

## SECTION 2 - CHASSIS

# MERCURY

## SNOWMOBILES

## PART F - CHASSIS and COWL



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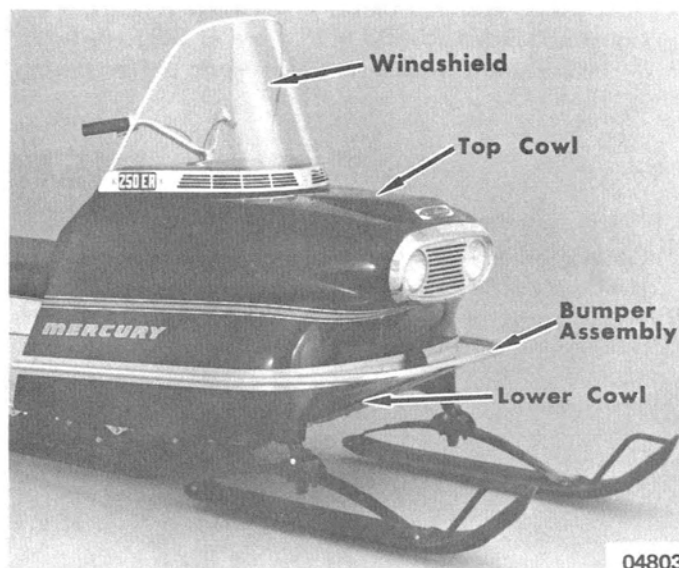
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# COWL and DASH REPLACEMENT - 220 and 250 MODELS

## TOP COWL REMOVAL

1. Release 3 cowl latches (front center and each inside rear edge of lower cowl).
2. Disconnect headlight harness from electrical wiring harness and remove cowl from vehicle.

Figure 1. Cowls



04803

## DISASSEMBLY

**NOTE:** If necessary to remove storage box, rivets must be drilled out of cowl (250 Models).

- Remove 7 windshield attaching screws. Remove trim strip and windshield.
2. Disconnect headlight harness from headlight(s).
3. Remove headlight and grille as an assembly by removing attaching screws (single headlight) or nuts (dual headlight).
4. Remove headlight from grille as follows:
  - a. Remove headlight adjusting screw.
  - b. Remove headlight retainers (Figure 2) and remove headlight.
  - c. Remove headlight mounting bracket retainers (single headlight) or hairpin clips (dual headlight) and remove bracket.
  - d. Remove nylon adjusting cylinder from bracket.
5. Inspect cowl for cracks and/or breaks.

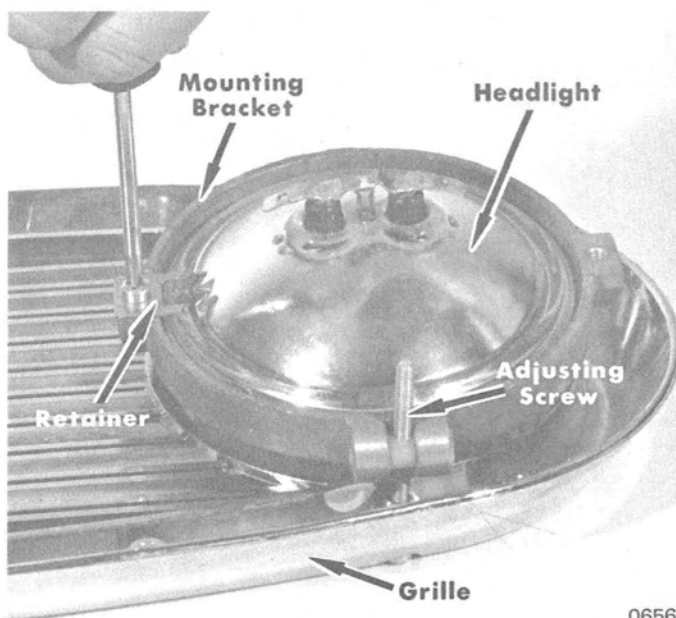
**NOTE:** Fiberglass repair procedures are outlined later in this section.

6. Inspect grille for cracks and/or breaks.
7. Check headlight wiring harness for cracks or breaks.

Figure 2. Removing Headlight Retainers

**NOTE:** If grille replacement is necessary on 220 Models, a Dual Headlight Kit (D-55639A3) must be used. The kit contains complete headlight and grille assembly, headlight wiring harness and instructions.

8. Replace all worn or damaged parts.



06566

## REASSEMBLY

1. Install nylon adjusting cylinder in headlight mounting bracket and secure bracket to grille with retainers (single headlight) or hairpin clips (dual headlight).
2. Before placing headlight in mounting bracket and securing with retainers, line the outside rim of the replacement lamp with a common rubber tape (where it contacts the mounting bracket). Install a 1" piece of rubber between the lamp and the 2 retainers which secure the lamp in the

mounting bracket. Cut rubber from C-27-58806 gasket strip. This procedure will assure a tight fit of the lamp in the mounting bracket and, also, it will serve as a vibration dampener for the headlamp.

3. Install headlight adjusting screw.
4. Install headlight and grille assembly in top cowl.
5. Connect headlight harness to headlights.
6. Attach windshield and trim strip to top cowl.

## INSTALLATION

1. Connect headlight harness to electrical wiring harness and position top cowl on vehicle.
2. Secure cowl with 3 cowl latches (front center and each rear edge).

3. Adjust headlights to desired height. Factory setting is 3/8" from inside edge of grille to bottom front of lamp.

## LOWER COWL REMOVAL

1. Remove top cowl.
2. Lift front of vehicle and remove skis and spindles.
3. Remove ski spindle bushings from lower cowl.
4. Remove bumper attaching hardware and remove bumper.

5. Remove lower cowl attaching screws (18 on 220 Models - 16 on 250 Models) and remove lower cowl from vehicle.

*NOTE: Fiberglass repair procedures are outlined later in this section.*

## INSTALLATION

1. Position lower cowl on chassis and secure with attaching screws.  
*NOTE: Flat washers are to be used where screw head or nut comes in contact with fiberglass.*

2. Position bumper on lower cowl and secure.
3. Install ski spindle bushings in lower cowl.
4. Install skis and spindles.
5. Install top cowl.

# DASH REMOVAL

1. Remove and/or disconnect the following:
  - a. Ignition switch bezel.
  - b. Light switch bezel.
  - c. Forward reverse start switch bezel (ER models).
  - d. Terminal block from underside of dash.
  - e. Wires from ammeter (E and ER models).
  - f. Screws (2) which secure top of dash to steering support bracket.

**NOTE:** On 250 Models, bottom sides of dash also are secured to steering support bracket.

- g. Screw (1) securing bottom left side of dash to chassis (220 Models).
- h. Rubber throttle/brake cable retaining grommet from slot in dash (if so equipped).
- i. Choke cable from carburetor (250 Models).
- j. Screws (2) attaching ignition advance/choke control panel to dash. Slip panel assembly thru dash opening (220 Models).
- k. Main seat cushion (250 Models). On 220 Models, lift cushion and untie retaining rope to allow cushion to tilt further back.
- l. If equipped with fuel primer, disconnect hoses from pump.
- m. If equipped with speedometer, disconnect cable from head.

2. Lift dash toward rear of vehicle and slip starter handle and rubber grommet thru dash opening.
3. Lift dash up and toward rear of vehicle to remove.

**NOTE:** Plastic repair procedures are outlined later in this section.

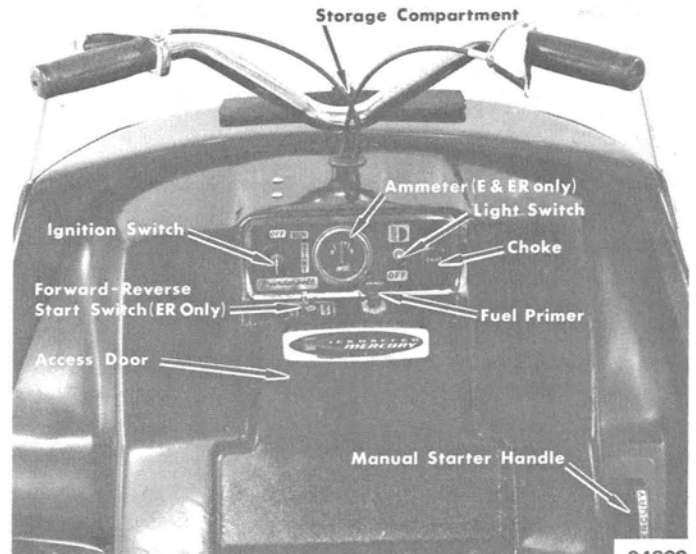


Figure 1. Dash Assembly

# INSTALLATION

1. Push dash forward and down into position on vehicle.
2. Insert starter handle thru dash opening and install grommet.
3. Attach speedometer cable to head (if so equipped).
4. Connect fuel primer lines to pump.
5. Insert ignition advance/choke control panel thru dash opening and attach to dash (220 Models).
6. Attach choke cable to carburetor (250 Models).
7. Install rubber cable retaining grommet in dash slot.
8. Attach dash to support bracket on lower left side (220 Models).
9. Attach dash to steering support bracket.
10. Connect wires to ammeter (E and ER models).

11. Attach terminal block to underside of dash.
12. Install forward/reverse start switch in dash and secure with bezel (ER models).
13. Install light switch in dash and secure with bezel.
14. Install ignition switch in dash and secure with bezel.
15. Tie retaining rope to seat cushion and lower seat into position (220 Models).

**CAUTION:** DO NOT install main seat cushion backwards, or mounting rails may puncture the rear cushion.

On 250 models, slide notches on seat mounting rail onto front bulkhead and push seat down into position.

## REASSEMBLY

1. Install grommet on headlight and install headlight in top cowl.

*NOTE: Rubber lube or soap-and-water may be used as an aid to install headlight unit in grommet. If familiar with installation techniques for automotive windshields, chalk*

*string may be used to pull headlight and grommet assembly into top cowl.*

2. Install lens covers on top cowl, securing with fasteners.
3. Install headlight sockets and bulbs in lens.

## INSTALLATION

1. Position cowl on vehicle and install hinge pin, securing with hairpin clips.
2. Insert stop cable thru retaining screw and tighten nut.

3. Close cowl and secure stretch latches.
4. Connect headlight harness to vehicle wiring harness.

## LOWER COWL REMOVAL

1. Remove top cowl.
2. Support front of vehicle and remove skis and spindles.
3. Remove ski spindle bushings from lower cowl.

4. Remove lower cowl attaching screws (12) and remove cowl from vehicle.

## DISASSEMBLY

1. Remove cowl hinge attaching screws and remove hinges.
2. Remove rivets (2) which attach side bumpers to front bumper.

3. Remove nuts and cowl latch supports from bumper studs.  
*NOTE: Plastic repair procedures are outlined later in this section.*

## REASSEMBLY

1. Position bumpers on cowl and rivet side bumpers to front bumper on each side of cowl.
2. Position cowl latch/supports on bumper studs and install retaining nuts.

*NOTE: Cowl latch/supports with stretch latches are installed on rear bumper studs on each side of cowl.*

*Remaining 2 supports are installed on bumper studs in center of cowl.*

3. Install cowl hinges in cowl.

*NOTE: Cowl hinges are right and left hand. Hinges must be installed with mounting tabs to outside.*

## INSTALLATION

1. Position cowl on chassis and secure with attaching screws.  
*NOTE: Flat washers are used where screw head or nut comes in contact with plastic.*

2. Install ski spindle bushings in lower cowl.
3. Install skis and spindles.
4. Install top cowl.



# DASH

## REMOVAL

1. Open top cowl.
2. Remove windshield attaching screws and windshield.
3. Remove attaching screw from bottom of air inlet baffle and remove baffle.
4. Remove louvered panel from dash.
5. Remove dash attaching screws.
6. Remove handlebar.

*NOTE: If fuel primer and/or speedometer have been installed, disconnect primer lines and/or speedometer cable before attempting to remove dash.*

7. Disconnect main harness from headlight and engine harness.
8. Remove dash from vehicle.

## DISASSEMBLY

1. Remove bezels from ignition switch and headlight switch.
2. Remove harness leads from terminal block and remove harness.
3. Remove terminal block attaching screws and remove terminal block.

4. Remove fuel primer pump and/or speedometer (if so equipped).

*NOTE: Plastic repair procedures are outlined later in this section.*

## REASSEMBLY

1. Install fuel primer pump and/or speedometer (if so equipped).
2. Install terminal block on dash.

3. Attach wiring harness leads to terminal block.
4. Insert ignition switch and headlight toggle switch thru dash openings and secure with bezels.

## INSTALLATION

1. Position dash on vehicle.
2. Connect main harness to engine harness and lighting harness.
3. Connect fuel primer lines and/or speedometer cable (if so equipped).
4. Reinstall handlebar.

5. Secure dash in position with 4 attaching screws.
6. Install louvered dash panel.
7. Position air inlet baffle on vehicle and install lower attaching screw.
8. Install windshield on dash.
9. Close top cowl.

# MAIN SEAT CUSHION

## REMOVAL

1. Remove rear cushion.
2. Close fuel tank shut-off valve.
3. Remove fuel tank hold-down plate.
4. Disconnect steel fuel line from fuel tank outlet and carburetor inlet fuel line.

5. Disconnect taillight harness from headlight harness.
6. Lift up on rear of cushion and pull back, removing cushion from vehicle.
7. Remove fuel line and taillight harness from seat cushion.

## INSTALLATION

1. Install fuel line and taillight harness in seat cushion.
2. Position cushion on vehicle.
3. Connect taillight harness to lighting harness.
4. Connect steel fuel line to carburetor inlet fuel line and fuel tank outlet.

5. Install fuel tank hold-down plate.
6. Open fuel shut-off valve.
7. Install rear cushion.

# DASH REPLACEMENT HURRICANE (644cc) MODEL REMOVAL

1. Remove 2 screws from inside of storage compartment. (Figure 1)
2. Remove 2 screws from front of windshield which attach dash to frame.

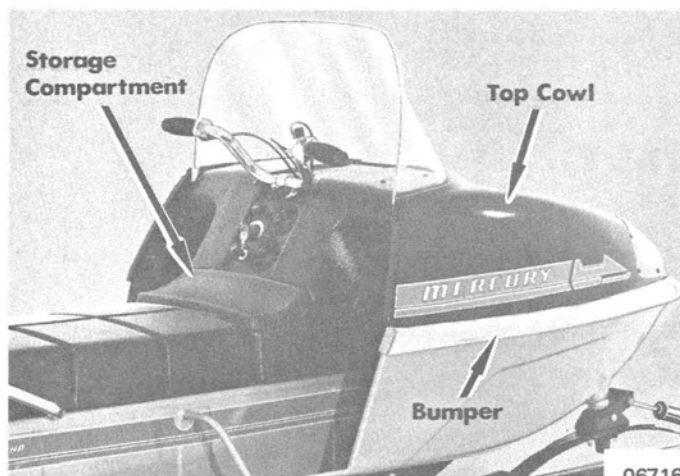


Figure 1. Cowl Location

3. Remove 4 screws from dash below handlebars. (Figure 2)
4. Remove handle grips and loosen and remove brake control from handlebar. (Figure 3)
5. Loosen throttle control so that it will slide off handlebar.
6. Loosen stop switch so that it slides off handlebar. (Figure 3)
7. Remove handlebar.
8. Remove choke control from dash.
9. Disconnect throttle, choke and brake cables from engine.
10. Remove dash.

Figure 3. Throttle/Emergency Stop Switch

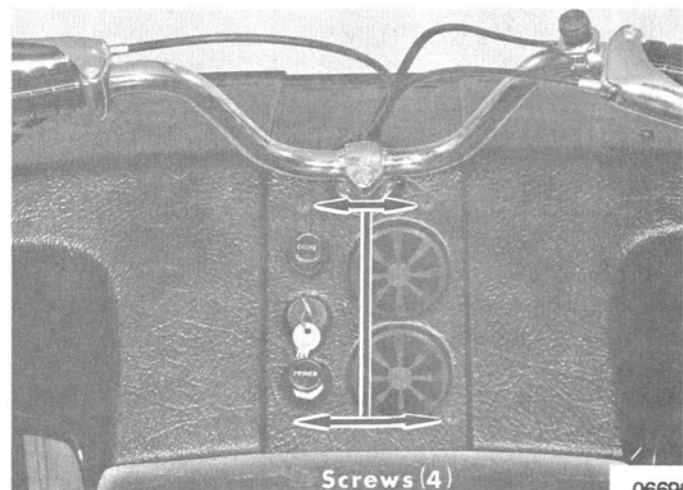
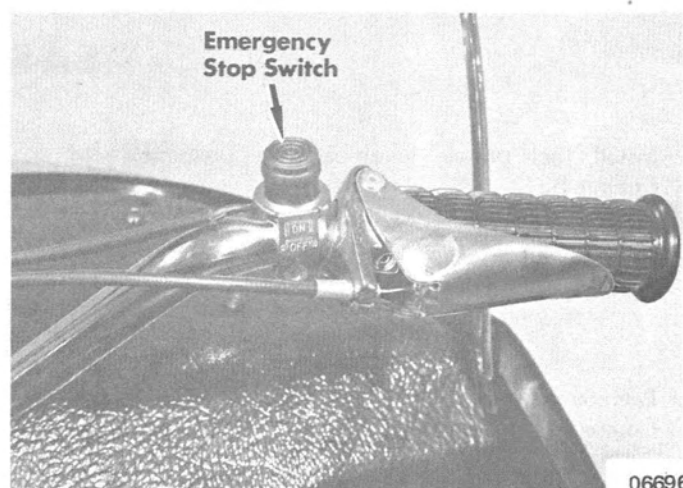


Figure 2. Dash Screws



## INSTALLATION

- |                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>1. Position dash over dash support assembly.</li> <li>2. Install 8 dash support screws.</li> <li>3. Install handlebars. Torque clamp screws to specifications.</li> <li>4. Install throttle and brake controls (Figure 3) on handlebars and to carburetor and brake assembly.</li> </ol> | <ol style="list-style-type: none"> <li>5. Install handle grips.</li> <li>6. Install choke control to dash and carburetor.</li> <li>7. Adjust throttle, brake and choke controls as outlined in Section 7 - "Miscellaneous", Part A.</li> </ol> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## MAIN SEAT CUSHION (HURRICANE) REMOVAL

- |                                                                                                                                                      |                                                                                                                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>1. Remove gas cap.</li> <li>2. Remove 4 screws and washers and remove taillight lens and "O" ring.</li> </ol> | <ol style="list-style-type: none"> <li>3. Remove dash screws and handlebars and move dash to side.</li> <li>4. Remove 2 nuts from front of seat.</li> <li>5. Remove seat.</li> </ol> |
|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## INSTALLATION

- |                                                                                                                                                                                     |                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>1. Insert 2 rear tabs on seat cushion under channels on chassis.</li> <li>2. Secure front of seat cushion to chassis with 2 nuts.</li> </ol> | <ol style="list-style-type: none"> <li>3. Install taillight lens with 4 screws. Install "O" ring and gas cap.</li> <li>4. Install dash and handlebars. Torque handlebar clamp screws to specifications.</li> </ol> |
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# COWL, DASH and MAIN SEAT CUSHION REPLACEMENT

## 440 MAX and 440 S/R MODELS

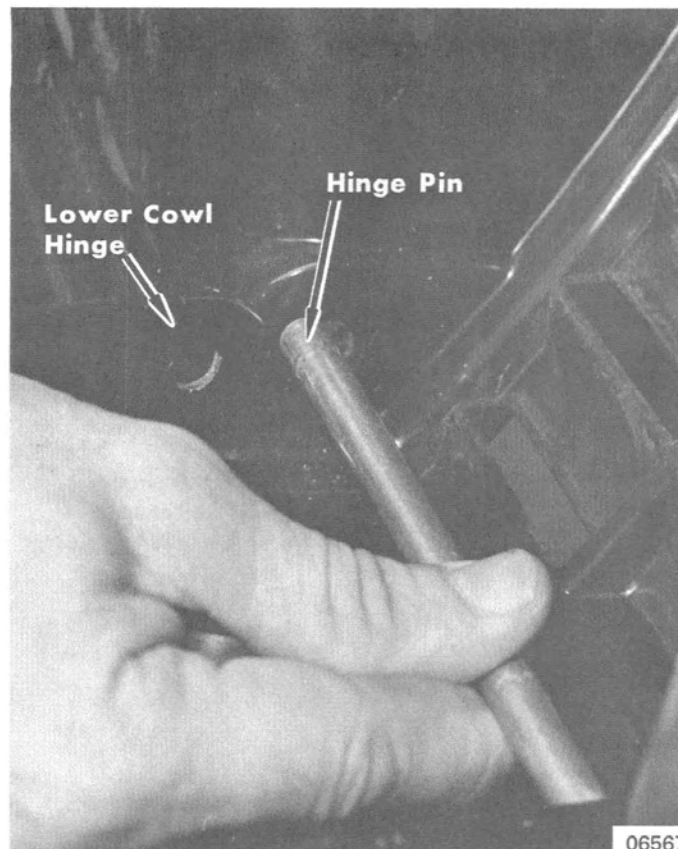
### TOP COWL REMOVAL



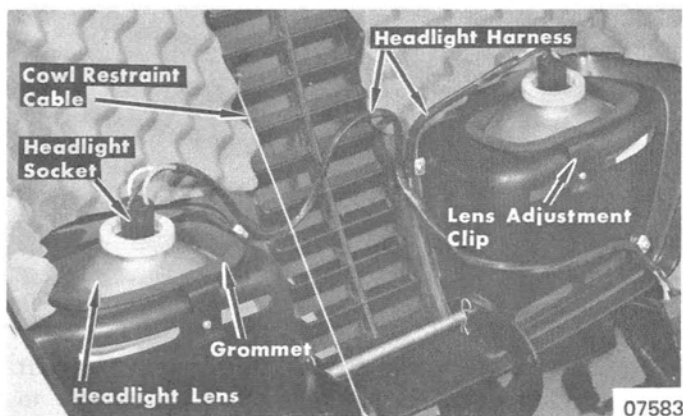
Figure 1. Typical Cows

1. Release stretch latches on each side of top cowl (Figure 1) and open cowl.
2. Disconnect headlight harness from chassis harness.
3. Loosen nut on cowl restraint cable retaining screw and remove cable.
4. Remove hairpin clips from top cowl hinge pin and remove hinge pin. (Figure 2)
5. Lift cowl from snowmobile.

Figure 2. Removing Cowl Hinge Pin



### DISASSEMBLY



*NOTE: If speedometer and/or tachometer have been installed on cowl, remove at this time.*

1. Remove headlight from lens. (Refer to Figure 3 and Section 3, "Bulb Replacement" Part D.)
2. Push lens cover fasteners (14) out from inside of top cowl. Remove lens covers and fasteners.
3. Remove headlight lens and grommet from top cowl. Remove grommet from lens.
4. Remove lens adjustment clip, cowl restraint cable and headlight harness from cowl. (Figure 3)

Figure 3. Removing Headlight and Lens

## REASSEMBLY

1. Attach headlight harness, cowl restraint cable and lens adjustment clip to top cowl. (Figure 3)
2. Install grommets on lens and install headlight lens in cowl. Grommet **MUST** be installed in cowl with arrow "Up".
3. Position lens covers on top cowl and secure with fasteners.

4. Install headlight in lens. (Refer to Section 3, "Bulb Replacement" Part D.)

*NOTE: If speedometer and/or tachometer were installed on cowl, reassemble at this time.*

## INSTALLATION

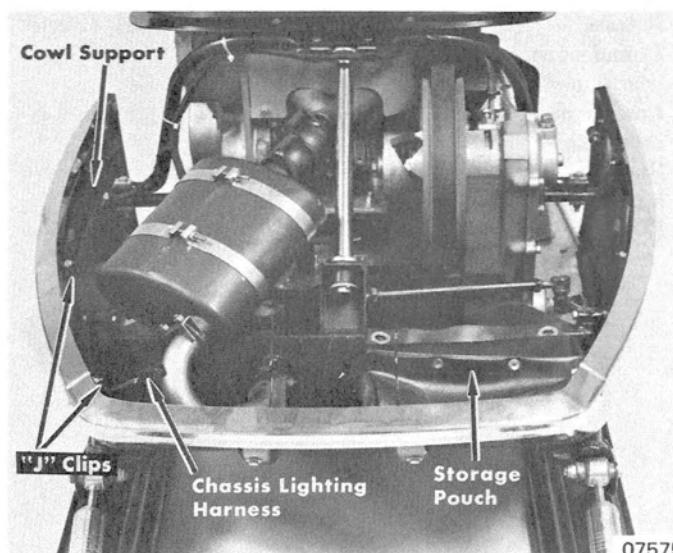
1. Position top cowl on snowmobile and install hinge pin, securing with hairpin clips.
2. Attach cowl restraint cable to cowl hinge.
3. Connect headlight harness to chassis harness.

4. Adjust headlight beams by moving adjustment clip as necessary. Adjust on "low" beam. Push adjusting clip forward to raise beam, back to lower beam.
5. Close top cowl and secure stretch latches.

## LOWER COWL REMOVAL

1. Remove top cowl.
2. Support front of chassis and remove skis and spindles.
3. Remove ski spindle bushings from crossmember assembly.
4. Remove cowl support to cowl attaching screws and storage pouch. (Figure 4)
5. Lift chassis lighting harness from "J" clips.
6. Remove lower cowl attaching screws and remove cowl from chassis.

Figure 4. Typical Lower Cowl



07575

## DISASSEMBLY

1. Remove cowl hinge attaching screws and remove hinges.
2. Remove rivets which attach side bumpers to front bumper.

3. Remove nuts and cowl latch/supports from bumper studs.
4. Remove reflectors and storage pouch fastener from cowl.

## REASSEMBLY

1. Position bumpers on cowl and rivet side bumpers to front bumper on each side of cowl.
2. Position cowl latch/supports on bumper studs and install retaining nuts. Cowl latch/supports with stretch latches are installed on rear bumper studs on each side of cowl.

- Remaining 2 supports are installed on bumper studs in center of cowl.
3. Install cowl hinges in cowl. Cowl hinges are right and left hand. Hinges must be installed with mounting tabs to outside.
  4. Rivet amber reflectors and storage pouch fastener to cowl.

## INSTALLATION

1. Position cowl on chassis and secure with attaching screws.

*NOTE: Flat washers are used where screw head or nut comes in contact with plastic.*

2. Install chassis lighting harness in "J" clips.

3. Attach cowl supports to cowl.

4. Place ski spindle bushings in crossmember assembly.

5. Install skis and spindles.

6. Install storage pouch.

7. Install top cowl.

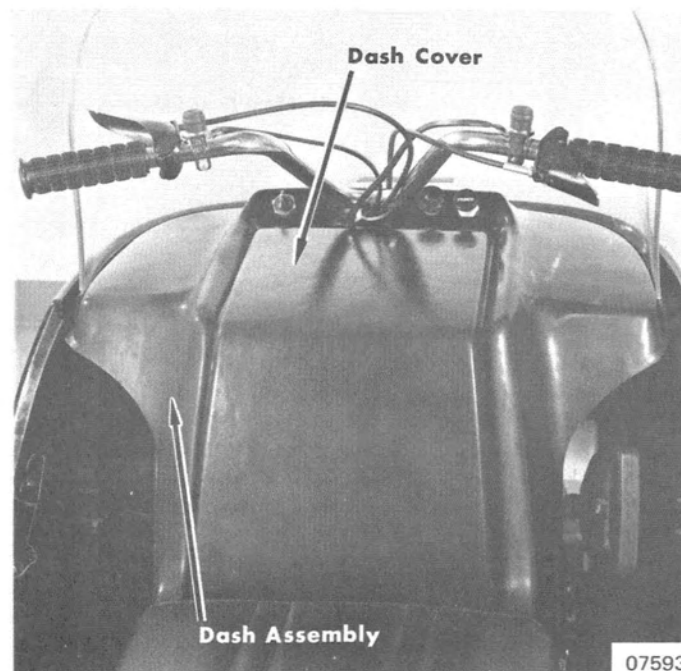
## DASH REMOVAL

1. Open top cowl and dash cover. (Figure 1)
2. Unplug chassis harness from ignition switch.
3. Disconnect primer hose at "T".

*NOTE: On snowmobiles with Chassis Serial No. 3709838 and above, disconnect primer hoses from carburetor and inlet tee on main fuel hose.*

4. Remove choke cable from carburetor.
5. Remove throttle return spring from carburetor, if so equipped.
6. Remove dash attaching screws.
7. Lift dash assembly off chassis.

Figure 1. Dash and Dash Cover Assembly



## DISASSEMBLY

1. Remove windshield attaching screws and windshield.
2. Remove ignition switch, primer pump and choke from dash.

3. Remove throttle return spring bracket and safety check list from dash.

## REASSEMBLY

1. Rivet safety check list to dash.
2. Attach throttle return spring bracket to dash.

3. Install ignition switch, primer pump and choke.
4. Install windshield on dash.

## INSTALLATION

1. Position dash assembly on chassis and secure with dash attaching screws.
2. If so equipped, connect throttle return spring from dash to carburetor.
3. Attach choke cable to carburetor and adjust. (Refer to Section 7, "Controls" Part A.)
4. Connect primer hose at "T".

*NOTE: On snowmobiles with Chassis Serial No. 3709838 and above, connect primer hoses to carburetor and inlet tee on main fuel hose.*

5. Connect chassis harness to ignition switch.
6. Close top cowl and dash cover.

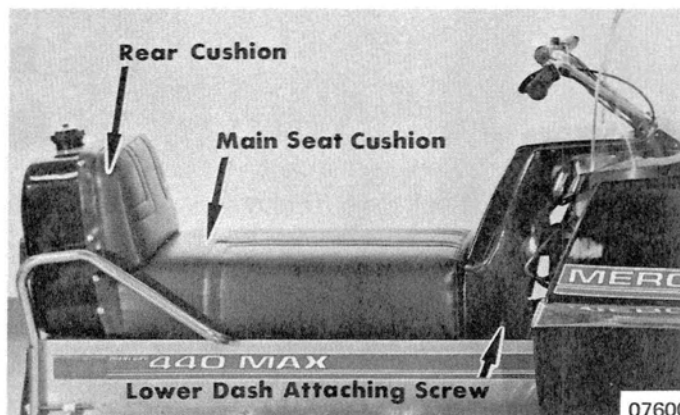
## MAIN SEAT CUSHION

(Snowmobiles with Chassis Serial No. 3447382 and Below)

### REMOVAL

1. Remove rear cushion. (Figure 1)
2. Remove 2 lower dash attaching screws (one each side) (Figure 1)
3. Unsnap 4 main seat cushion snaps.
4. Remove cushion from chassis by sliding forward and lifting up.

Figure 1. Main Seat Cushion



### INSTALLATION

1. Position cushion on chassis as far forward as possible. Slide cushion to rear to engage clips on chassis.

**CAUTION:** Be sure that fuel hoses and taillight harness are positioned in slot in seat.

2. Snap 4 cushion snaps which hold cushion to gas tank.
3. Install 2 lower dash attaching screws.
4. Install rear cushion.

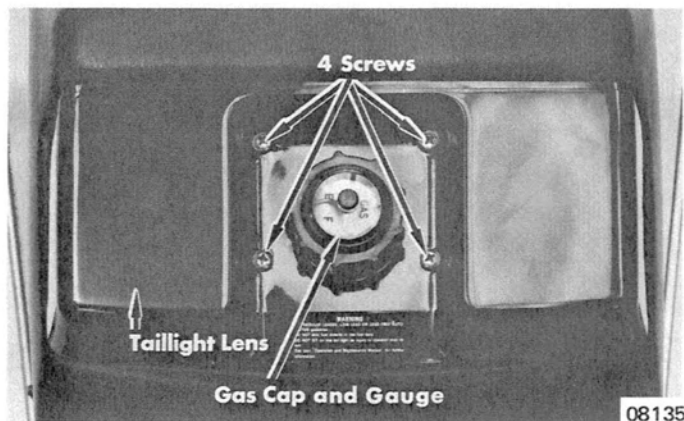
## MAIN SEAT CUSHION

(Snowmobiles with Chassis Serial No. 3709838 and Above)

### REMOVAL

1. Remove gas cap. (Figure 2)
2. Remove 4 screws and washers and remove taillight lens and "O" ring. (Figure 2)
3. Unfasten seat cushion snaps, which secure cushion to chassis, and remove cushion from around gas tank and lift from chassis.

Figure 2. Taillight Assembly



### INSTALLATION

1. Position seat cushion in place on chassis and around gas tank.
2. Fasten seat cushion snaps which secure cushion to chassis.

3. Install taillight lens and secure with 4 screws and washers. Place "O" ring around gas tank filler neck and install gas cap. (Figure 2)

# COWL, DASH and MAIN SEAT CUSHION REPLACEMENT

## MARK I and MARK II MODELS

### TOP COWL

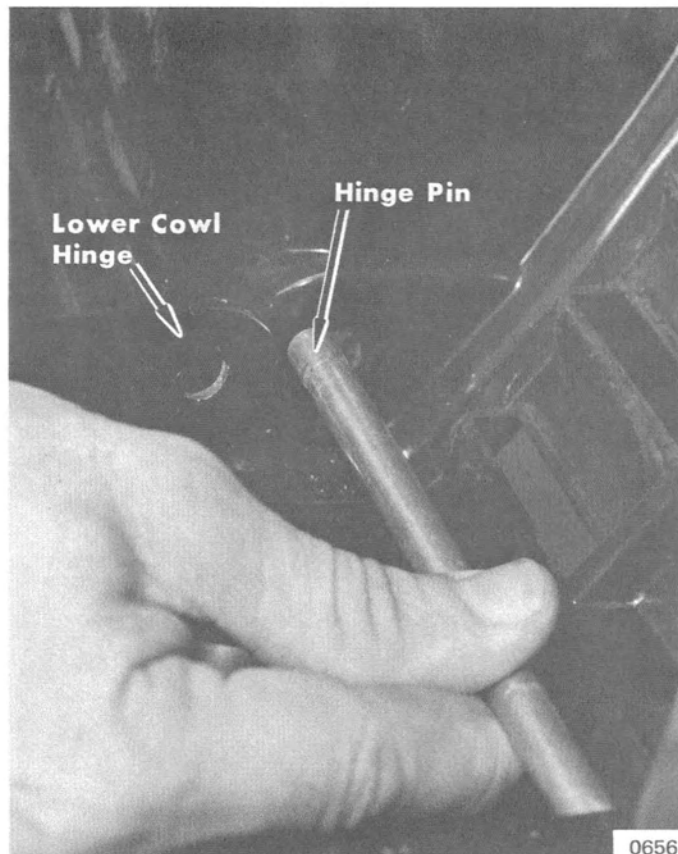
### REMOVAL



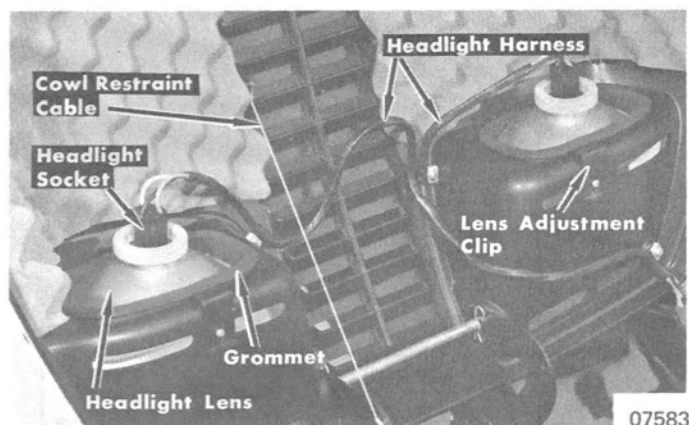
Figure 1. Cowl Location

1. Release stretch latches on each side of top cowl and open cowl. (Figure 1)
2. Disconnect headlight harness from chassis harness.
3. Loosen nut on cowl restraint cable retaining screw and remove cable.
4. Remove hairpin clips from top cowl hinge pin and remove hinge pin. (Figure 2)
5. Lift cowl from snowmobile.

Figure 2. Removing Cowl Hinge Pin



## DISASSEMBLY



1. Remove headlight from lens. (Refer to Figure 3 and Section 3, "Bulb Replacement" Part D)
2. Remove lens cover fasteners (14) and remove lens covers.
3. Pull headlight lens and grommet from top cowl. Remove grommet from lens.
4. Remove lens adjustment clip, cowl restraint cable and headlight harness from cowl. (Figure 3)



Figure 3. Removing Headlight and Lens



## REASSEMBLY

1. Attach headlight harness, cowl restraint cable and lens adjustment clip to top cowl. (Figure 3)
2. Install grommets on lens and install headlight lens in cowl. Grommet MUST be installed in cowl with arrow "Up".
3. Position lens covers on top cowl and secure with fasteners.
4. Install headlight in lens. (Refer to Section 3, "Bulb Replacement" Part D.)

## INSTALLATION

1. Position top cowl on snowmobile and install hinge pin, securing with hairpin clips.
2. Attach cowl restraint cable to cowl hinge.
3. Connect headlight harness to chassis harness.
4. Adjust headlight beams by moving adjustment clip as necessary. Adjust on "low" beam. Push adjusting clip forward to raise beam, back to lower beam.
5. Close top cowl and secure stretch latches.

## DASH REMOVAL

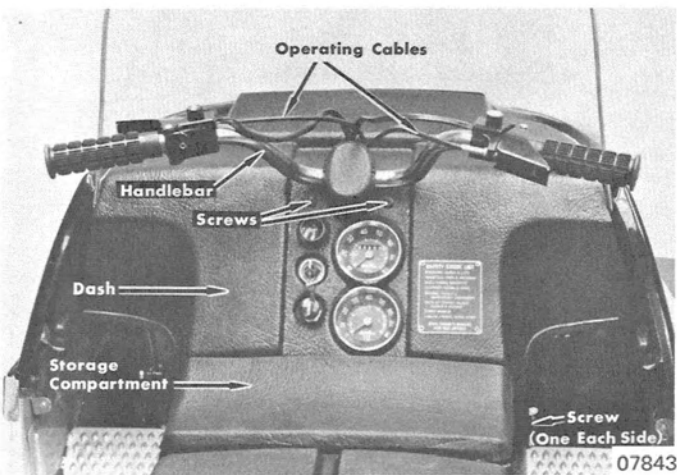


Figure 1. Dash

1. Open top cowl.
2. Remove 2 screws from inside of storage compartment. (Figure 1)
3. Remove 2 screws from dash below handlebar and screw from each side of dash by storage compartment. (Figure 1)
4. From front of windshield, remove 2 screws which attach dash to support frame.

*NOTE: On Mark II models, middle screw in front of windshield also must be removed.*

5. Refer to Section 7, "Controls" Part A, and remove operating cables from control levers.

6. Disconnect dimmer and stop switch wires from chassis harness in front of dash.
7. Remove grommet (Figure 2) from hole in dash and pull wires out of dash.
8. Remove handlebar assembly from steering shaft.
9. Unhook choke wire from carburetor and remove choke control from dash.

*NOTE: On Mark II models, choke core wire cannot be removed from housing. Unhook core wire from carburetor and pull out as far as possible.*

10. Push operating cables thru grommet hole in dash.
11. Remove dash.

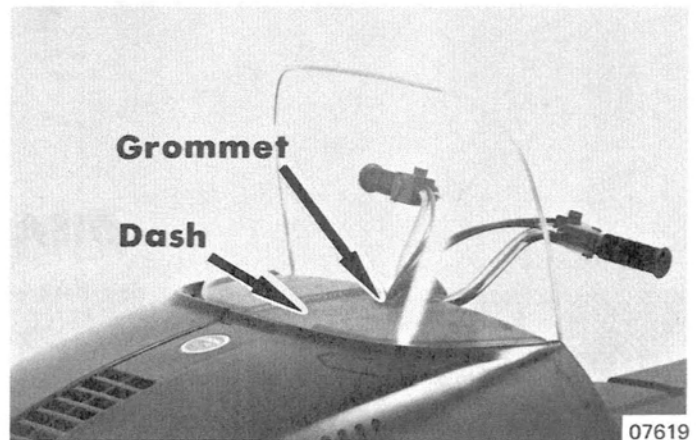


Figure 2. Grommet Location

## INSTALLATION

1. Thread operating cables thru grommet hole in dash. Position dash over dash support assembly.
2. Fasten dash-to-dash support assembly with attaching screws at storage compartment below handlebar on each side of dash and in front of windshield.
3. Install handlebar. Torque clamp screws to specification. (Refer to "Specifications" Section 8.)

**WARNING: Handlebar MUST be torqued to specification following prescribed procedure. (Refer to this section, Part A.) Failure to adhere to this warning could result in loosening of handlebar.**



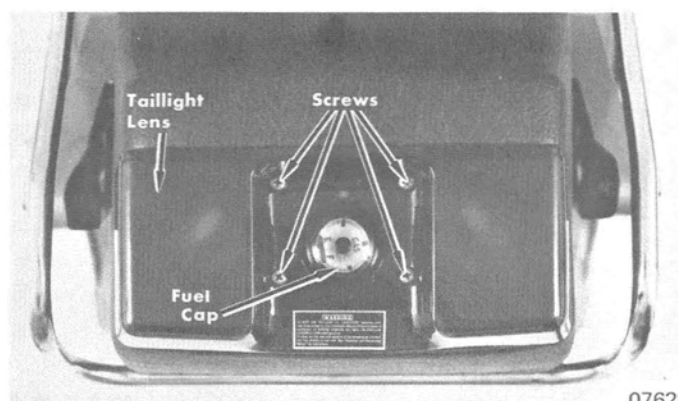
4. Thread operating cables, dimmer switch wires and stop switch wires through grommet and dash. Insert grommet in hole in dash.
5. Connect dimmer and stop switch wires to chassis harness.
6. Refer to Section 7, "Controls" Part A, and connect operating cables to control levers.
7. Install choke core wire in housing (if removed) and connect to carburetor.
8. Adjust throttle, brake and choke controls as outlined in Section 7, "Controls" Part A.
9. Close top cowl.

## MAIN SEAT CUSHION (MARK I and Mark II Models with Chassis Serial No. 3591478 and Below)

### REMOVAL

1. Remove fuel cap. (Figure 1)
2. Remove 4 screws and washers and remove taillight lens and "O" ring. (Figure 1)
3. Remove dash assembly as outlined, preceding.
4. Remove 2 attaching nuts from front of seat.
5. Remove seat.

Figure 1. Fuel Cap and Taillight Lens



07628

### INSTALLATION

1. Insert 2 rear tabs on seat cushion under channels on chassis.
2. Secure front of seat cushion to chassis with 2 nuts.
3. Install taillight lens with 4 screws and washers. Place "O" ring over fuel tank filler neck and install fuel cap. (Fig. 1)
4. Install dash assembly as outlined, preceding.

## MAIN SEAT CUSHION (Mark II Model with Chassis Serial No. 3787640 and Above)

### REMOVAL

1. Remove fuel cap. (Figure 1)
2. Remove 4 screws and washers and remove taillight lens and "O" ring. (Figure 1)
3. Unfasten seat cushion snaps which secure cushion to chassis, remove cushion from around fuel tank and lift from chassis.

### INSTALLATION

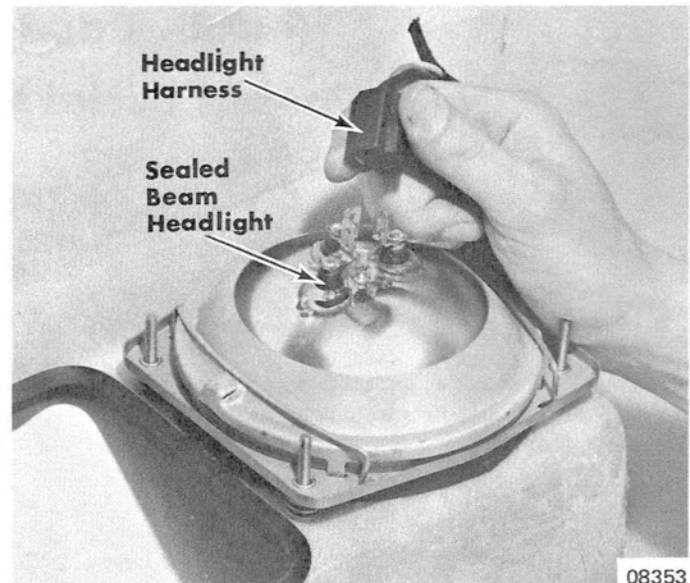
1. Position seat cushion in place on chassis and around fuel tank.
2. Fasten seat cushion snaps which secure cushion to chassis.
3. Install taillight lens and secure with 4 screws and washers. Place "O" ring around fuel tank filler neck and install fuel cap. (Figure 1)

# COWL and DASH REPLACEMENT SNO-TWISTER (400-D) MODEL

## TOP COWL REMOVAL

1. Release stretch latches on each side of top cowl and open cowl.
2. Unplug headlight harness from sealed beam headlight. (Figure 1)
3. Remove cowl restraint cable from bumper attaching bolt.
4. Remove cotter pin from cowl hinge pin.
5. Pull cowl hinge pin from top cowl hinge.
6. Lift top cowl from snowmobile.

Figure 1. Unplugging Headlight Harness



## DISASSEMBLY

1. Remove 4 headlight adjusting screws and lift headlight assembly and springs from top cowl.
2. Remove locknuts, washers and screws which secure wind-

shield to cowl. Remove windshield retaining strip and windshield from top cowl.

## REASSEMBLY

1. Place windshield and windshield retaining strip in position on top cowl and secure with screws, washers and locknuts.
2. Place 4 springs and headlight assembly in position on top cowl and secure with 4 headlight adjusting screws.

## INSTALLATION

1. Position top cowl on chassis and install hinge pin thru top cowl hinge. Secure hinge pin with cotter pin.
2. Connect cowl restraint cable to bumper attaching bolt and secure with nut.
3. Connect headlight harness to sealed beam headlight. (Figure 1)
4. Adjust headlight as necessary and secure headlight adjusting screws by applying silicone sealer to screw threads.
5. Close top cowl and secure stretch latches.

## LOWER COWL REMOVAL

1. Remove top cowl.
2. Support front of chassis and remove skis and spindles.
3. Remove exhaust pipes and muffler. (Refer to Section 7, Part B.)

4. Remove air intake from lower cowl.
5. Remove bolts which secure lower cowl brackets to bumper.
6. Drill out and remove rivets which secure lower cowl to chassis, crossmember and foot rests. Lift cowl assembly from chassis.

## DISASSEMBLY

1. Remove bumper assembly and hinge from lower cowl.
2. Remove reflectors and bumper support clips.

## REASSEMBLY

1. Rivet amber reflectors to lower cowl.
2. Rivet bumper support clips to lower cowl.
3. Install bumper assembly and hinge.

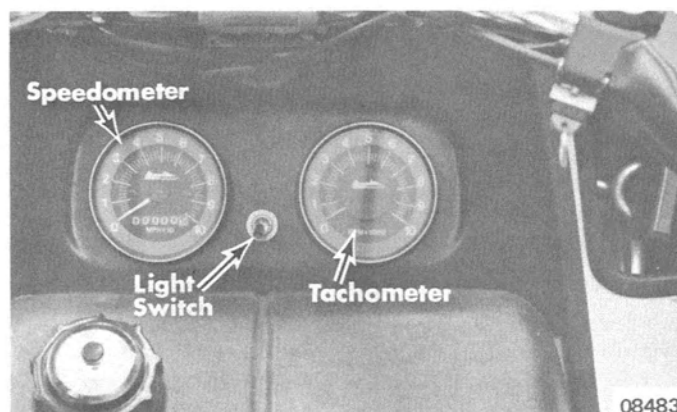
## INSTALLATION

1. Position cowl on chassis and secure with rivets.
2. Install bumper attaching bolts which secure bumper to lower cowl brackets.
3. Place air intake in position on lower cowl and secure with screws and nuts.
4. Install muffler and exhaust pipes. (Refer to Section 7, Part B.)
5. Install ski spindle and ski assemblies.
6. Install top cowl.

## DASH REMOVAL

1. Disconnect throttle cable and brake cable from control mounts and control levers. Pull cables thru holes in dash.
2. Disconnect control switch wires from terminals of terminal block and from headlight wiring harness. Pull switch wires thru holes in dash.
3. Remove light switch, speedometer (optional) and tachometer from dash. (Figure 2)
4. Remove fuel tank assembly. (Refer to Section 4, Part C.)
5. Drill out rivets, which secure dash to dash support assembly, and remove dash.

Figure 2. Sno-Twister Dash



08483

## INSTALLATION

1. Place dash in position on dash support assembly and secure with rivets.
2. Install fuel tank assembly. (Refer to Section 4, Part C.)
3. Install light switch, speedometer (optional) and tachometer in dash. (Figure 2)
4. Insert switch wires (from controls) thru holes in dash. Connect wires to proper terminals of terminal block and to headlight wiring harness. (Refer to "Wiring Diagram", Section 3, Part F.)
5. Install trunion end ("T" fitting) of throttle cable core wire in slot in throttle lever. Install end of throttle cable housing in recess of control lever mount and secure with snap ring.
6. Install trunion end ("T" fitting) of brake cable core wire in slot in brake lever. Install end of brake cable housing in recess of control lever mount and secure with snap ring.

# COWL and DASH REPAIR

## GENERAL

This section covers repair of cowl and dash assemblies. Fiberglass, ABS and Lexan are materials used in manufacture of these parts. Repair procedures for fiberglass differ from those for ABS or Lexan.

Fiberglass, Lexan and ABS repair kits are available at the retail level thru numerous suppliers.

Fiberglass cowls have standard fiberglass mat base with Gel-Cote exterior buffed to a high gloss finish.

ABS is a colored plastic used in lower cowl and dash assemblies.

Lexan is a thermoplastic, much like ABS, and is used in top cowls of most late models.

Refer to appropriate part of this section for repair of fiberglass materials. Refer to chart, right, for type of material in each component.

*NOTE: Lexan and ABS can be repaired by using materials such as adhesives, epoxies, bonding kits and "welding kits" which are specifically intended for this purpose. These repair materials are available at the retail level thru numerous suppliers. When performing repairs, follow instructions supplied with repair materials.*

TOP COWL	220-250	Fiberglass
	200	Fiberglass
	Rocket (339cc)	Lexan
	Lightning (398cc)	Lexan
	Hurricane (644cc)	Lexan
	440 MAX (438cc)	Lexan
	Mark I (644cc)	Lexan
	Mark II (644cc)	Lexan
	440 S/R (438cc)	Lexan
	Sno-Twister (400-D)	Fiberglass
LOWER COWL	220-250	Fiberglass
	200	ABS
	Rocket (339cc)	ABS
	Lightning (398cc)	ABS
	Hurricane (644cc)	Not Applicable
	440 MAX (438cc)	ABS
	Mark I (644cc)	Not Applicable
	Mark II (644cc)	Not Applicable
	440 S/R (438cc)	ABS
	Sno-Twister (400-D)	ABS
DASH ASSEMBLY	220-250	ABS
	200	ABS
	Rocket (339cc)	ABS
	Lightning (398cc)	ABS
	Hurricane (644cc)	ABS
	440 MAX (438cc)	ABS
	Mark I (644cc)	ABS
	Mark II (644cc)	ABS
	440 S/R (438cc)	ABS
	Sno-Twister (400-D)	ABS

## PRECAUTIONS

1. Creams are available to protect skin from a condition known as occupational (or contact) dermatitis, a common type of dermatitis which is not contagious.
2. Be certain to remove resin mixture from hands as soon as possible before mixture starts to gel. This can be observed by the action of material in mixing container. Resin may be removed from skin with lacquer thinner, then washing hands with soap-and-water.
3. Respirators are recommended when grinding. Also, some minor skin irritation from glass and powdered, cured resin may be evident. Washing in cold water will help to minimize this type irritation.
4. Use a belt sander with vacuum attachment for dust control whenever possible.
5. Resin mixtures may produce toxic fumes and should be used in well-ventilated areas.
6. Be careful not to get resin material on clothing.
7. Use correct materials for the job. It is important to use approved kits, as other materials available may not meet required engineering and safety standards.
8. Keep materials, utensils and work area clean and dry. These repairs involve chemical reactions, and dirt or moisture may upset chemical balances and produce unsatisfactory results.
9. Before starting repair operations, look for hidden damage by applying force around damaged area, looking for hairline cracks and other breakage.
10. For best results, work in a temperature 70°F or above.

# FIBERGLASS COWL REPAIR

## GENERAL

If mending a hole or a fairly large area, which requires a great deal of strength, use polyester resin and fiberglass cloth and/or mat. If repairing a small area -- like cracks, seams scratches and gouges -- use a polyester putty. General repair procedures are outlined, following.

**CAUTION:** Cleanliness is important. Be certain that all containers are dry and clean and that resin and hardener cans are kept closed when not in use. DO NOT use waxed cups for mixing and DO NOT allow resin to enter hardener can or vice versa.

## LARGE AREA REPAIRS

1. Sand or file all rotted or broken edges from around area to be repaired and clean surrounding area with alcohol.
2. If patching a hole, back the hole with wax paper or cellophane. Place cardboard or thin sheet metal in back of this to give a surface to mold patch against and to keep patching materials from dropping through hole. These back-up materials can be taped into place before patching operation and later thrown away.
3. Cut 2 or more layers of fiberglass cloth and/or mat in the general shape of hole, allowing at least 1" to 1½" overlap all the way around. Set these pieces aside.

*NOTE: Cloth also can be wound around an object.*

4. Mix polyester hardener with small amount of polyester resin. Use 10 drops of hardener to a mixing cup (sent with kit) of resin. Since, at 70°F this material will start hardening in 25 minutes or less, do not mix too much at

one time. If any mixed polyester resin is left over, do not return it to the original containers.

5. Coat area to be patched with mixed polyester resin.
6. Place one layer of cloth over or around area to be patched and saturate it with mixed polyester resin. Squeeze out air bubbles.
7. Add on as many layers of cloth and mixed polyester resin as necessary to build up slightly higher than surrounding surfaces. (Polyester putty can be used for finish surface repairs on small areas.)
8. Normal cure time at 70°F will be about 1 to 2 hours. If necessary to hurry the cure, use a heat lamp, holding it about 15" away from patch. After patch hardens, sand smooth (feathering out edges of patch).
9. Paint (Quicksilver Phantom Black Paint, C-92-32291-12) and wax if desired.

*NOTE: If polyester putty is to be used in finish surface repair, see repair procedure following.*

## SMALL AREA and SCRATCH REPAIRS

1. Sand or file all rotted or broken edges from around area to be repaired and clean surrounding area with alcohol.
2. Measure out a mixing cup (sent with kit) of polyester putty, add 10 drops of polyester hardener and blend thoroughly.
3. Apply mixed putty to scratches, gouges, dents and other

areas to be mended, leaving it a little higher than the surrounding surface.

4. After patch hardens, sand smooth. Buff-and-wax or paint-and-wax if desired.

*NOTE: Polyester putty, if properly used, will buff out very close to color and sheen of fiberglass cowl.*

## WINDSHIELD MOLDING

1. Cut molding to required length.
2. Form molding to fit contour of windshield and secure with

Adhesive (C-92-25234-1) blanket glue, at intervals around windshield.

# CHASSIS REPLACEMENT

Complete chassis assemblies are available for replacement on all models, however, in most cases of structural damage, it is first advisable to investigate probability of repair. Most reliable body shops are well equipped to handle repairs of aluminum or steel practically and economically.

If complete chassis replacement becomes necessary, it is simply a matter of transferring components from the old chassis to the new.

To replace chassis components (front crossmember, engine mount extrusion, chassis support, etc), drill out rivets of part to be replaced and rivet new part to chassis.

For ease of repair, a universal "pop" rivet (C-17-57629) may be used to secure components (originally secured with

standard solid rivets) on chassis. "Pop" rivets must be installed from inside chassis.

*NOTE: Crossmember and engine mount extrusions on 220 and 250 Models may be secured with screws and nuts, if riveting equipment is not available. A 3/4" screw (C-10-54805) is used to replace long rivet which secures engine rail extrusions and steering support mounts. A 1/2" screw (C-10-57297) replaces short rivet which secures engine rail extrusions and crossmember. Flex locknut (C-11-54711) is used with both screws. Install screws with head on outside and check clearance inside tunnel to make sure that screws do not interfere with track.*

Complete chassis assembly components for each model are shown in Figures 1-thru-5, following.



- 1 - Chassis
- 2 - Support
- 3 - Support
- 4 - Rivet
- 5 - Extrusion
- 6 - Extrusion
- 7 - Rivet
- 8 - Rivet
- 9 - Mount
- 10 - Rivet
- 11 - Crossmember Assembly

- 12 - Rivet
- 13 - Screw
- 14 - Washer
- 15 - Nut
- 16 - Seat Support
- 17 - Seat Support
- 18 - Bulkhead
- 19 - Bulkhead
- 20 - Bulkhead
- 21 - Partition
- 22 - Partition

- 23 - Rivet
- 24 - Cover Assembly
- 25 - Rivet
- 26 - Cover
- 27 - Rivet
- 28 - Clip
- 29 - Rivet
- 30 - Foot Rest
- 31 - Foot Rest
- 32 - Wear Plate
- 33 - Rivet

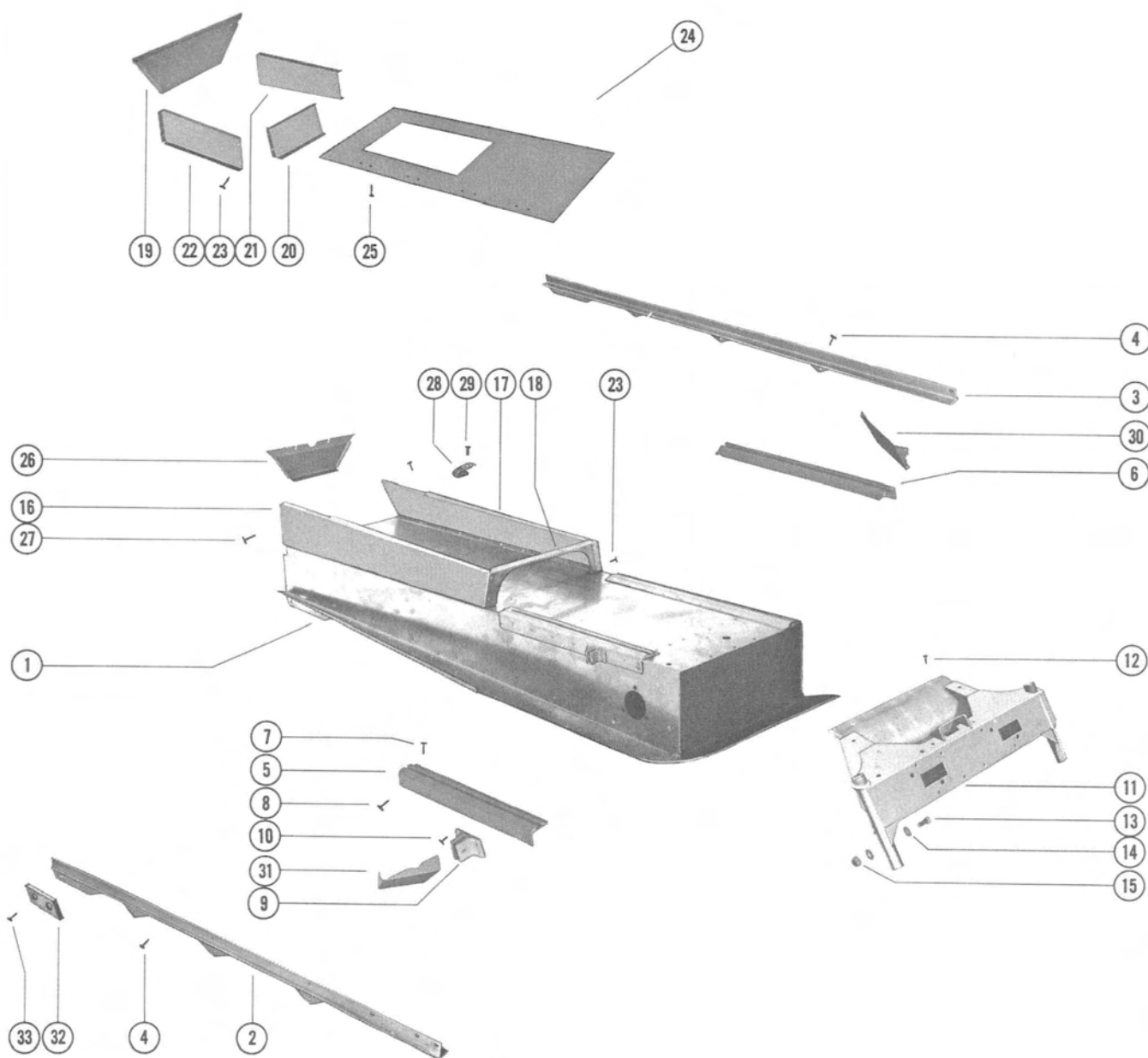
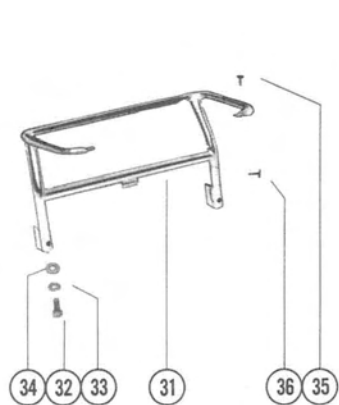


Figure 1. Exploded View - 220 Chassis

- 
- |                           |                     |
|---------------------------|---------------------|
| 1 - Chassis               | 19 - Nut            |
| 2 - Support               | 20 - Panel          |
| 3 - Support               | 21 - Panel          |
| 4 - Rivet                 | 22 - Bulkhead       |
| 5 - Extrusion             | 23 - Rivet          |
| 6 - Extrusion             | 24 - Bulkhead       |
| 7 - Rivet                 | 25 - Cover          |
| 8 - Rivet                 | 26 - Rivet          |
| 9 - Mount                 | 27 - Clip           |
| 10 - Rivet                | 28 - Rivet          |
| 11 - Crossmember Assembly | 29 - Wear Plate     |
| 12 - Fitting              | 30 - Rivet          |
| 13 - Rivet                | 31 - Brace Assembly |
| 14 - Screw                | 32 - Screw          |
| 15 - Washer               | 33 - Lockwasher     |
| 16 - Nut                  | 34 - Washer         |
| 17 - Screw                | 35 - Rivet          |
| 18 - Washer               | 36 - Rivet          |

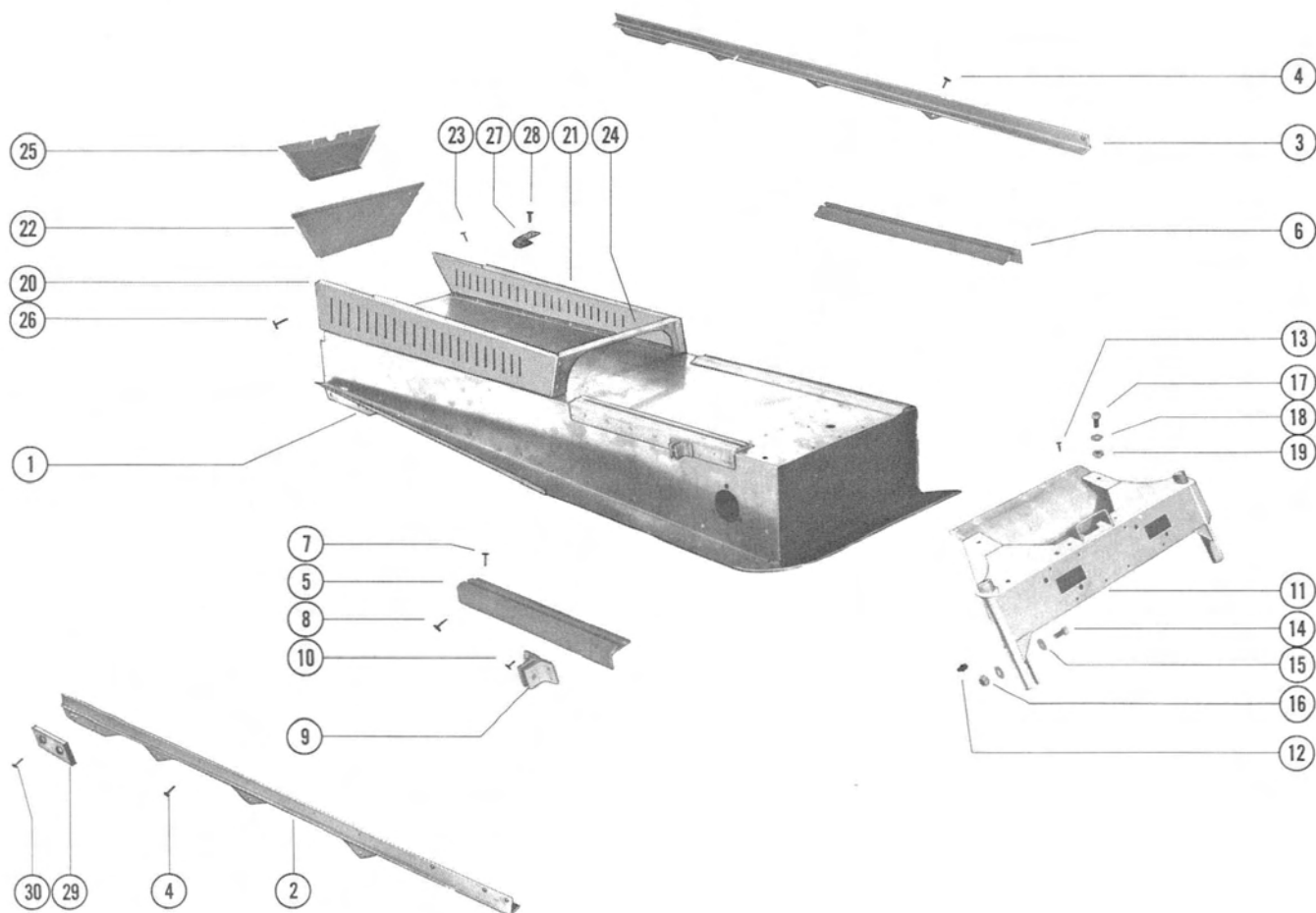


Figure 2. Exploded View - 250 Chassis

- 1 - Chassis
- 2 - Support
- 3 - Support
- 4 - Rivet
- 5 - Crossmember Assembly
- 6 - Grease Fitting
- 7 - Screw
- 8 - Washer
- 9 - Nut
- 10 - Rivet

- 11 - Mount
- 12 - Rivet
- 13 - Wear Plate
- 14 - Plate
- 15 - Rivet
- 16 - Plate
- 17 - Bracket
- 18 - Rivet
- 19 - Clip
- 20 - Rivet

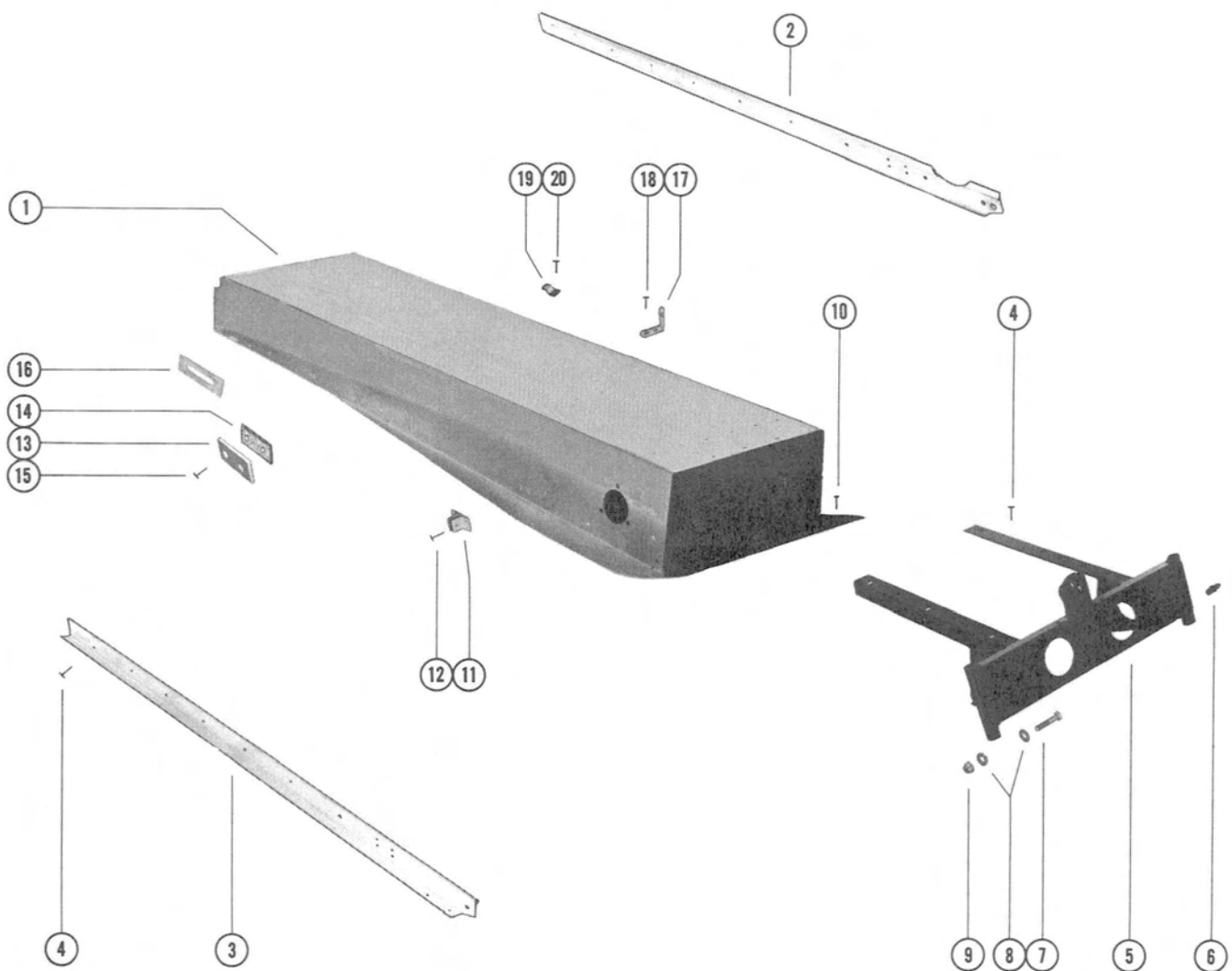


Figure 3. Exploded View - 200 Chassis

- 1 - Chassis
- 2 - Crossmember Assembly
- 3 - Fitting
- 4 - Screw
- 5 - Washer
- 6 - Nut
- 7 - Fastener
- 8 - Nut
- 9 - Rivet
- 10 - Screw
- 11 - Washer

- 12 - Lockwasher
- 13 - Nut
- 14 - Bulkhead
- 15 - Rivet
- 16 - Support
- 17 - Support
- 18 - Foot Pad
- 19 - Wear Plate
- 20 - Plate
- 21 - Rivet

- 22 - Bracket
- 23 - Rivet
- 24 - Clip
- 25 - Rivet
- 26 - Heat Sink
- 27 - Rivet
- 28 - Clip
- 29 - Rivet
- 30 - Support
- 31 - Rivet

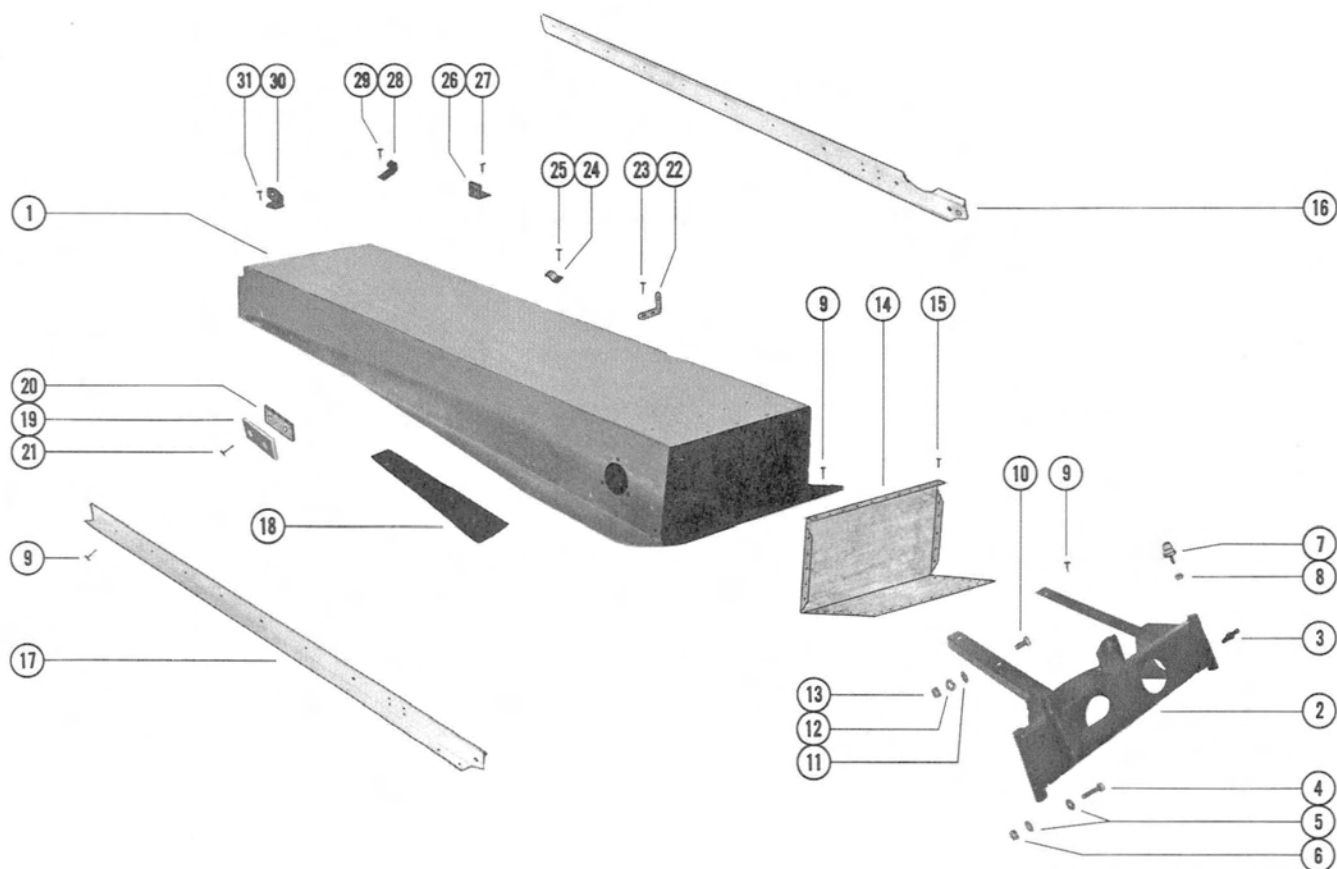


Figure 4. Exploded View - Rocket and Lightning Chassis

- 1 - Chassis Assembly
- 2 - Foot Rest Assembly
- 3 - Wear Plate
- 4 - Rivet
- 5 - Receptacle
- 6 - Receptacle Nut
- 7 - Grease Fitting
- 8 - Rubber Plug
- 9 - Bumper Assembly

- 10 - Bumper Assembly
- 11 - Bumper Assembly
- 12 - Rivet
- 13 - Washer
- 14 - Nut
- 15 - Serial Plate
- 16 - Screw
- 17 - Snow Flap Assembly
- 18 - Screw

- 19 - Nut
- 20 - Strap
- 21 - Clevis Pin
- 22 - Washer
- 23 - Rivet
- 24 - Handgrip Assembly
- 25 - Washer
- 26 - Nut

- 27 - Bracket
- 28 - Latch
- 29 - Clevis Pin
- 30 - Hairpin
- 31 - Bracket
- 32 - "J" Clip
- 33 - Nut
- 34 - "J" Clip

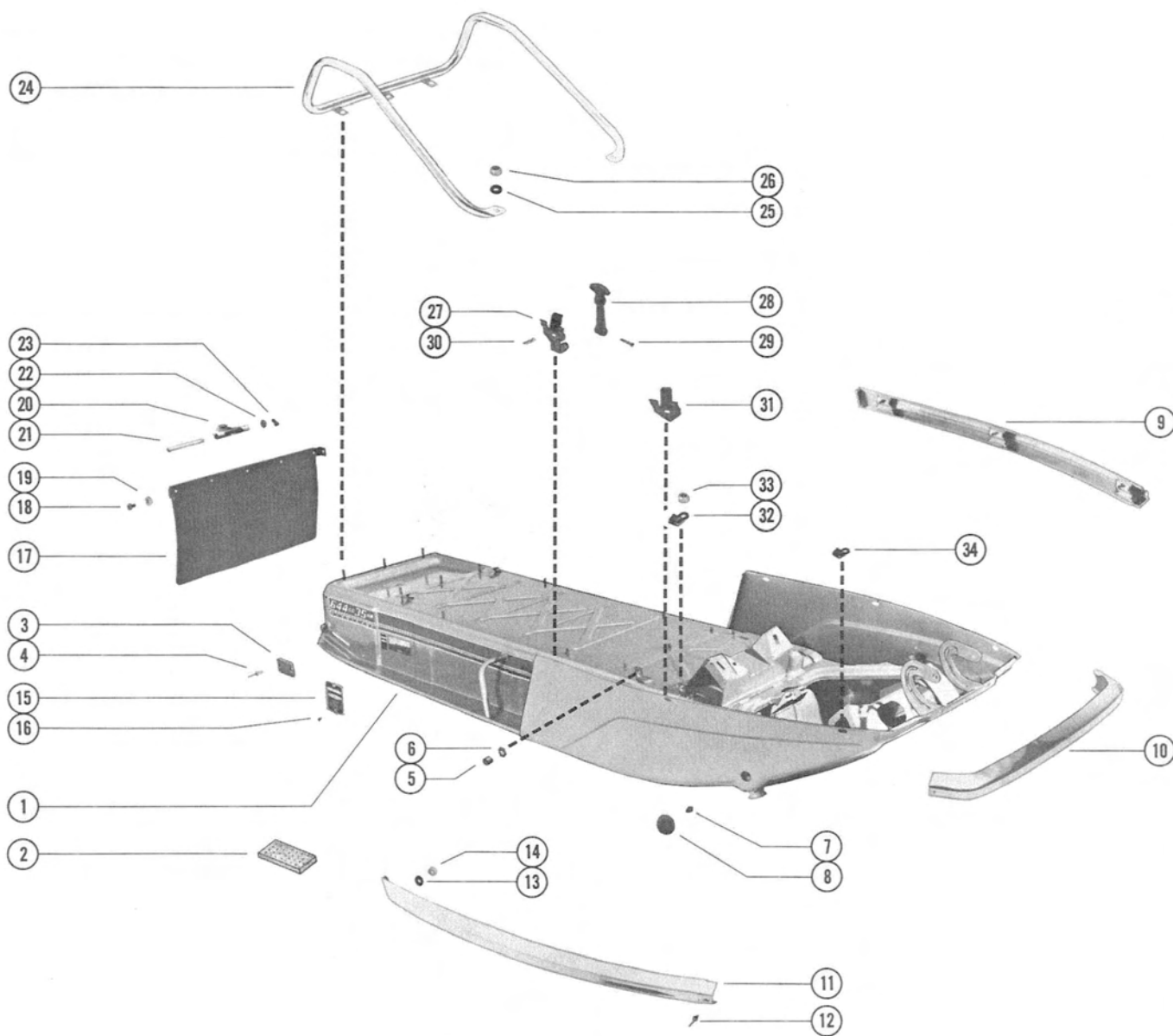


Figure 5. Exploded View - Hurricane (644cc) Chassis

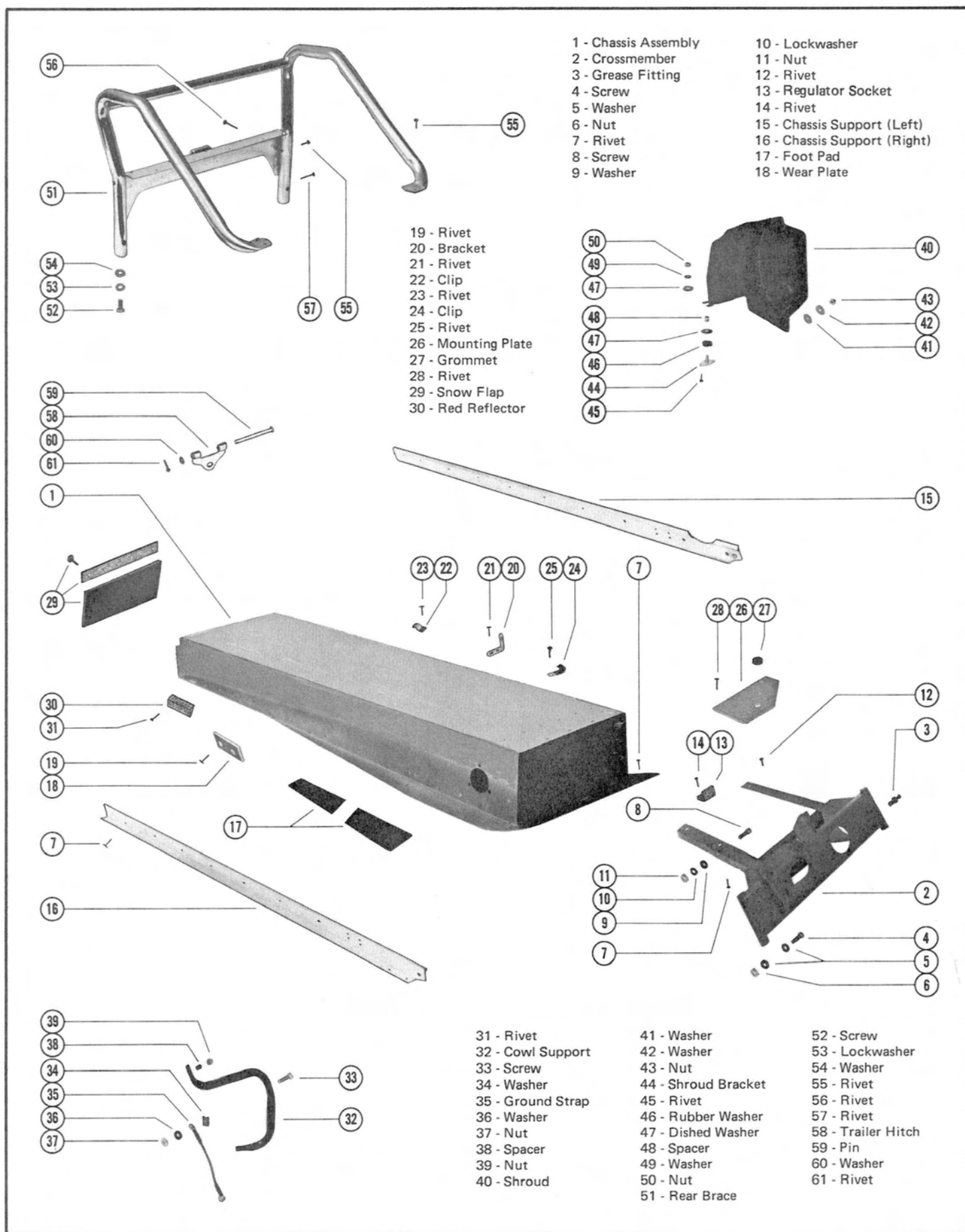


Figure 6. Exploded View - 440 MAX (Chassis Serial No. 3447382 and Below) Chassis



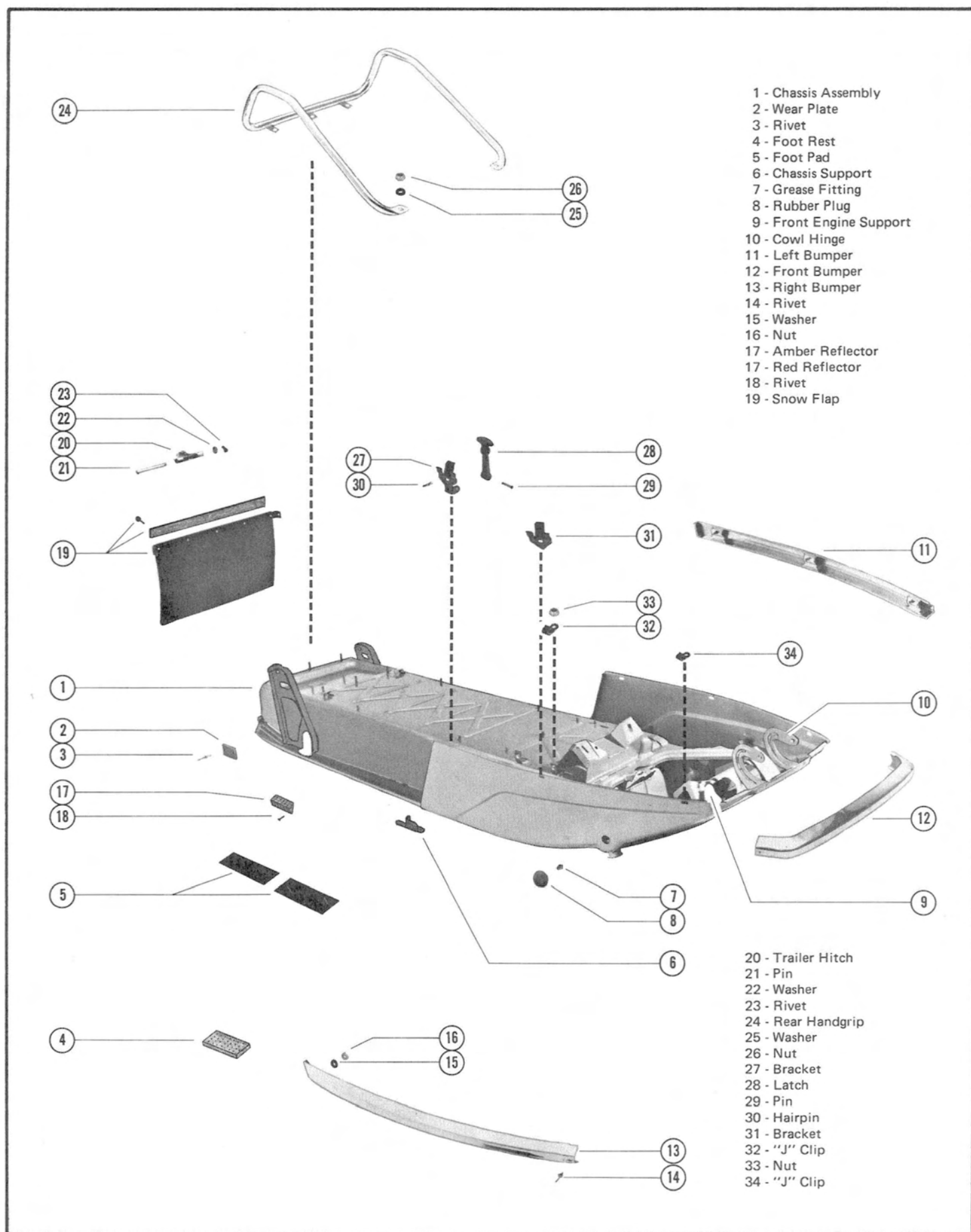


Figure 7. Exploded View - Mark I and Mark II Chassis

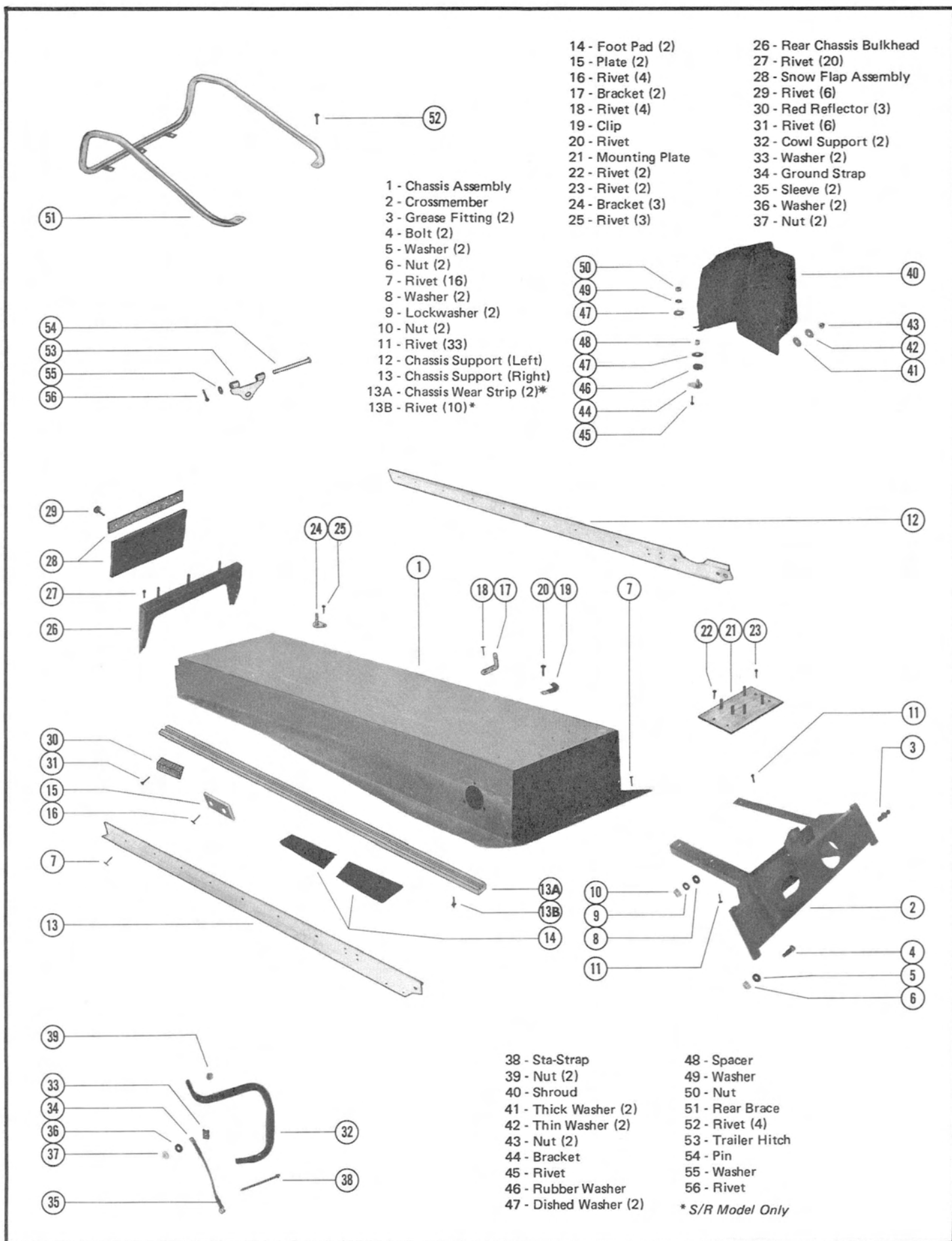


Figure 8. Exploded View - 440 MAX (Chassis Serial No. 3709838 and Above) and 440 S/R Chassis

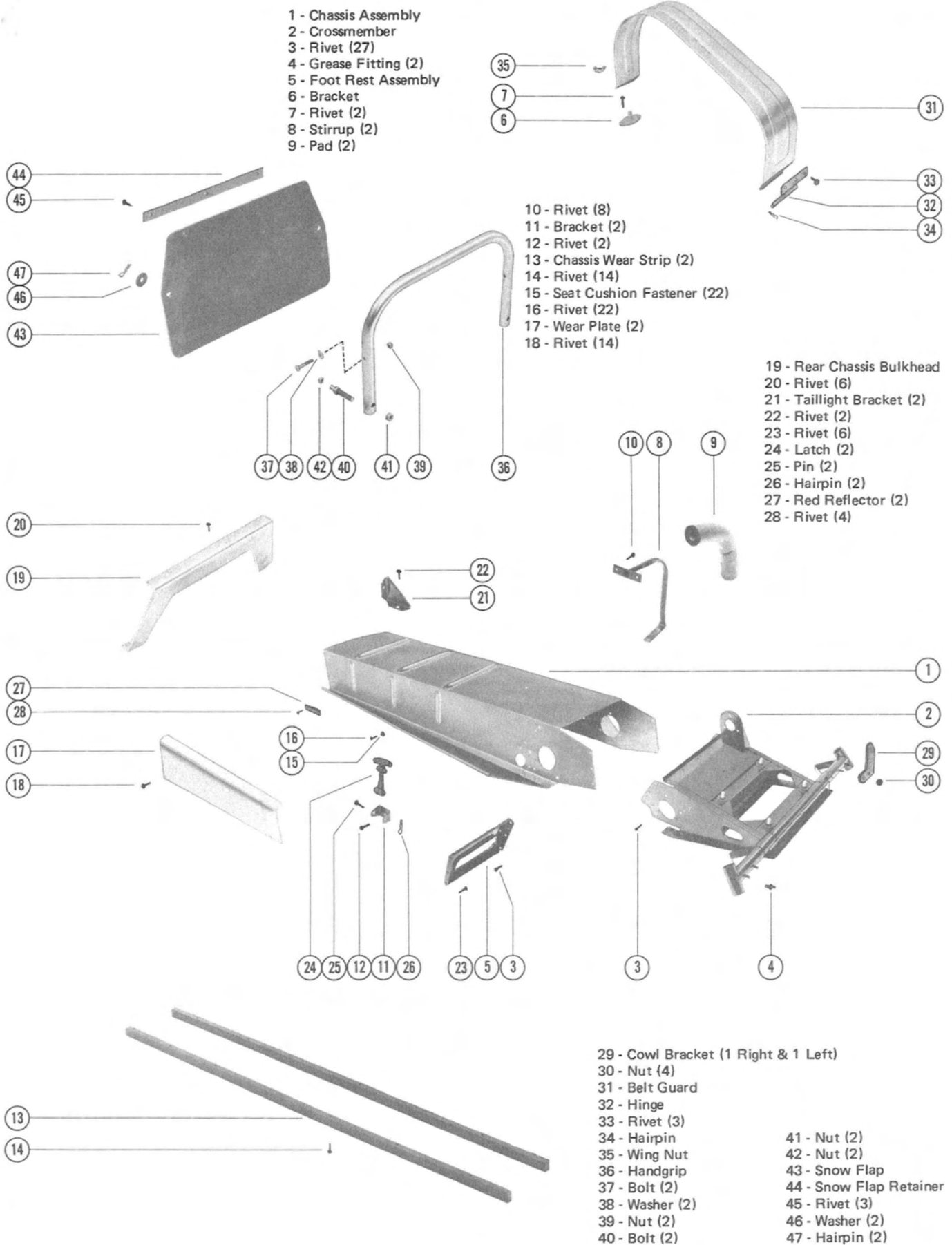


Figure 9. Exploded View - Sno-Twister (400-D) Chassis