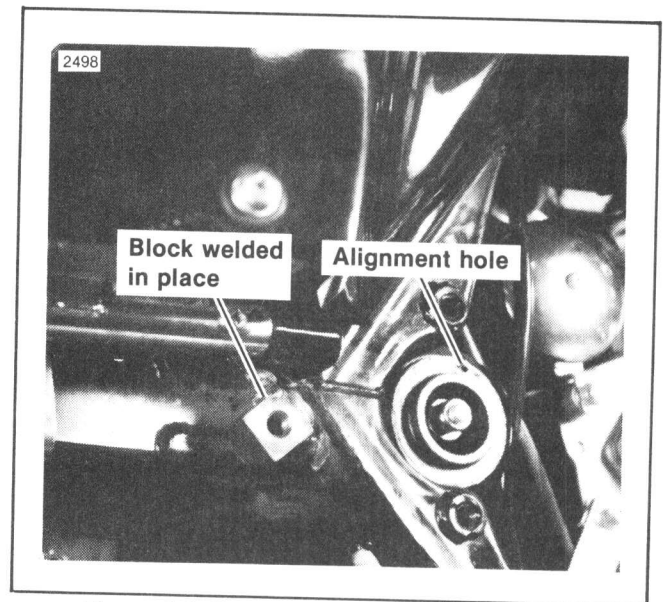


Figure 5-8. Frame Mounting Block Welding

Recommended welding wire diameter and welder settings are:

- Wire diameter — .030 or .035 in.
- Welder mode — Short Circuiting Process
- Welder voltage — 15-16 volts
- Welder current — 40-55 amps

- After tack-welding the block, remove the three bolts securing the rear mount and remove the mount.
- Insert a bolt into the mounting block to keep weld spatter from entering the tapped hole.
- Weld the top, outside end and bottom edges of the mounting block to the frame.

14. To gain access to the inner edge of the block (next to swing arm) perform Steps 15 through 17.
15. Place a strap or rope under the frame beneath the seat and support the motorcycle from a beam or overhead crane. This will allow the motorcycle to be tilted for welding in Step 18.
16. Loosen the top shock absorber mounting bolts and remove the bottom shock absorber mounting bolts.
17. Move shock absorbers to the rear and lift rear wheel and swing arm so inner edge of block is accessible for welding.
18. Weld inner edge of mounting block to frame. It may be necessary to tilt the motorcycle to the right to weld the inner edge of the block. Figure 5-8 shows block welded in place.

WARNING

The frame mounting block must be securely welded to the frame tube at all mating surfaces (all around block). Poor welding or neglecting to weld all around block could result in the block tearing loose and the possibility of an accident and personal injury.

19. After weld has cooled, paint block and weld area with Hi-Gloss Black paint, Part No. 98606C.
20. Position the rear mount over the three mounting holes and make certain roll pin enters the alignment hole in the rubber mount. Again check the left pivot shaft rubber mount to make sure it is in place.
21. Insert the two front bolts and tighten them to approximately 20 ft-lbs torque.
22. Using shim washers (22, 23, 24 and 25 as required), "shim" the gap between the block and rear mount.
23. Install bolt (20) and lockwasher (21) and tighten the three mounting bolts to 34-42 ft-lbs torque. Figure 5-9 shows rear mount installed.
24. Re-install lower shock absorber bolts and tighten upper and lower bolts to 50-60 ft-lbs torque.
25. Replace muffler, exhaust pipe, exhaust pipe shields, right side cover, fuel tanks and saddlebags.

Attaching Steering Damper Bracket

1. Remove the three bolts, washers and lockwashers securing the air deflector to the lower triple clamp, under the front forks, and remove the air deflector. Retain air deflector as it may be installed when sidecar is not attached.
2. Install bracket (36) using the three bolts removed in Step 1. Tighten bolts to 8-10 ft-lbs torque.

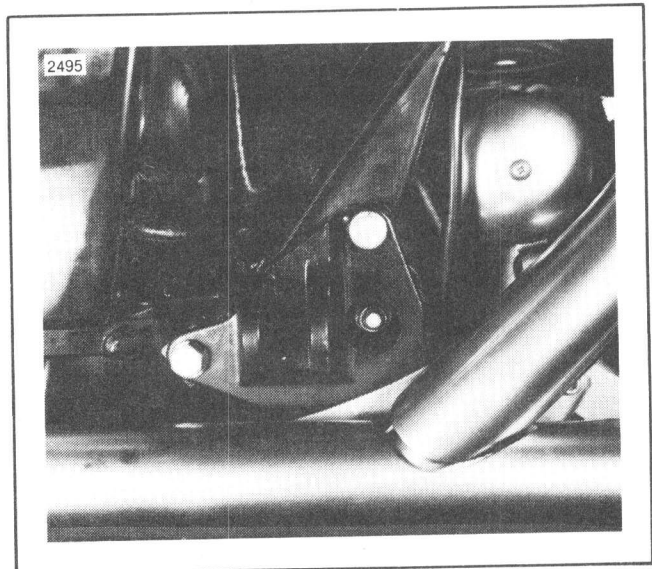


Figure 5-9. Rear Mount Installed

3. Refer to Section 6 for instructions covering attaching and adjusting the steering damper.

Installing Sidecar Wiring Harness

Refer to the ELECTRICAL Section for instructions covering harness installation.

Installing Tee in Master Cylinder (Figure 5-10)

1. Remove stoplight switch (5) from rear master cylinder.
2. Coat male threads of tee (8) with Loctite Pipe Sealer with Teflon and install in master cylinder so right angle opening faces the rear of the motorcycle.
3. Reinstall the stoplight switch.
4. If sidecar is not being attached install plug (9) in the right angle opening.
5. Bleed rear brake system following the procedure given for the CLE in Section 6 and check for leaks.

NOTE

Items 17, 18, 19, 27, 37, 38, 39 and 40 contained in the Sidecar Connection Kit must be installed while attaching the sidecar to the motorcycle. See Section 6 for installation procedures for the above items. Refer to Figure 5-2 and Kit Contents for illustration and description of the above items.

Installing Right Passenger Footrest

1. See Figure 5-11 and 5-12.
2. Loosen bolt (10) shown in Figure 5-11 and remove footrest and bracket from bracket assembly.

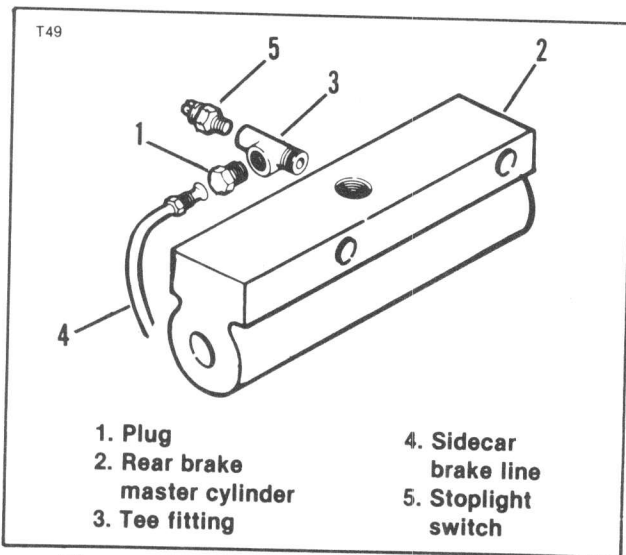


Figure 5-10. Sidecar Brake Line Connection

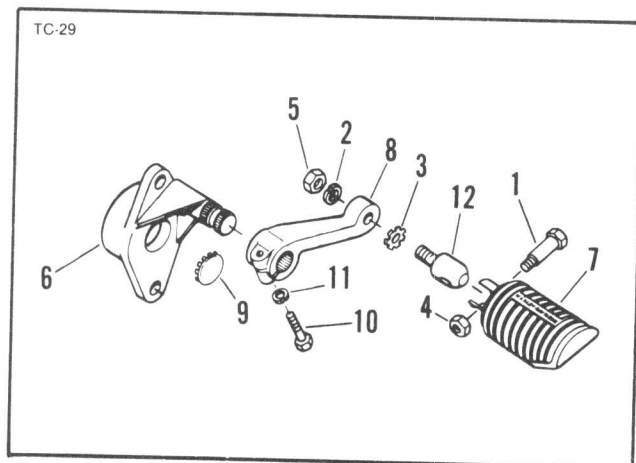


Figure 5-11. Right Passenger Footrest

3. Remove nut (5). Remove footrest (7) from footrest support (8).
4. Install footrest support (8) on splined boss of rear sidecar connector as shown in Figure 5-12. Footrest support is reversed (pinch bolt head on top) when installed on sidecar.

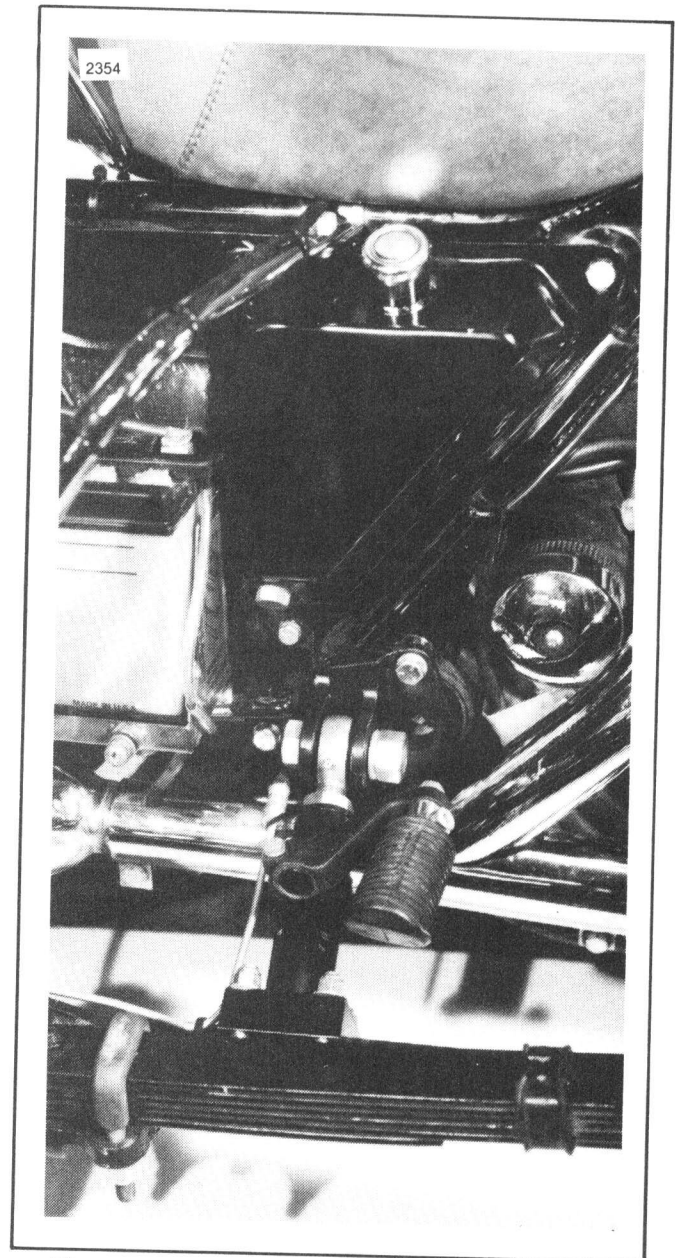


Figure 5-12. Right Passenger Footrest Installed

5. Reassemble footrest (7) to footrest support (8).
6. Adjust footrest height and tighten bolt (10), Figure 5-11, to 8-10 ft-lbs torque.

NOTES

ATTACHING, ADJUSTING AND REMOVING SIDECARS

SUBJECT	PAGE NO.
1. CLE Sidecar Installation and Removal (FLH)	6-1
2. TLE Sidecar Installation and Removal (FLT)	6-5

CLE SIDECAR INSTALLATION AND REMOVAL (FLH)

ADJUSTABLE FRONT FORK

The forks can be adjusted forward for less trail (use with sidecar) or rearward for more trail (solo service). The fork must be adjusted for sidecar service as follows:

1. Raise front end of motorcycle so front wheel turns freely and support motorcycle with suitable blocking.
2. See Figure 6-1. Underneath fork head lower bracket is a large bolt secured with a castle nut and cotter pin. Remove and discard cotter pin. Remove nut and disengage lockplates (located under bolt head and nut) from slots in fork bracket.
3. Grasp front wheel and pull fork sides as far forward as elongated holes in fork sides permit.
4. Re-engage lockplates in elongated holes, with spacer pins toward rear.
5. Tighten castle nut to 96 ft-lbs torque, install a new cotter pin.

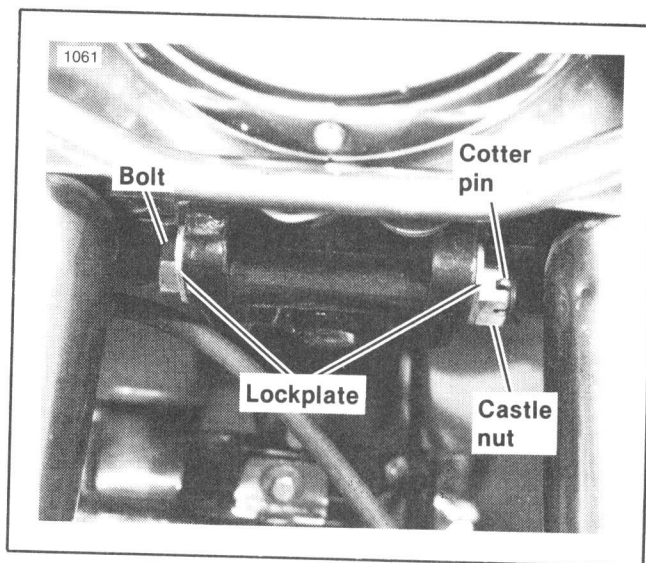


Figure 6-1. Adjusting Fork Trail

ADJUSTING STEERING DAMPER

Turn steering damper adjusting screw, located on top of the fork bracket, clockwise to apply dampening action. Apply steering damper only when operating under conditions where some degree of dampening stabilizes steering. It is best to keep the damper set a little snug when operating with a sidecar.

ATTACHING SIDECAR TO MOTORCYCLE

1. Rest motorcycle on jiffy stand next to sidecar chassis. Block up sidecar chassis so connections on chassis line up as close as possible to connections on motorcycle and sidecar wheel is perpendicular (at 90°) to level floor.
2. Place a small amount of grease in each ball socket. Make sure locknuts are loose on ball joints.
3. See Figure 6-2. Place front ball joint in front ball joint connection and using SIDECAR CONNECTION NUT WRENCH, Part No. HD-94536-18, tighten ball joint nut until it bottoms, then back off 1/8 turn. Hold nut in this position and tighten ball joint locknut securely.
4. Loosen four U-bolt nuts and two set screws that attach rear ball joint to sidecar chassis.

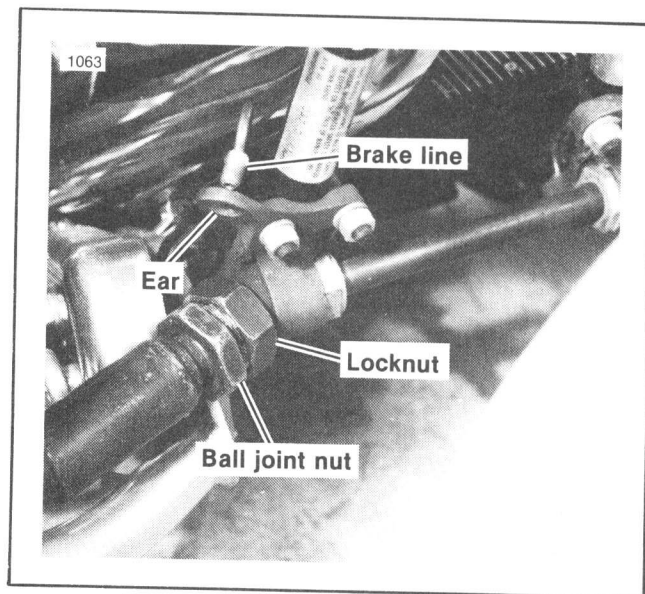


Figure 6-2. Front Lower Connection

5. Shift rear ball joint on sidecar to line up with rear mounting bracket. Connect rear ball joint using same method as Step 3.
6. See Figure 6-3. Loosen sidecar front brace clamps on sidecar chassis.
7. See Figure 6-4. Connect brace to upper clamp bolt (1) using washer (2), spring (3), washer (4), castle nut (5) and cotter pin (6). Tighten nut until bolt (1) protrudes through castle nut, then install cotter pin.

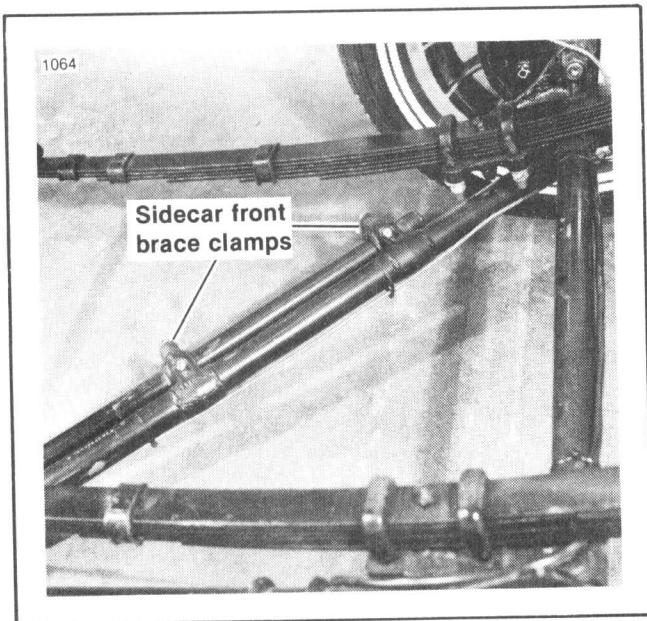


Figure 6-3. Sidecar Front Brace Clamps

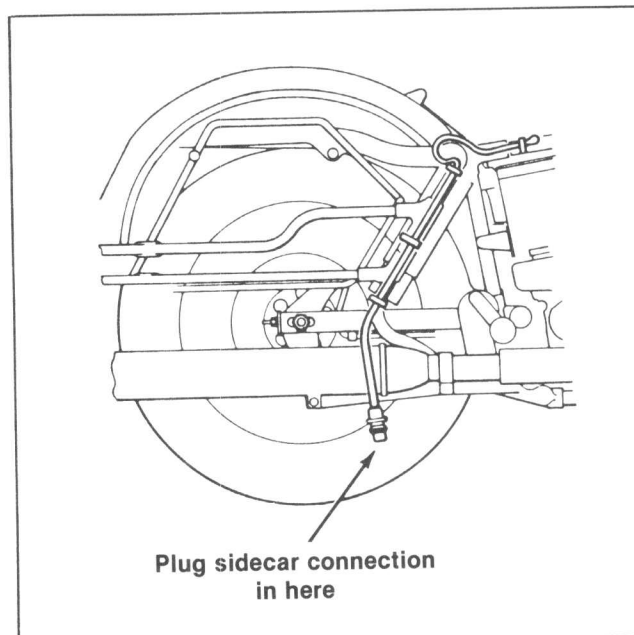


Figure 6-5. Wiring Connection

at rear ball joint until sidecar wheel is perpendicular. This can be measured with a protractor (Sears No. 9GT3984 or equivalent). Lightly tighten the four U-bolt nuts and two set screws that attach the rear ball joint to the sidecar chassis.

CAUTION

Motorcycle steering may be adversely affected if the following adjustments are not performed correctly.

2. See Figure 6-3. Adjust sidecar front brace forward or backward in clamps so motorcycle leans approximately 2° away from sidecar. The angle can be measured with the protractor used in Step 1. Tighten front brace clamps (Figure 6-3) to 25 ft-lbs torque.
3. See Figure 6-6. The rear ball joint, when adjusted properly, should provide $1/2$ to $3/4$ inch toe-in at front of motorcycle. Loosen locknuts securing ball joint and screw ball joint in or out to achieve proper toe-in. Re-tighten locknuts. Recheck sidecar wheel perpendicularity and adjust if required. Tighten U-bolt nuts to 25 ft-lbs torque. Tighten set screws to 8 ft-lbs torque. Remove blocking supporting sidecar..
4. Inflate tires per specification listed in TIRE DATA section of Sidecar Owner's Manual.
5. Re-aim headlamp using headlamp housing ADAPTER RING, Part No. 67842-60. Refer to appropriate Service Manual for your motorcycle for headlamp aiming specifications and adjustment procedure.

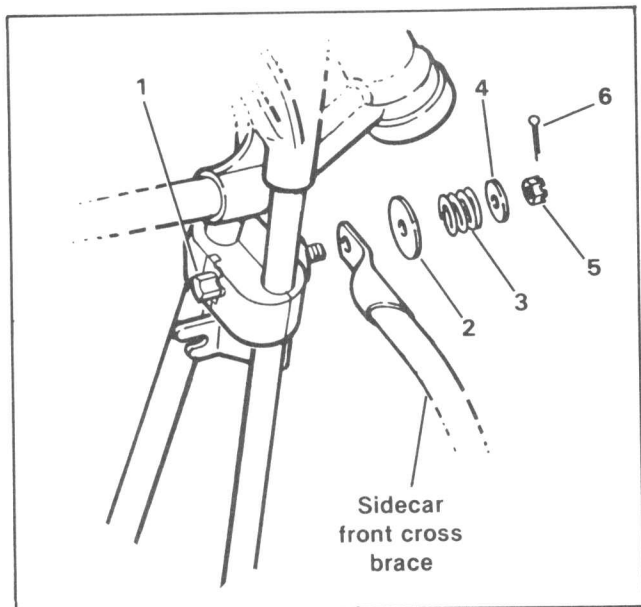


Figure 6-4. Front Upper Connection

8. Remove bulb from right rear turn signal and install in sidecar turn signal. Install sidecar wiring connection to motorcycle wiring connection as shown in Figure 6-5.

ADJUSTMENTS

1. Check sidecar wheel to assure that it is perpendicular (at 90°) with a level floor. If sidecar wheel is not perpendicular, raise or lower sidecar chassis

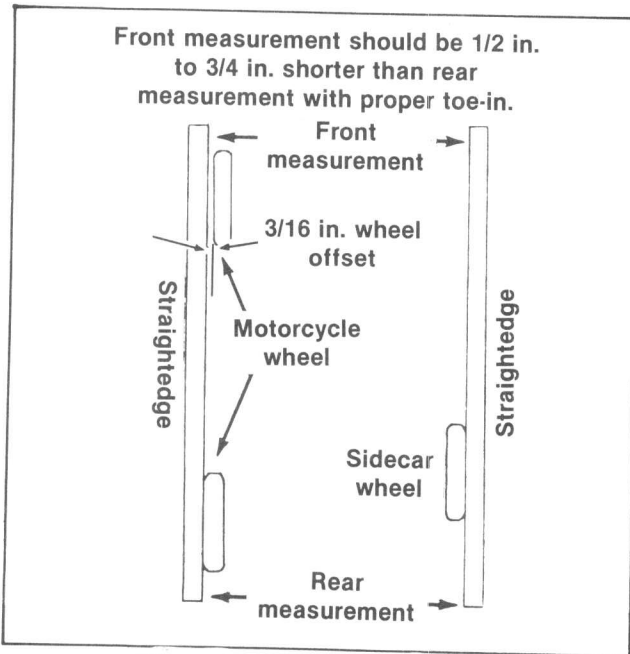


Figure 6-6. Toe-in Adjustment

FILLING HYDRAULIC BRAKE SYSTEM

WARNING

Sidecar brakes must be connected to the motorcycle brake system as shown in these instructions. Without sidecar brakes connected, motorcycle could pull to the left during a hard stop. This condition worsens as sidecar weight is added to the vehicle. With sidecar brake connected properly, motorcycle could pull to the right. This condition worsens as sidecar weight is decreased.

Vehicle braking with sidecar cannot be completely balanced for all weight conditions.

Sidecar brake system is shipped dry and must be filled with brake fluid as follows: (Use only D.O.T. - 5 HYDRAULIC BRAKE FLUID which is approved for use in hydraulic brake systems.)

WARNING

Brake fluid can cause irritation of eyes and skin and may be harmful if swallowed. If fluid is swallowed, induce vomiting by administering two tablespoons of salt in a glass of warm water. Call a doctor. In case of contact with skin or eyes, flush with plenty of water. Get medical attention for eyes. **KEEP BRAKE FLUID OUT OF THE REACH OF CHILDREN.**

NOTE

Make sure master cylinder is kept full during bleeding operation.

1. See Figure 6-2. Install flexible hose, supplied with sidecar, through ear and connect to brake line.

2. Attach one end of a clean length of hose (transparent preferred) to bleeder screw located on sidecar wheel back plate. Place other end of hose in clean glass jar.
3. Loosen bleeder screw slightly and slowly depress rear brake pedal. Tighten bleeder valve and release brake pedal. Continue this procedure until brake fluid, free of air, is expelled into jar.
4. Repeat Steps 2 and 3 for motorcycle rear wheel. Check all connections for leaks.

ADJUSTING SIDECAR BRAKES

The procedure for adjusting brakes is contained in Section 3.

DISCONNECTING SIDECAR FOR SOLO SERVICE

1. Remove bulb from sidecar turn signal and install in motorcycle right rear turn signal. Disconnect sidecar electrical connection from motorcycle (See Figure 6-5).
2. Place motorcycle jiffy stand down. We recommend a second person hold the motorcycle to keep it from falling over when disconnecting sidecar.
3. See Figure 6-4. Disconnect front cross brace from upper clamp bolt. Retain items 2-6 for installation.
4. Disconnect sidecar brake line from the flexible brake hose at the lower right front connection. Install PLUG, Part No. 42311-58, in end of the flexible hose.
5. Loosen front and rear ball joint locknuts, disconnect ball joints and remove sidecar.
6. Re-adjust front forks for solo service. See ADJUSTABLE FRONT FORK.
7. Turn damper screw counterclockwise to eliminate dampening action.
8. Re-aim headlamp for solo service. Remove ADAPTER RING, Part No. 67842-60. Refer to appropriate Service Manual for headlamp aiming specifications and adjustment procedure.
9. Protect electrical leads that have been disconnected with PROTECTIVE CAP, Part No. 72057-84.
10. Check operation of rear brake and bleed if necessary. See FILLING HYDRAULIC BRAKE SYSTEM for procedure.
11. Check motorcycle tires for correct pressure as given in the motorcycle Owner's Manual.

NOTES

TLE SIDECAR INSTALLATION AND REMOVAL (FLT)

ATTACHING SIDECAR TO MOTORCYCLE

NOTE

The 1984 FLTC and FLHTC motorcycles are equipped with front air suspension. Installation of a sidecar requires replacing and re-routing the air hose and fittings. Refer to Section 5 for their installation and routing.

Recommended air suspension pressure for a motorcycle with a sidecar remains the same as for a solo motorcycle. Refer to the motorcycle Owner's Manual for recommended pressures and adjustment.

1. Rest motorcycle on jiffy stand next to sidecar chassis. Block up sidecar chassis so connections on chassis line up as close as possible to connections on motorcycle and sidecar wheel is perpendicular (at 90°) with floor.
2. Make sure connector bearing nuts on sidecar are loose, front and rear. See Figures 6-7 and 6-8.
3. See Figure 6-7. With front connector bearing threads exposed approximately 1/4 in., install connector bearing into front clevis. Install 3/4 in. diameter bolt through clevis and connector bearing. Nut and lockwasher should be on bottom. Do not tighten at this time.
4. See Figure 6-8. Loosen the four U-bolt nuts and two set screws that attach the rear mounting bracket to the sidecar chassis. Shift rear footrest and mounting bracket with connector bearing on sidecar to line up with rear clevis on motorcycle. Install 3/4 in. diameter bolt through clevis and connector bearing. Nut and lockwasher should be toward front of motorcycle. Do not tighten at this time.
5. See Figure 6-3. Loosen sidecar front brace clamps on sidecar chassis.
6. See Figure 6-9. Connect front brace to front upper clamp with 1/2 in. diameter bolt, small flat washer, large flat washer, and elastic locknut. Nut and large washer should be to rear of motorcycle. Snug up bolt and nut, but do not tighten.
7. Install sidecar wiring connection to motorcycle wiring connection as shown in Figure 6-8 and disconnect right rear directional light.

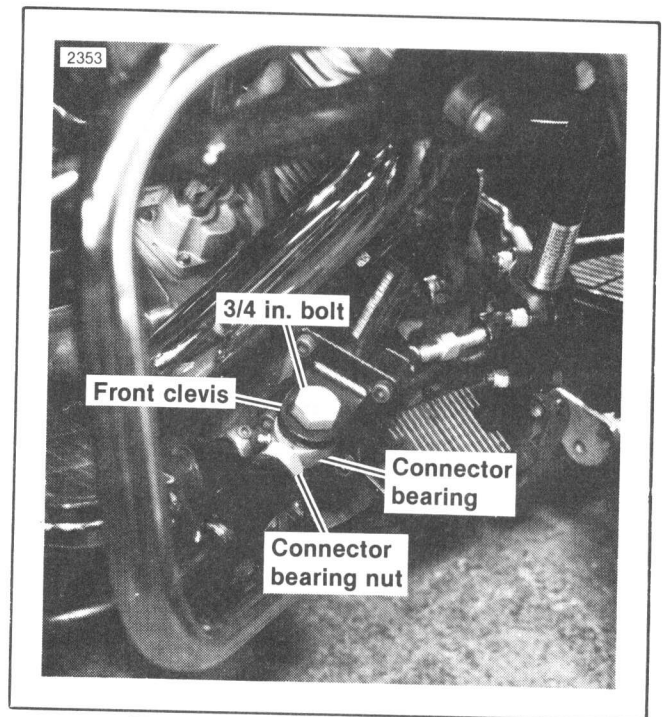


Figure 6-7. Front Sidecar Connection

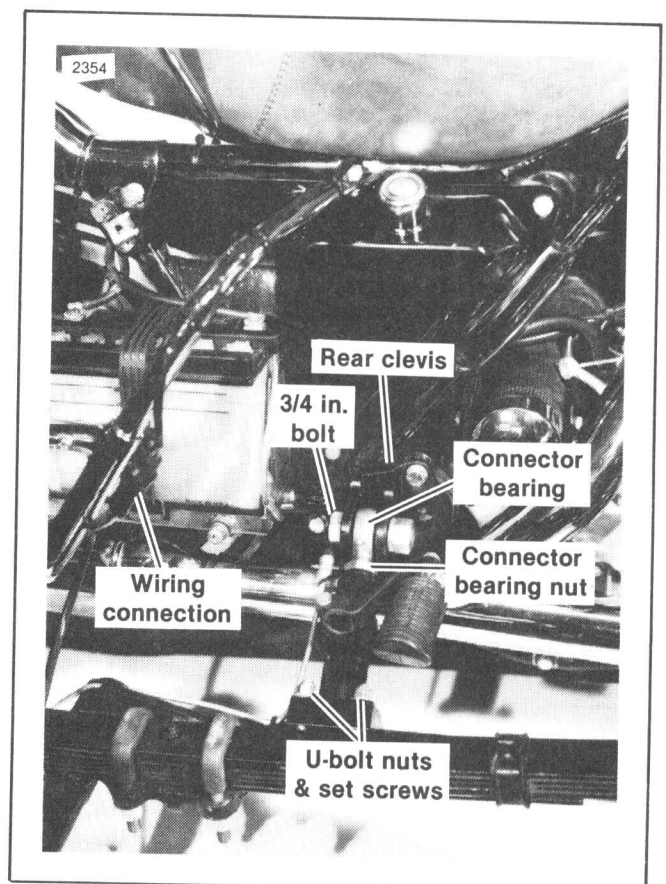


Figure 6-8. Rear Sidecar Connection

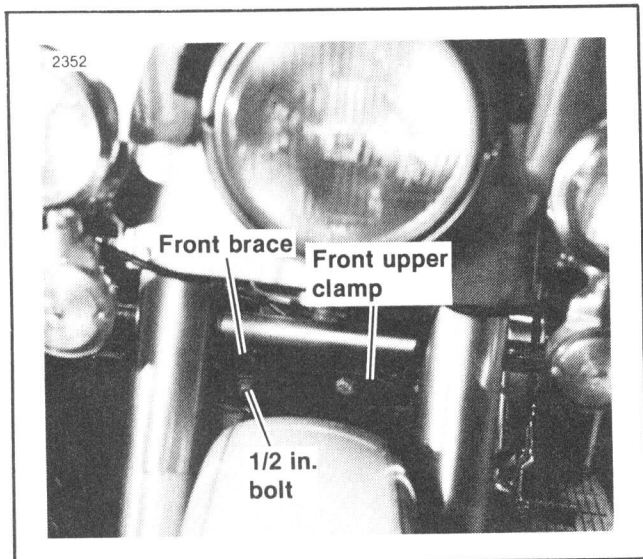


Figure 6-9. Front Brace Connection

ADJUSTMENTS

CAUTION

Motorcycle steering may be adversely affected if the following adjustments are not performed correctly.

1. Check sidecar wheel to assure that it is perpendicular (at 90°) with a level floor. If sidecar wheel is not perpendicular, raise or lower sidecar chassis at rear connector until sidecar wheel is perpendicular. This can be measured with a protractor (Sears No. 9GT3984 or equivalent). Lightly tighten the four U-bolt nuts and two set screws that attach the rear connector to the sidecar chassis.
2. See Figure 6-3. Adjust sidecar front brace forward or backward in clamps so motorcycle leans approximately 2° away from sidecar. This can be measured with protractor specified in Step 1.

Tighten front brace clamps (Figure 6-3) to 25 ft-lbs torque. Tighten front upper connection to 70-80 ft-lbs torque.

3. See Figure 6-10. The rear connection, when adjusted properly, should provide 3/4 to 1 inch toe-in at front of motorcycle. To achieve proper toe-in, remove 3/4 in. diameter bolt, lockwasher and nut from rear clevis and connector bearing, then turn connector bearing either in or out. Do not expose more than 3/8 in. of threads when turning connector bearing out. (Measured from face of locknut after locknut is tightened.) If additional adjustment is required, the front connector can be turned in.

CAUTION

Minimum connector bearing thread engagement into rear mounting bracket and front sidecar frame tube is critical. No more than 3/8 in. of threads should be visible between jam nut and connector bearing head after tightening jam nut and lockwasher.

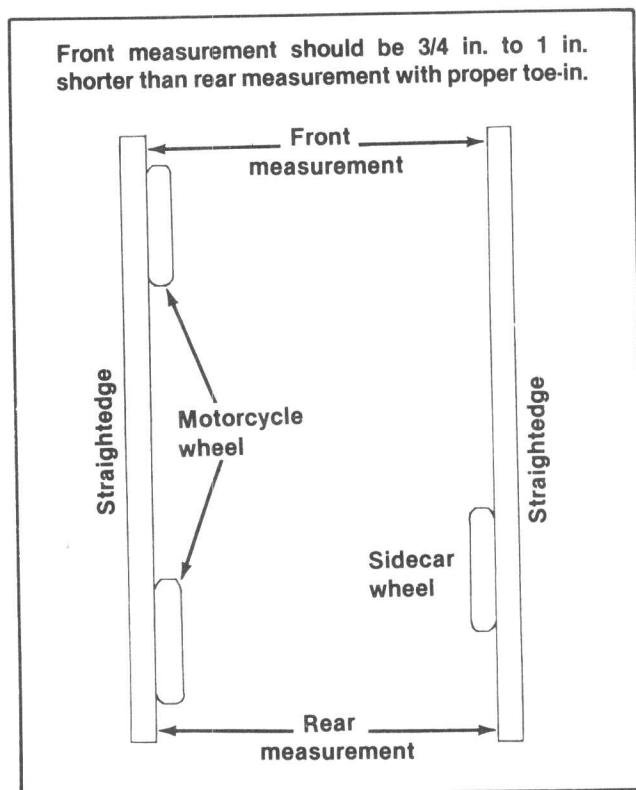


Figure 6-10. Toe-in Adjustment

4. Reattach connector bearing to rear clevis with 3/4 in. diameter bolt, lockwasher and nut. Tighten to 80-90 ft-lbs torque. Tighten jam nut on connector bearing.
5. Recheck sidecar wheel to assure that it is perpendicular (at 90°) with a level floor. See preceding Step 1 if adjustment is required. Tighten U-bolt nuts to 25 ft-lbs and set screws to 8 ft-lbs. torque. Remove blocking supporting sidecar.
6. After toe-in is set, tighten front 3/4 in. bolt, lockwasher and nut to 80-90 ft-lbs torque. Tighten jam nut on connector bearing.
7. Inflate vehicle tires per tire data specifications given in Sidecar Owner's Manual.
8. Check headlamp(s) aim. Refer to appropriate Service Manual for headlamp aiming specifications and adjustment procedure.

ATTACHING STEERING DAMPER TO MOTORCYCLE AND SIDECAR

1. See Figure 6-11. Remove air baffle, Part No. 58520-79, from under forks. Retain the 3 bolts and lockwashers (1). Install bracket (2), Part No. 87143-83, using the 3 bolts and lockwashers removed above.
2. Install rod end (3) to threaded end of steering damper. Attach to bracket with bolt (4), spacer (5)

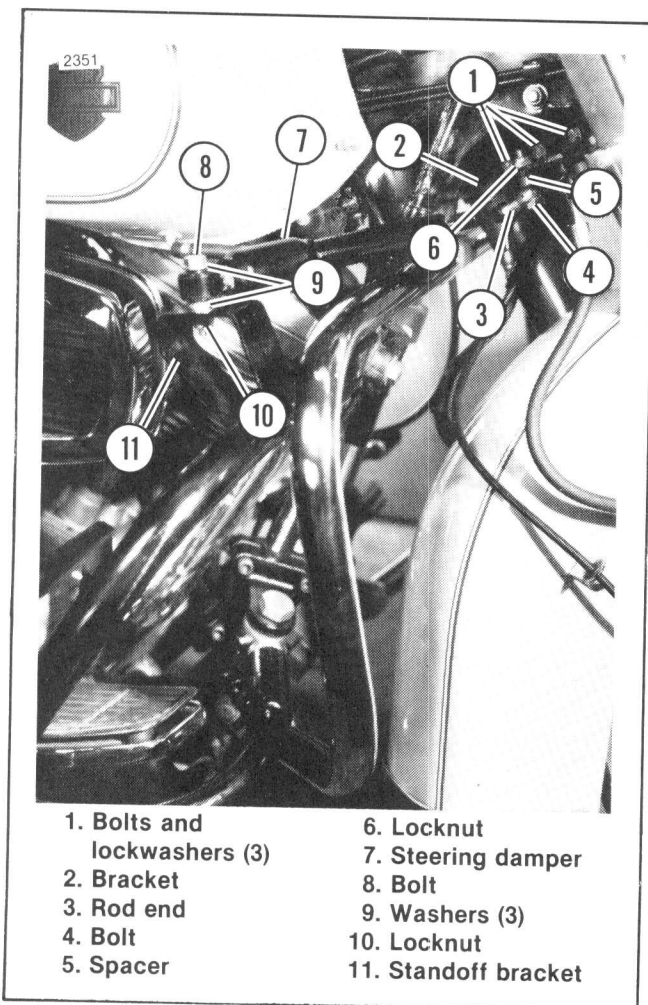


Figure 6-11. Steering Damper Mounting

and locknut (6). Be sure threads of rod end are toward rear of motorcycle. Bolt head must be on bottom so as not to interfere with fender travel.

3. Attach large end of steering damper (7) with bolt (8), three washers (9) and locknut (10) to standoff bracket (11) on cross brace.

ADJUSTMENT OF STEERING DAMPER

1. See Figure 6-11. The large end of steering damper can be adjusted in the slot in the standoff bracket. Rod end of steering damper is adjusted by removing bolt (4) and turning rod end (3) in or out.
2. Adjust both ends of steering damper to prevent it from interfering with frame or fork, when front fork is rotated between its limits of travel.
3. After adjustment is made, tighten all hardware to 25-30 ft-lbs torque.
4. Re-check for possible interference.

FILLING HYDRAULIC BRAKE SYSTEM

1. See Figure 6-12. Remove plug (1), Part No. 42311-58, from rear brake master cylinder tee-fitting (3). Retain plug for use on motorcycle when sidecar is removed.
2. Install brake line (4) from sidecar to rear brake master cylinder tee-fitting and tighten.
3. To fill and bleed sidecar brake system, see FILLING HYDRAULIC BRAKE SYSTEM previously given for the CLE. The procedure for adjusting brakes is given in Section 3.

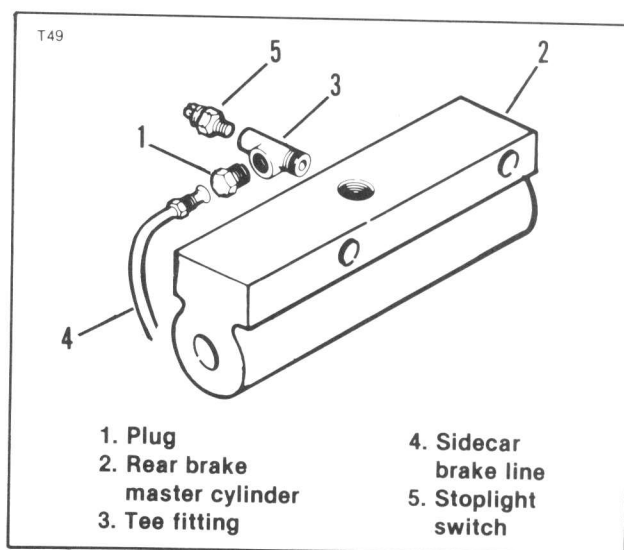


Figure 6-12. Sidecar Brake Line Connection

DISCONNECTING SIDECAR FOR SOLO SERVICE

1. Disconnect sidecar electrical connection from motorcycle (see Figure 6-8). Reconnect motorcycle electrical connection to right turn signal at saddlebag.
2. Place motorcycle jiffy stand down.
3. See Figure 6-9. Disconnect front cross brace from upper clamp. We recommend a second person hold the motorcycle to keep it from falling over when disconnecting sidecar.
4. Disconnect sidecar brake line from tee-fitting connection. Install plug, Part No. 42311-58, in tee-fitting.
5. See Figure 6-11. Disconnect steering damper from under forks.

6. Remove front and rear connector bearing bolts, then remove sidecar.
7. Check headlamp (s) aim for solo service. Refer to appropriate Service Manual for headlamp aiming specifications and adjustment procedure.
8. Protect electrical leads that have been disconnected with protective cap, Part No. 72057-84.
9. Check operation of rear brake and bleed if necessary. See FILLING HYDRAULIC BRAKE SYSTEM for procedure.
10. Check motorcycle tires for proper tire pressure as a solo vehicle per TIRE DATA chart in motorcycle Owner's Manual.



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