

**BUICK
FISHER BODY
MANUAL**



1931

BUICK MOTOR COMPANY
DIVISION OF GENERAL MOTORS CORPORATION

BUICK

Fisher Body Manual

1931 MODELS



BUICK MOTOR COMPANY
Division of General Motors Corporation
FLINT, MICHIGAN

THE instructions and information contained in this manual are for the purpose of acquainting the Service Departments of the Buick Zones and Dealers with a detailed description of the methods used in making adjustments on Fisher Closed Bodies.

It is essential that the mechanic devote some study to the methods described herein to learn the relation one body part bears to another so that he may easily diagnose and correct any body problem coming to his attention.

Coupe

Wood Parts and Braces

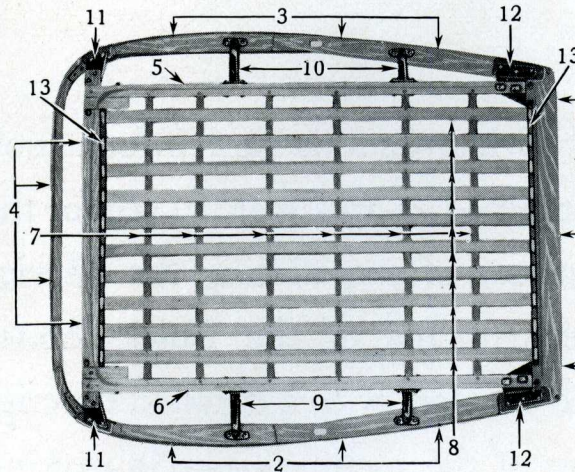


Figure No. 1

- 1. Front Roof Rail Assembly
- 2-3. Side Roof Rail Assembly
- 4. Rear Roof Rail Assembly

- 5-6. Crown Roof Rails
- 7. Roof Cross Bows
- 8. Roof Slats
- 9-10. Crown Rail Support Strainers

- 11. Roof Rear Rail Corner Brackets
- 12. Roof Front Rail Corner Brackets
- 13. Roof Slat Nailing Strip

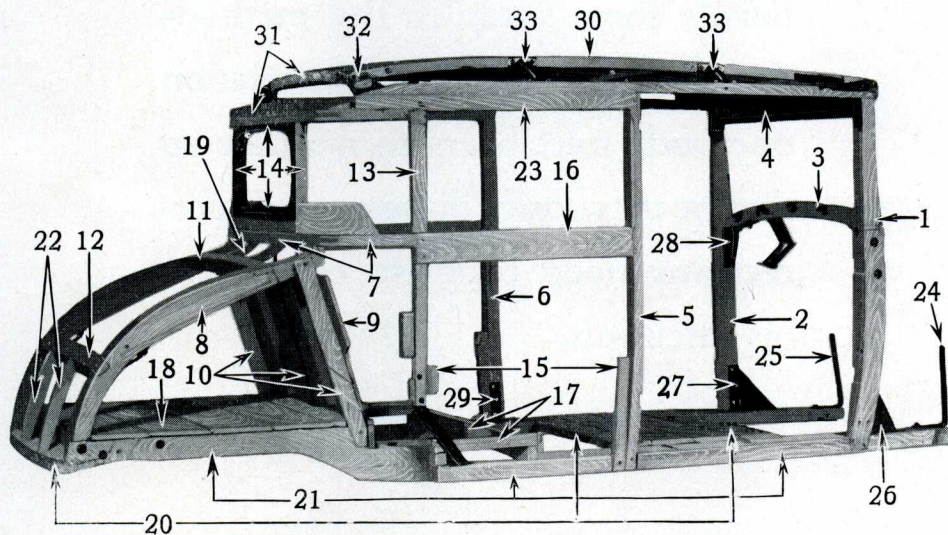


Figure No. 2

- 1-2. Front Body Hinge Pillar Assemblies
- 3. Windshield Lower Cross Bar
- 4. Windshield Header Bar
- 5-6. Body Lock Pillar Assemblies
- 7. Rear Belt Rail Assembly
- 8. Deck Side Rail
- 9. Seat Back Assembly
- 10. Seat Back Strainers
- 11. Deck Upper Bar
- 12. Deck Lower Bar

- 13. Rear Quarter Pillar Assembly
- 14. Back Window Frame Assembly
- 15. Rear Quarter Window Strap Blocks
- 16. Rear Quarter Belt Bar
- 17. Seat Frame Assembly
- 18. Deck Compartment Floor Boards
- 19. Deck Rail to Belt Bar Strainers
- 20. Sill Cross Members
- 21. Main Side Sill Assembly

- 23. Rear Quarter Header Bar
- 24-25. Dash to Sill Braces
- 26-27. Front Pillar to Sill Braces
- 28. Windshield Lower Cross Bar to Pillar Brace
- 29. Lock Pillar to Sill Brace
- 30. Crown Roof Rail Assembly
- 31. Rear Roof Crown Rail Assembly
- 32. Rear Roof Rail Corner Bracket
- 33. Crown Rail Support Strainers

Coupe Sheet Metal Parts

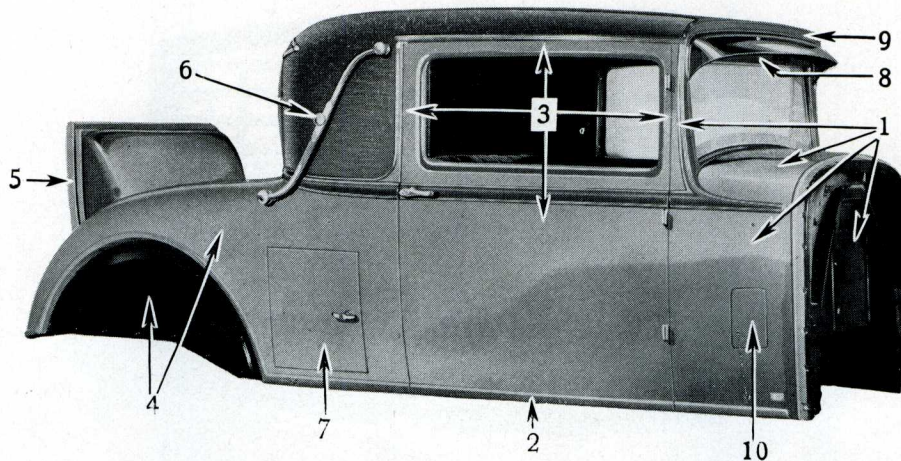


Figure No. 3

- 1. Shroud, Dash and Pillar Panel Assembly
- 2. Main Sill Cover Panel

- 3. Door Panel Assembly
- 4. Rear Quarter Side Panel
- 5. Deck Lid Panel
- 6. Imitation Folding Top Brace

- 7. Side Compartment Door Panel
- 8. Windshield Header Panel
- 9. Front Roof Rail Cover Panel
- 10. Shroud Ventilator Cover

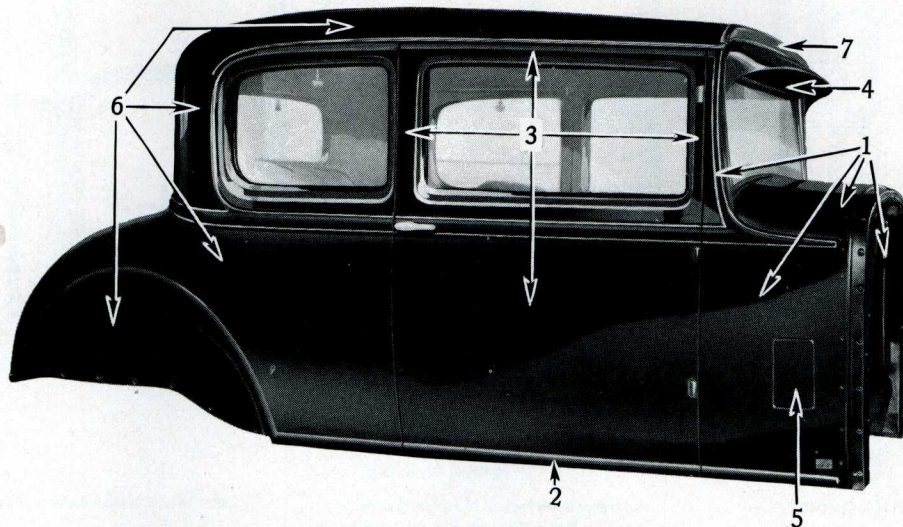


Figure No. 4

- 1. Shroud, Dash and Pillar Panel Assembly
- 2. Main Sill Cover Panel

- 3. Door Panel Assembly
- 4. Windshield Header Panel
- 5. Shroud Ventilator Cover

- 6. Rear Quarter, Upper Back and Roof Rail Cover Panel Assembly
- 7. Front Roof Rail Cover Panel

Two-Door Sedan Wood Parts and Braces

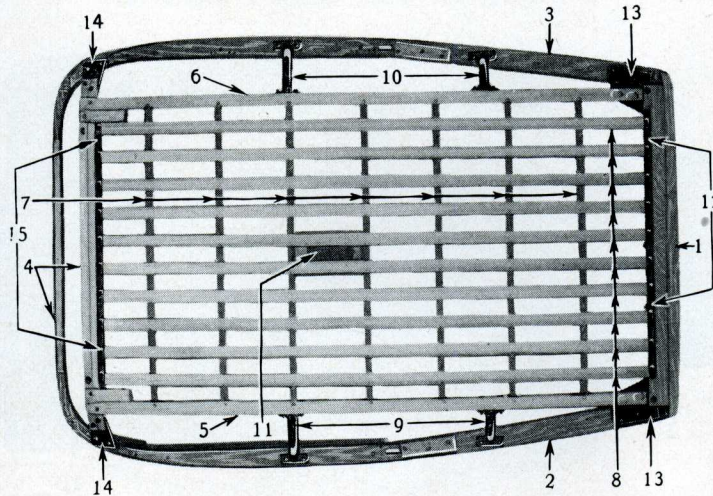


Figure No. 5

- 1. Front Roof Rail Assembly
- 2-3. Side Roof Rail Assembly
- 4. Rear Roof Rail Assembly
- 5-6. Crown Roof Rail

- 7. Roof Cross Bows
- 8. Roof Slats
- 9-10. Crown Rail Support Strainers
- 11. Dome Light Board

- 12. Roof Slat Nailing Strip
- 13. Roof Front Rail Corner Bracket
- 14. Roof Rear Rail Corner Bracket
- 15. Roof Slat Nailing Strip

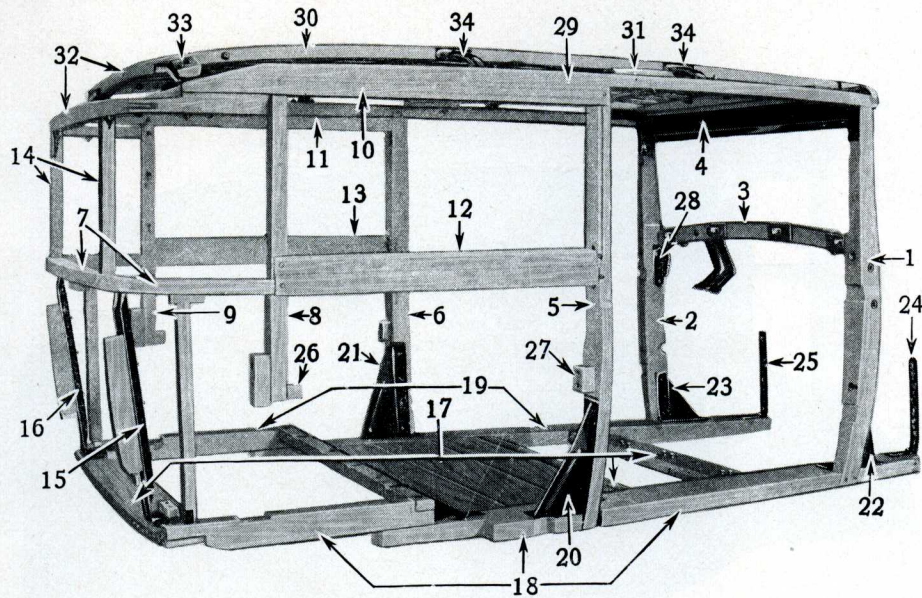


Figure No. 6

- 1-2. Front Body Hinge Pillar
- 3. Windshield Lower Cross Bar
- 4. Windshield Header Panel
- 5-6. Body Lock Pillars
- 7. Rear Belt Rail Assembly
- 8-9. Rear Quarter Pillars
- 10-11. Rear Quarter Header Bar
- 12-13. Rear Belt Bar

- 14. Back Window Frame Assembly
- 15-16. Rear Belt to Sill Strainers
- 17. Sill Cross Member
- 18-19. Main Side Sill Assemblies
- 20-21. Lock Pillar to Sill Brace
- 22-23. Front Pillar to Sill Brace
- 24-25. Dash to Sill Brace
- 26-27. Rear Quarter Window Stop Blocks

- 28. Windshield Lower Cross Bar to Pillar Brace
- 29. Side Roof Rail Assembly
- 30. Crown Roof Rail Assembly
- 31. Side Roof Rail Cleat
- 32. Rear Roof Crown Rail Assembly
- 33. Rear Roof Rail Corner Bracket
- 34. Crown Rail Support Strainers

Two-Door Sedan Sheet Metal Parts

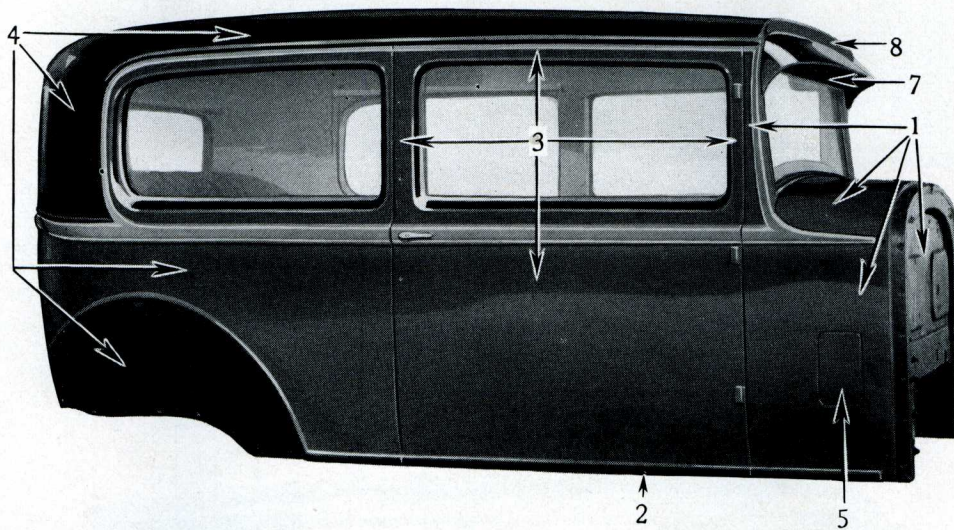


Figure No. 7

1. Shroud Dash and Pillar Panel Assembly
2. Main Sill Cover Panel
3. Front Door Panel Assembly
4. Back Quarter and Roof Rail Cover Assembly
5. Shroud Ventilator Cover
7. Windshield Header Panel
8. Front Roof Rail Cover Panel

Four-Door Sedan Wood Parts and Braces

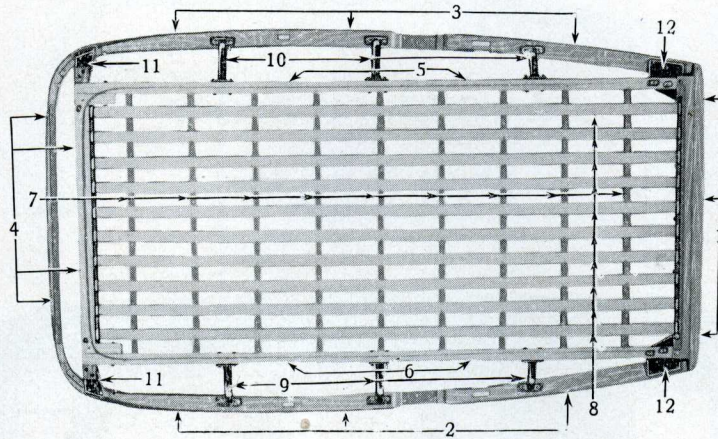


Figure No. 8

- 1. Front Roof Rail Assembly
- 2-3. Side Roof Rail Assemblies
- 4. Rear Roof Rail Assembly

- 5-6. Crown Roof Rail Assemblies
- 7. Roof Cross Bows
- 8. Roof Slats

- 9-10. Crown Rail Support Strainers
- 11. Roof Rear Rail Corner Brackets
- 12. Roof Front Rail Corner Brackets

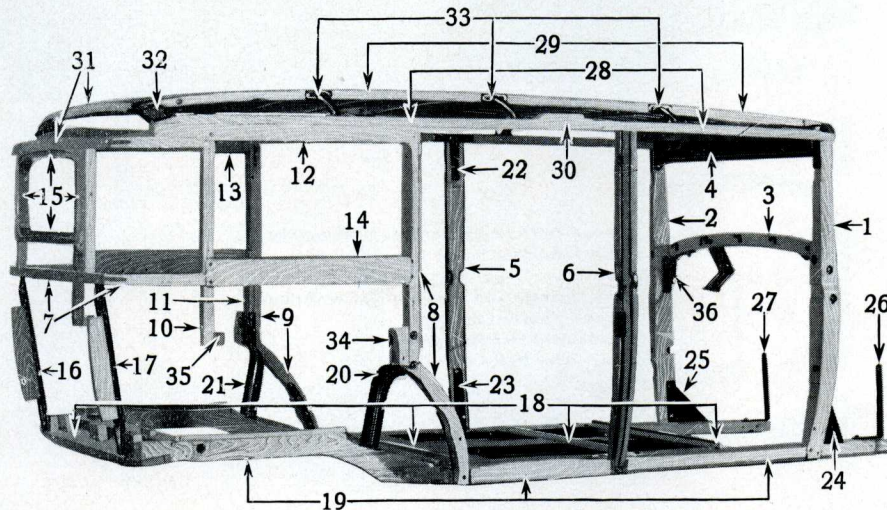


Figure No. 9

- 1-2. Front Body Hinge Pillar
- 3. Windshield Lower Cross Bar
- 4. Windshield Header Panel
- 5-6. Body Lock Pillars
- 7. Rear Belt Rail Assembly
- 8-9. Rear Body Hinge Pillars
- 10-11. Rear Quarter Pillars
- 12-13. Rear Quarter Header Bar
- 14. Rear Quarter Belt Bar

- 15. Back Window Frame Assembly
- 16-17. Rear Belt to Sill Strainers
- 18. Sill Cross Members
- 19. Main Side Sill Assembly
- 20-21. Rear Hinge Pillar to Sill Braces
- 22. Center Pillar to Roof Rail Brace
- 23. Center Pillar to Sill Brace
- 24-25. Front Pillar to Sill Braces
- 26-27. Dash to Sill Braces
- 28. Side Roof Rail Assembly

- 29. Crown Roof Rail Assembly
- 30. Side Roof Rail Cleat
- 31. Rear Roof Crown Rail Assembly
- 32. Rear Roof Rail Corner Bracket
- 33. Crown Rail Support Strainers
- 34. Rear Hinge Pillar Lower Brace and Stop Block
- 35. Rear Quarter Window Stop Block
- 36. Windshield Cross Bar to Pillar Brace

Four-Door Sedan Sheet Metal Parts

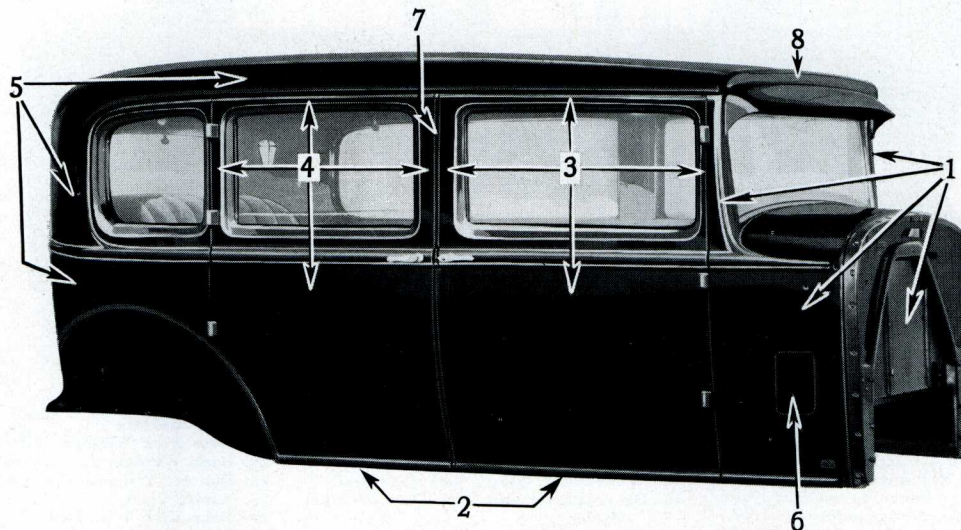


Figure No. 10

- | | | |
|--|---|---|
| <p>1. Shroud Dash and Pillar Panel Assembly</p> <p>2. Main Sill Cover Panels</p> | <p>3. Front Door Panel Assembly</p> <p>4. Rear Door Panel Assembly</p> <p>5. Back, Quarter and Roof Rail Cover Assembly</p> | <p>6. Shroud Ventilator Cover</p> <p>7. Center Pillar Cover Panel</p> <p>8. Front Roof Rail Cover Panel</p> |
|--|---|---|

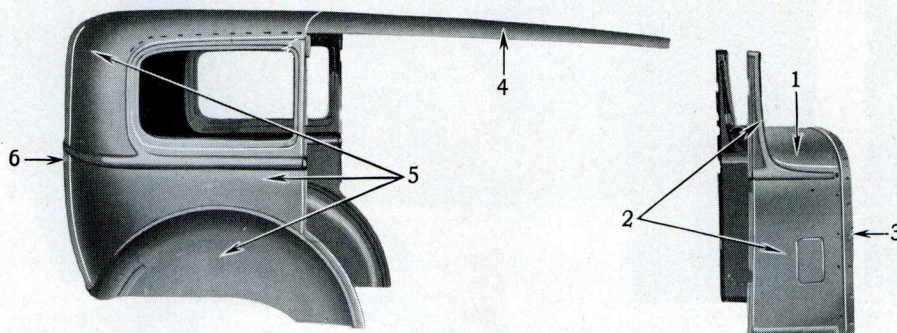


Figure No. 11

- | | |
|---|---|
| <p>1. Shroud Upper Panel</p> <p>2. Shroud and Front Pillar Panel</p> <p>3. Dash Panel</p> <p>4. Roof Rail Cover Panel</p> | <p>5. Rear Quarter Upper and Lower Panel Assembly</p> <p>6. Back Panel Assembly</p> |
|---|---|

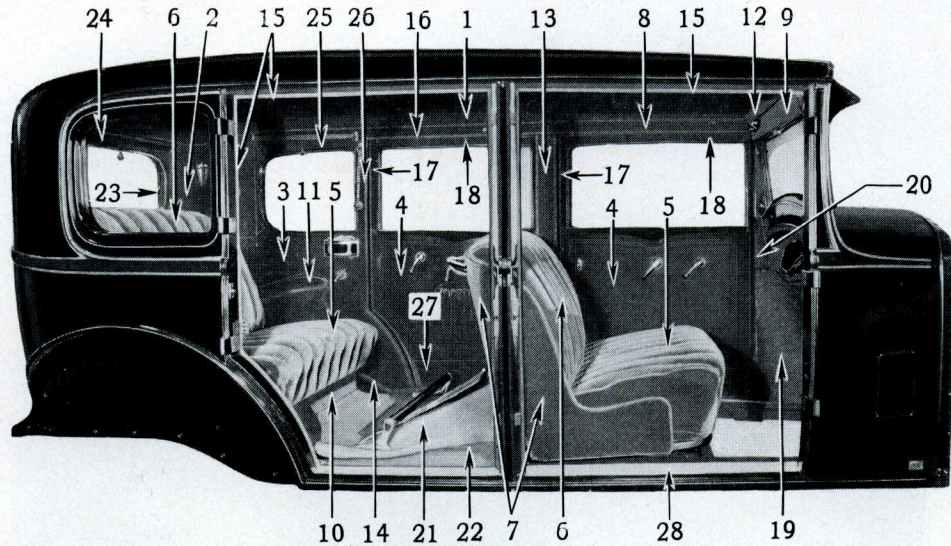


Figure No. 12

- | | | |
|---|--|--|
| <ul style="list-style-type: none"> 1. Head Lining Assembly 2. Rear Upper Quarter Assembly 3. Rear Lower Quarter and Seat End Assembly 4. Door Trim Pad Assembly 5. Seat Cushion Cover Assembly 6. Seat Back Cover Assembly 7. Front Seat Back Panel Cover 8. Over Door Weather Strip 9. Windshield Regulator Board Cover 10. Rear Seat Heel Kick Carpet | <ul style="list-style-type: none"> 11. Arm Rest Assembly 12. Front Roof Bow Trim Strip 13. Pillar Trim Strip 14. Rear Rocker Carpet 15. Windbreak 16. Rear Quarter and Over Door Weather Strip 17. Door Pillar Upper Trim Strip 18. Door Header Trim Strip 19. Shroud Lower Trim Pad 20. Shroud Upper Trim Pad | <ul style="list-style-type: none"> 21. Rear Floor Mat 22. Jute Matting 23. Over Rear Window Trim Strip 24. Back Window Curtain Assembly 25. Quarter Window Curtain Assembly 26. Assist Cord 27. Door Kick Trim Pad 28. Thresh Plate 29. Back Window Glass Retainer Trim Strip |
|---|--|--|

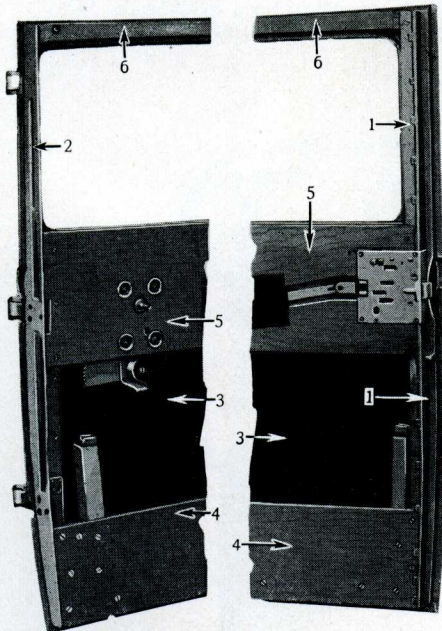


Figure No. 13

- 1. Front Door Lock Pillar Assembly
- 2. Front Door Hinge Pillar Assembly
- 3. Front Door Panel Assembly
- 4. Front Door Bottom Board
- 5. Front Door Regulator Board
- 6. Front Door Header Bar

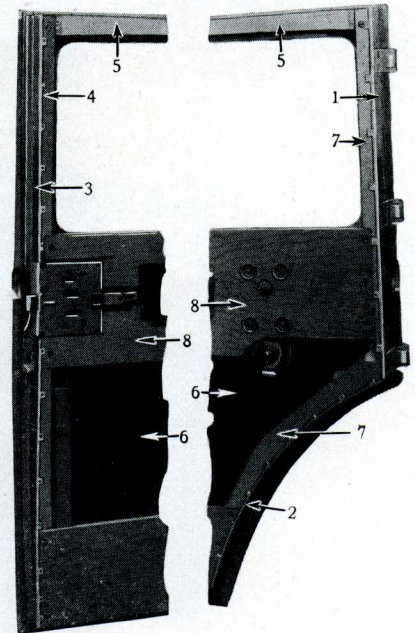


Figure No. 14

- 1. Rear Door Hinge Pillar Facing, Upper
- 2. Rear Door Hinge Pillar Facing, Lower
- 3. Rear Door Lock Pillar Facing
- 4. Rear Door Lock Pillar Assembly
- 5. Rear Door Header Bar
- 6. Rear Door Panel Assembly
- 7. Rear Door Hinge Pillar
- 8. Rear Door Regulator Board

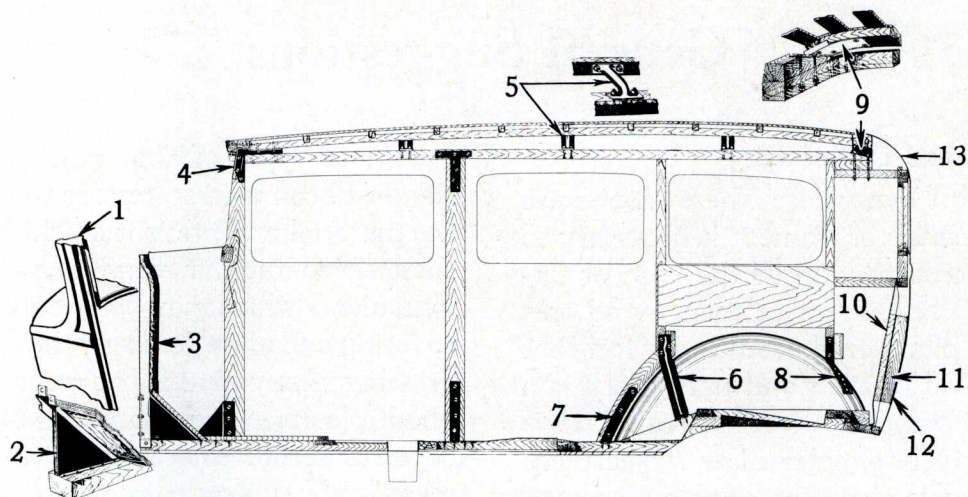


Figure No. 15

- 1. Cowl and Pillar Panel Assembly
- 2. Toe Board Bracket
- 3. Insulated Dash Pad
- 4. Roof Front Rail Corner Bracket

- 5. Crown Rail Support Strainer
- 6. Hinge Pillar Side Brace
- 7. Hinge Pillar Front Brace
- 8. Rear Quarter Pillar Side Brace
- 9. Roof Rear Rail Corner Bracket

- 10. Belt Rail to Rear Sill Metal Strainer
- 11. Strainer Wood Filler
- 12. Felt Insulator
- 13. Back and Quarter Panel Assembly

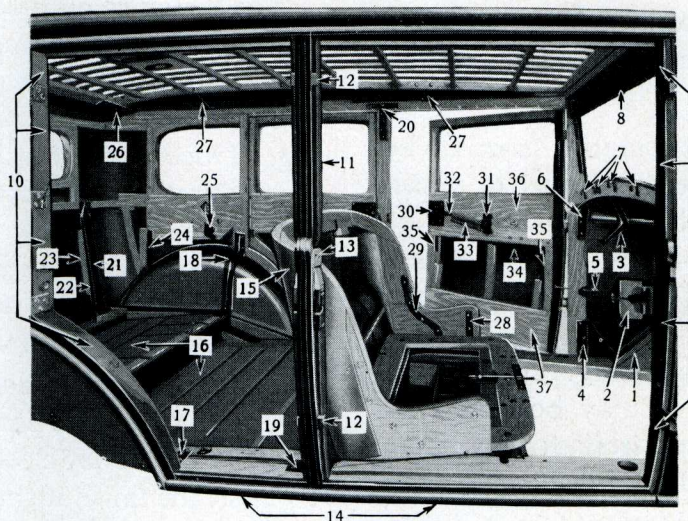


Figure No. 16

- 1. Toe Board Bracket
- 2. Shroud Side Ventilator Assembly
- 3. Steering Column Bracket
- 4. Front Pillar to Sill Brace
- 5. Door Check Assembly
- 6. Windshield Lower Cross Bar to Pillar Brace
- 7. Ventilator Panel Brackets
- 8. Windshield Metal Header Panel
- 9. Front Pillar Facing
- 10. Hinge Pillar Facing
- 11. Lock Pillar and Cover Assembly
- 12. Door Side Bumpers

- 13. Door Lock Striker
- 14. Main Sill Cover Panel
- 15. Front Seat Back Panel
- 16. Rear Floor and Seat Pan Assembly
- 17. Hinge Pillar Front Brace
- 18. Hinge Pillar Side Brace
- 19. Center Pillar to Sill Brace
- 20. Center Pillar to Roof Rail Brace
- 21. Rear Belt Rail to Rear Sill Strainer
- 22. Rear Belt Rail to Rear Sill Strainer Wood Filler
- 23. Felt Insulator
- 24. Rear Quarter Pillar Side Brace
- 25. Arm Rest Bracket

- 26. Rear Roof Rail Corner Bracket
- 27. Crown Rail Support Strainer
- 28. Front Seat End Front Brace
- 29. Front Seat End Rear Brace
- 30. Door Lock Assembly
- 31. Door Remote Control Assembly
- 32. Door Remote Control Connecting Link
- 33. Door Remote Control Connecting Link Fabric Insulator
- 34. Window Regulator
- 35. Door Window Lower Rubber Stops
- 36. Door Regulator Board
- 37. Door Bottom Board

General Suggestions

1. Trim and Upholstery

In almost every case where repairs are made to panels or frame it is necessary to remove some portion of the trim or upholstery. Some service men avoid this class of repair work because they feel that the removal of trim and upholstery is a difficult operation while in reality it is comparatively simple. The replacement is also simple since the service man may learn how it was installed while removing it. Replacement is merely a matter of reversing the operations of removal, using proper care to insure neatness.

When working on the body or chassis, the upholstery and exterior finish of the body and fenders should be protected by suitable covers as well as using care not to soil trim materials with oily hands or clothing.

The upholstery material should be cleaned with a vacuum cleaner or whisk broom. Spots on the upholstery may be removed by use of any good cleaning fluid. Care should be taken not to soak the material with cleaner but to use sparingly on the nap only. If the nap becomes flattened, it may be raised by steaming with a hot iron over a damp cloth and rubbing lightly against the nap with the edges of the iron.

2. Care of Top

Dust or dirt on the outside of the top should be removed with a sponge and soap suds, rinsing with clear water and then drying with chamois. Do not use gasoline or oil of any kind as these will injure the fabric and dull its lustre.

Various types of top dressing have in the past been used to restore the lustre of the material and prevent cracking, but as these preparations very often contain ingredients which may deteriorate the top covering and allow leakage, the use of top dressing of any kind is not recommended. Should leakage develop and replacement of top material be necessary, such replacement is not subject to the usual warranty terms, if the top has been treated with any kind of dressing.

The inside of closed model tops may be cleaned by brushing briskly with the nap, using a vacuum cleaner if available.

3. Care of the Finish

The bodies of all models are finished in Duco, and the outstanding advantage of this finish to the car owner is the ease with which it may be kept clean and new looking. Duco is the hardest, toughest and most durable automobile finish ever developed, but if the owner desires to keep his car looking as it did when delivered to him, the finish must not be abused, and the following cautions should be observed.

The car should be cleaned at reasonable intervals, and while possible in some cases to clean with a dry cloth, it is usually best to wash the finish if the car is very dirty, particularly if grit or small sand particles may be present in the dirt. Should the finish, after washing, appear gray or white, thorough polishing is required and Duco Polish No. 7 is recommended for this purpose.

Care should be taken that no alcohol or anti-freezing mixture containing alcohol

is spilled on the Duco finish, but if this does occur, it should be wiped off immediately.

The Duco finish will usually resist the action of dilute acids such as are present in battery solutions, but it is advisable to exercise care in keeping any acid, dilute or full strength, from the finish.

Duco Polish No. 7 may be used both as cleaner and polisher. If the car is only dusty, the dust may be removed with a dry cloth, and the polish then applied. If the car is dirty, it should be washed and dried, before applying the polish. Use a dry, clean cloth in rubbing off the polish and with thorough rubbing a fine lustre will be obtained. If in cleaning and rubbing the finish traces of the color remain on the cloth it only represents a weathering or wearing action and does not appreciably affect the life of the finish.

Caution: Hot water should never be used to wash the body or chassis. When

washing the car all doors and windows should be closed properly to prevent water reaching the upholstery.

All chromium and nickel plated parts of the car should be kept clean and free from dirt or foreign matter, and for cleaning the chromium plated parts at least, nothing but clear water and a clean rag should be used. Dirt containing black soot, clay, iron oxide, or calcium chloride, if allowed to remain on the plated surfaces, may cause tarnishing and even corrosion.

Installing New Wood Parts

The wooden frame work of the body when assembled is sprayed with an asphalt paint. This paint impregnates the wood and acts as a preservative by preventing moisture from penetrating the wood. When replacing any of the wood parts they should be given a coating of good quality asphalt paint.

Ordering Parts

It is necessary that all orders for parts carry both the body number and the job number. For this reason, it is essential that all service records include these two

numbers, together with frame and engine number. These job and body numbers are stamped on a metal plate on the front side of the dash panel.

Inspection

New Car Delivery Inspection

It has been the practice of Dealers, for many years, to give the chassis of new cars a complete inspection before they are delivered to customers. This has been considered a protection against minor misadjustments, which, while not serious in themselves, might be a cause of criticism or dissatisfaction on the part of the car owner.

Pre-delivery inspection should not stop with the chassis. The body is the part of the car with which the owner, as a rule, is most familiar. To insure the utmost satisfaction the body should be as carefully inspected before delivery as is the chassis.

All new cars should be inspected and serviced as follows:

1. Inspect door panels at hinge cut-away. There should be no metal contact of panel and hinge. See Fig. 39.
2. Inspect door hinges to see that hinge screws and bolts are tight and that there is no contact at screw heads when door is closed. See Fig. 40.
3. Inspect window glass run channels. See that there are no exposed tacks in top header channel.

4. Inspect for loose tacks in upholstery, spots on, or holes in upholstery, fit of cushions, loose threads on trim.
5. Inspect windshield and window regulator action. See Fig. 44. When window is closed, the rubber weather strip (A) which is attached to the window sash channel at the bottom of the glass should fit snugly against the window lower panel turnover (B), with the top of the glass seated properly at the window header strip (C).

If the side garnish mouldings fit too tightly against the run channels, it will be difficult to close the window to full closed position. See "Garnish Moulding Adjustment," page 34.

6. Inspect floor boards to see that screws are properly tightened.
7. Inspect body bolts to see that they are properly adjusted. See "Body Bolts," page 26.
8. Lubricate at all points as shown under "General Lubrication," page 15.

Service Inspection

A body inspection on cars that have been in service should cover the following items:

Body Bolts

See that all body bolts are properly adjusted. See "Body Bolts," page 26.

Doors

1. Inspect door alignment. See "Door Irregularities," page 26.
2. Inspect door hinges. See "Door Hinges," page 29.

3. Inspect door lock bolt and striker plate. See "Door Locks," page 31.
4. Check for proper sealing of joints between front body hinge pillar cover and roof front rail cover. See Fig. 46.

Windows and Windshield

1. Inspect regulators for proper action.

See "Windshield Regulator Adjustment," page 33, and "Glass Adjustment," page 35.

2. Inspect window glass for proper fit in run channels and proper adjustment of garnish mouldings.

Floor Boards

See that all floor board screws are tight.

General Lubrication

1. Door lock bolts—Use light machine oil.
2. Door hinge pins—Use light machine oil.
3. Door safety lock—Apply a few drops of light machine oil or penetrating oil to key and operate the lock.
4. Door check—Should a squeak develop at this point rub a little vaseline on the rod, then open and close the door three or four times. This will carry the vaseline back and on the rubber guide which is nailed to the post and will prevent rod from squeaking in the rubber guide.
5. Door dovetail bumpers—Apply light machine oil very sparingly to the sides and tops of the metal shoes.
6. Window regulator—Remove the handle. See Figs. 22 and 23. Use light machine oil on shaft and bush-

ing. Drop window to fully opened position. Hold a piece of wire with one end touching the shaft at the gear end (inside the door). Apply a few drops of light machine oil to the wire and allow it to run down to the shaft.

7. Window regulator arm—Raise the window glass to closed position. Using a squirt can apply light machine oil along the upper edge of the sash channel on the inside for its entire length. This oil will flow down on the channel and lubricate both the channel iron bracket and the regulator arm knob.
8. Windshield regulator—Remove regulator board. See "Removal," page 16. Use light machine oil on shaft and light cup grease on control bar and gear.
9. Lubricate radiator shell and shroud lacing with penetrating oil.

Removal and Replacement

Windshield Regulator Board

REMOVAL:

Remove the two nicked screws at the center and at either end of the board.

Turn regulator handle to the left.

Draw board out at the bottom over the top of garnish mouldings and remove.

REPLACEMENT:

Turn the regulator handle to bring the regulator arms in position to be seen above the top edge of board.

Set the regulator arms in position in brackets on the upper sash channel.

Hold the top of board to keep arms in position and turn regulator handle to right until board is drawn into position.

Install the screws at center bracket and ends.

Test the operation of the regulator.

It may be necessary to adjust the regu-

lator board adjusting screws. See "Windshield Regulator Adjustment," page 33.

Windshield Glass

REMOVAL:

Remove the garnish mouldings.

Remove the windshield regulator board.

Remove the tacks from the upper and lower ends of sash run channels.

Lift the glass as far as it will go and pull the run channels out from the bottom. See Fig. 17.

Remove the glass by lowering it and drawing out at the bottom. See Fig. 18.

REPLACEMENT:

Reverse the operations under "Removal." Before installing the sash run channels, coat the ends, backs and sides at the lower ends for about 6" from the bottom with R. M. compound to prevent water leaks.

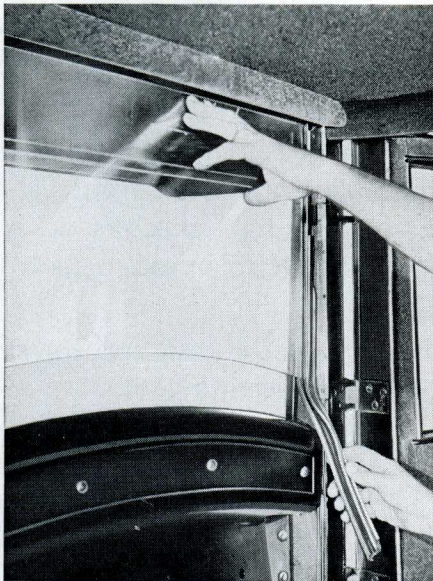


Figure No. 17
Removing Windshield Sash Run Channel

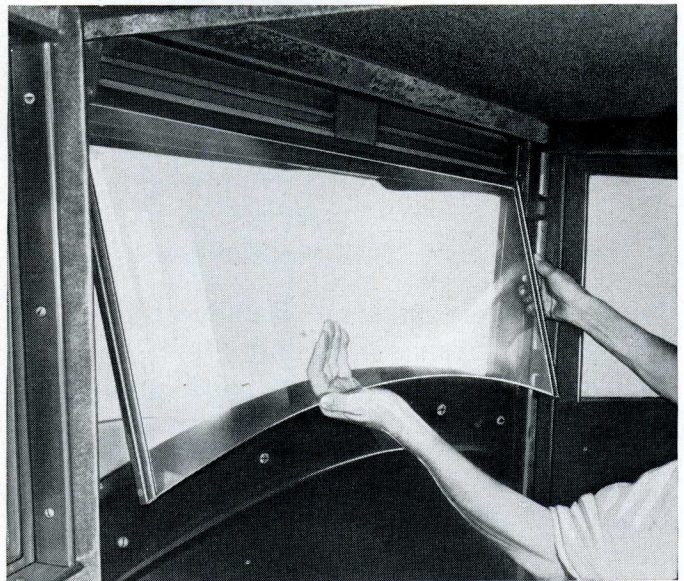


Figure No. 18
Removing Windshield Glass

After replacing the glass, check the operation of the regulator. Regulator should operate freely and the glass should close with a cushion action at the regulator handle. See "Windshield Regulator Adjustment," page 33.

Windshield Wiper Tube

REMOVAL:

Remove windshield regulator board. See "Removal," page 16.

Bend up clips which hold tube to the windshield header panel.

Disconnect tube from wiper hose.

Disconnect tube from valve on instrument panel.

Draw tube out of pillar from the bottom.

REPLACEMENT:

Push a rod $\frac{3}{16}$ " x 18" long, with pointed end, up from the bottom opening to clear the passage of any tacks or other obstruction.

Plug top end of new tubing with hard wood to prevent any dirt entering the tube while replacing.

Push tube up from bottom until end can be reached with a small hook.

Bring end of tube out of pillar at the top with a small hook and pull enough of tube out to extend to the wiper hose.

Remove wooden plug and test the tube with air pressure.

Bend down the clips to hold tube in position.

Windshield Garnish Mouldings

There is a wooden spacer block, see Fig. 19, used behind the mouldings. These should be replaced to prevent dishing of the moulding when tightening the screws.

Window Garnish Mouldings

REMOVAL:

Remove screws from side mouldings. Then, with the use of a padded block, drive the top of moulding edgewise toward the inside of body. Do not remove screws from bottom moulding until side mouldings have been removed, because releasing screws in bottom moulding permits ends to bind at side mouldings.

REPLACEMENT:

Reverse the operations of removal. Install the bottom moulding first, putting the screws down tight.

If side mouldings are tight, dip the ends in graphite before installing.

The side garnish mouldings should fit tight against the glass run channels to prevent glass rattle, but not tight enough to prevent free operation of the glass. See "Garnish Moulding Adjustment," page 34.

Window Glass

REMOVAL:

Remove the side and bottom garnish mouldings.

Remove the tacks in the upper ends of the window glass run channels.

Raise the glass with the regulator handle, at the same time drawing the top of the glass inward. See Fig. 20. Continue to raise the glass, turning the regulator handle to its limit. See Fig. 21. This will allow disengagement of lower sash channel from the regulator arm.



Figure No. 19
Windshield Garnish
Moulding and
Spacer Block

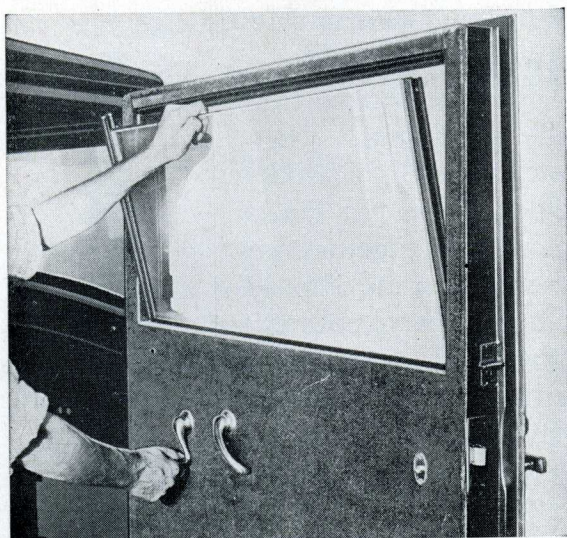


Figure No. 20
Proper Position for Removing Glass

To remove the rear quarter window glass, it is necessary to remove the corner filler blocks. To reach these blocks it is necessary to lay back the trim material far enough to allow removal of screws and nails which fasten the blocks to the window panel.

REPLACEMENT:

Reverse operations under "Removal." If glass has been broken, be sure to remove all fragments from the door well.

Make sure there is no contact between the glass and tack heads in the run channels or header strip. Adjust the garnish mouldings to prevent rattle. See "Garnish Moulding Adjustment," page 34.

Test the operation of window regulator to see that glass closes properly. See Fig. 44.

Rear Window Glass, Adjustable Type

REMOVAL:

Remove window trim mouldings.

Remove tacks from upholstery at top and sides to expose corner filler blocks.

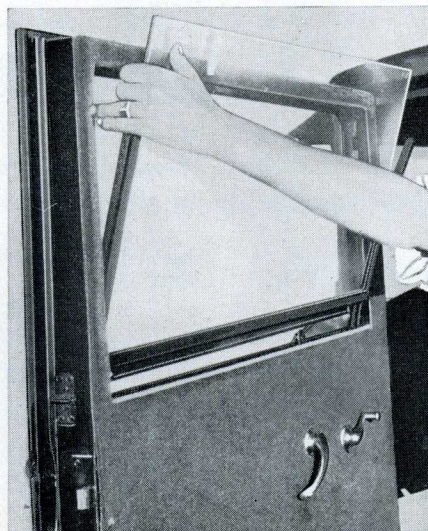


Figure No. 21
Regulator Arm Disengaged from Glass

Remove filler blocks by taking out screws and nails.

Remove tacks from top ends of glass run channels.

Remove glass by pulling inward at the top while raising glass with regulator, and disengaging from regulator arm.

REPLACEMENT:

Reverse operations of removal.

Regulator and Remote Control Handles

REMOVAL:

The handles are retained by a snap spring.

To remove the handle press in on

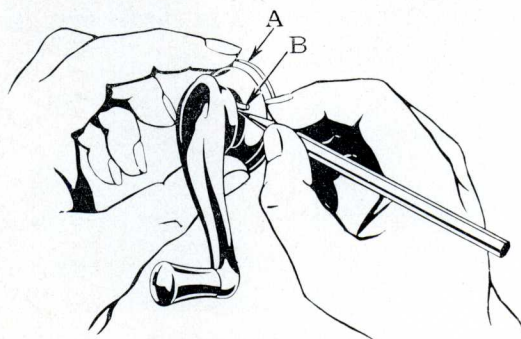


Figure No. 22
Removing Snap Ring

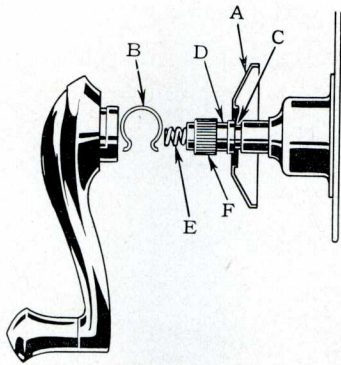


Figure No. 23
Remote Control Handle Removed

escutcheon plate "A" and with a fine-pointed tool release snap spring "B" which will permit removal of handle from assembly "D." Care should be taken to avoid losing the spiral tension spring "E."

REPLACEMENT:

To assemble handle to shaft, slip escutcheon plate "A" into position and place spiral spring "E" in hollow end of shaft, fit handle on shaft making sure it is located in its original position, as serrations "F" on shaft permit handle to be set at any desired angle.

Press in on handle then insert snap spring "B" in position, making sure that it locks into groove "C" on shaft.

Door Regulator Board

REMOVAL:

Remove the door glass. See "Window Glass Removal," page 17. Remove the regulator and control handles. Remove the tacks from the top and sides of the trim pad down far enough to clear the board. See Figs. 24 and 25.

Remove the two wood screws from the bolt side of the door lock.

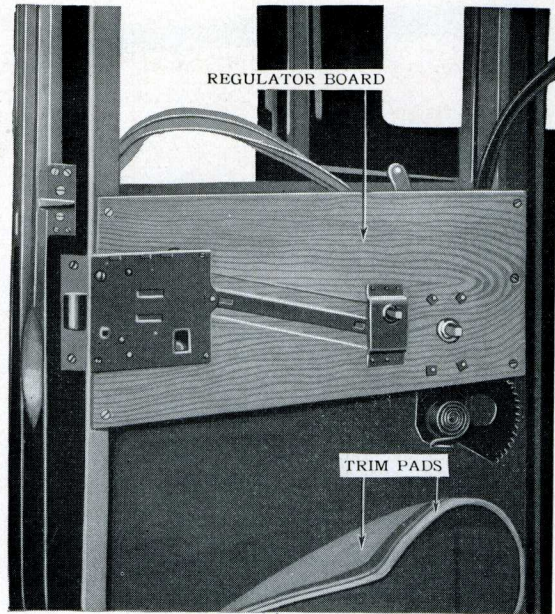


Figure No. 24
Trim Pad Removed

If outside door handle carries the safety lock, remove the safety screw from the inner end of handle shaft.

Remove the wood screws and any nails that may be holding the board in place.

Carefully disengage the board from its position. See Fig. 25.

REPLACEMENT:

Reverse the operations of removal.

Door Window Regulator

REMOVAL:

Remove the regulator board. See "Door Regulator Board Removal,"

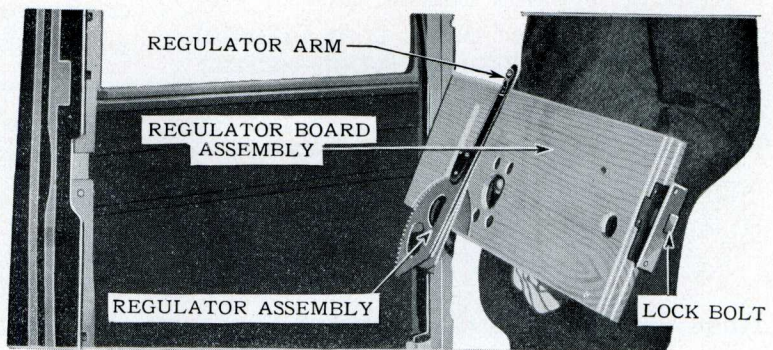


Figure No. 25
Regulator Board Removed

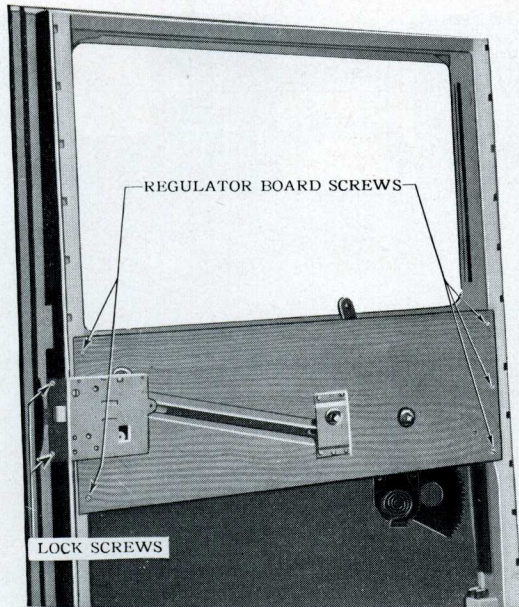


Figure No. 26
Regulator Board Attachment

page 19.

Remove the remaining screws or bolts and release the regulator from the board.

REPLACEMENT:

Reverse the operations of removal.

After installing the regulator on the board, lubricate the working parts with light cup grease.

**Rear Quarter Window
Regulator Board**

REMOVAL:

Remove the window glass. See "Window Glass Removal," page 17.

Remove regulator handle.

Remove quarter panel trim material far enough to expose ends of boards.

Remove screws and nails from ends of regulator board and remove board and regulator assembly.

REPLACEMENT:

Reverse operations of removal.

Rear Window Regulator Board

REMOVAL:

Remove glass. See "Rear Window

Glass, Removal," page 18.

Remove ends of trim panel from regulator board. This will expose screws on regulator board.

Remove screws and nails from each end of board.

Remove board and regulator assembly.

REPLACEMENT:

Reverse operations of removal.

Doors

REMOVAL:

When removing doors, it will be necessary to first remove the door stops.

To remove front door stop, release the shroud trim pad and remove the door rubber stop from the stop link. See Fig. 27.

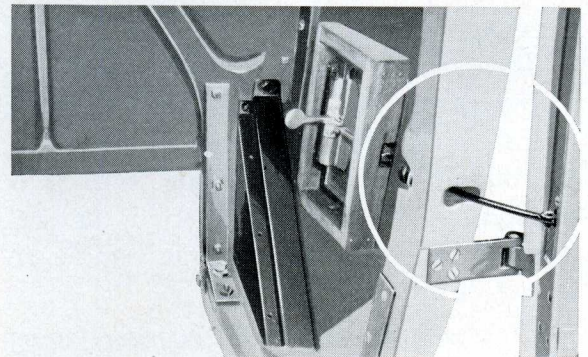


Figure No. 27
Front Door Stop

The rear door stop may be released from the door by first unfastening the door trim at the door stop bracket, which will permit removal of two wood screws, also remove the two screws in the bracket at the hinge face of door.

If hinge pins are set and can not be removed with a drift punch, it may be necessary to remove the hinges. See "Door Hinges," page 29.

REPLACEMENT:

When installing the door use light oil on the hinge pins.

side rail cover panels are tight, and that the padding over the roof slats is smooth and in good condition.

REPLACEMENT:

When installing a roof cover it should be properly sealed with Repstick or one of the recommended sealing compounds. The seal should be applied to the edges of the roof. A strip about one half inch in width should be applied to the upper edges of side rail cover panels and at the front and back roof rails, thus creating a seal between the roof cover and the roof. See Fig. 28.

When tacking the cover in place on the roof, stay tack the cover at the center, at front rail and at the back rail. Next, stay tack one rear corner and the opposite front corner. In similar manner tack the other two corners, then finish tacking across at the rear of cover. Stay tack the sides for their length at intervals of ten inches, and after this, finish tacking across front of cover. Then finish tacking sides.

Mouldings

The one-piece crown and drip mouldings are used. It is not advisable to reinstall old mouldings.

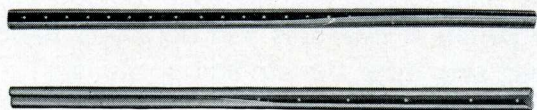


Figure No. 29
Roof and Drip Mouldings

When installing mouldings, seal the bottom of moulding before nailing to place. After moulding has been nailed, swage the cap to place, covering nail heads. See "Swages," Fig. 30.

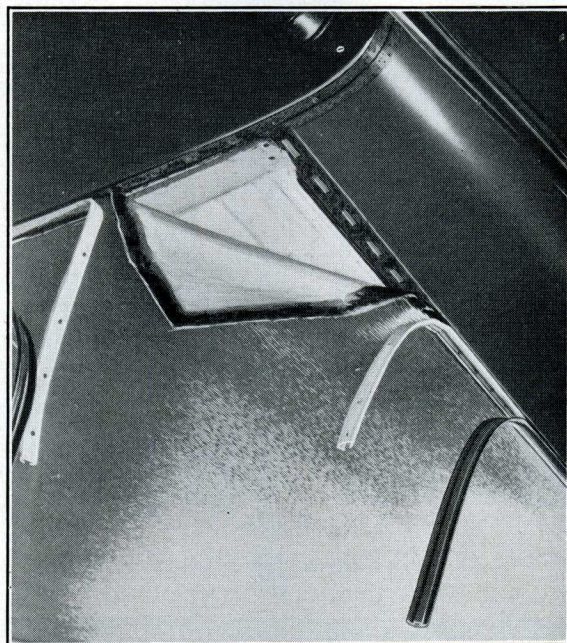


Figure No. 28
Roof Front Corner

Roof Cover

Roof coverings are subjected to more wear and hard usage from weather elements than any other part of the body, since weather changes cause expansion and contraction of the material.

Whenever a car is in for service, inspection should be made of the roof covering for checks, cracks or holes in the fabric, and of the crown and drip mouldings for proper sealing and fastening.

REMOVAL:

Remove the roof crown mouldings by prying the mouldings off with a body spoon which is slightly crowned. Care should be taken to avoid damaging the roof side cover panels when removing crown mouldings. After mouldings have been removed, remove the tacks from the edges of the roof covering using the claw of trim hammer or a tack removing tool. See that nails at upper edges of the

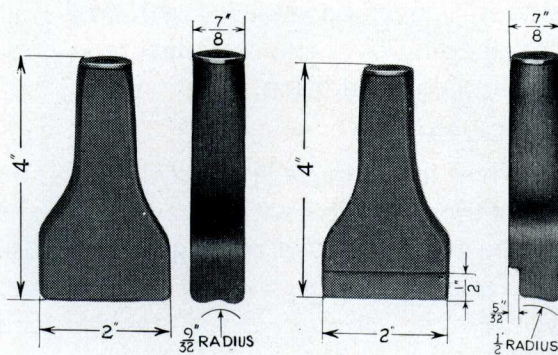


Figure No. 30
Moulding Swages

Headlining

Listings are used to fasten headlining when it is not permissible to tack through the lining.

The headlining listings are tacked to the cross bows by cross listings and the roof crown rails, by a listing sewed the full length of the headlining and tacked to the outside edge of the roof crown rail. The lengthwise and cross listings are tacked to place, starting at the back, tacking each listing to place as the operator works toward the front of the body.

Due to limited space between crown rail and roof rail at the second cross bow from the front of the roof, it is rather difficult to tack the listings to the crown rail. At this point a headlining listing strip is used.

This headlining listing strip has tack point edges on one side and is nailed at the bottom face of roof crown rail, see Fig. 31, with tack points of listing strip facing out toward roof rail. The side listing is then fastened to these listing strip points which are then turned up against the edge of the roof crown rail.

REMOVAL AND REPLACEMENT:

Before removing the headlining, the following operations are necessary: Loosen



Head Lining Listing Strip

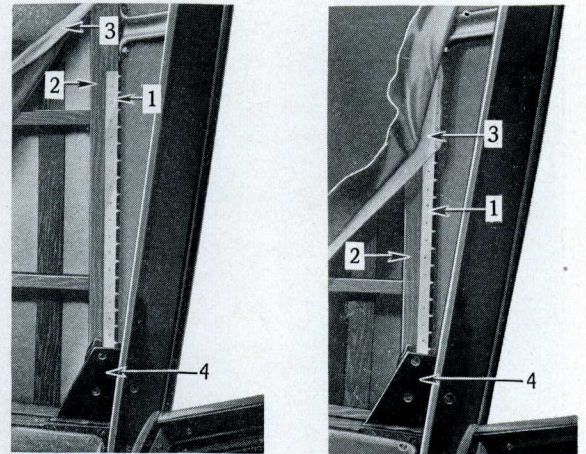


Figure No. 31
Listing Removed Listing Being Applied

and remove the over windshield trim strip assembly, the over door weather strip assemblies, the quarter window header trim strip assemblies, the over back window trim strip assembly. Loosen the upper quarter trim assemblies.

It is important, when removing a headlining which is to be reinstalled, to mark the centers of the listings with chalk. Also mark on the front face of the roof bows, to which the listings are to be attached, the exact centers between the side roof rails. This will ensure correct replacement with minimum difficulty.

The operation of removing the headlining must always be started at the front of the body, because the listings are attached to the front face of the roof bows. Untack the headlining across the front roof bow, starting at either corner. Continue along both side roof rails to the first listing and untack this from the bow. Finish untacking the remaining listings and other edges of the headlining.

REPLACEMENT:

First tack the exact center of the rear listing to the front face of the rear roof bow at its marked center, being careful to allow three-eighths inch of the listing to extend below the roof bow.

Now finish tacking across the roof bow using 2½-ounce trimmer's tacks at intervals of from two to three inches, maintaining this ⅜ inch clearance of the listing, but leaving the headlining untacked at the side roof rails. Continue toward the front of the body, tacking each listing at its center to its corresponding roof bow and proceed as already described. Now tack the headlining to the center of the front roof bow, using one or two tacks. Draw and tack the headlining to the right and left corners, stretching the cloth enough to take out excessive fullness. Next return to the rear roof rail and tack the headlining at its center and corners in the same manner as at the front roof bow. The headlining is now tacked across the entire face of the rear roof rail and the front roof bow, using four-ounce trimmer's tacks at intervals of from two to three inches, stretching as much as is necessary to avoid wrinkles. The final operation is to tack the headlining to the side roof rails, carefully stretching as already described.

Leather Headlining

If the headlining is of leather or imitation leather it is made up in separate sections and is tacked directly to the roof bows without the use of listings. A seaming cord of leather is then tacked across the roof bows to procure a finished appearance at the joint of these leather sections. Each section is installed as an individual unit and finished up completely before proceeding to the next operation.

REMOVAL:

The first step is the same as observed in removing the cloth headlining, namely, the taking down of the adjoining trim strip assemblies and the loosening of the upper quarter trim assemblies. The headlining is then removed by starting at either end of the front roof bow and taking out the tacks from the leather sections and the seaming cords.

INSTALLATION:

After marking the center of the rear section of the leather headlining, tack at this point the forward edge of the headlining to the front face of rear roof bow at its center. Tack temporarily the center of the other edge to the center mark on the rear roof rail. Stretch and tack temporarily both ends of this section. Now stretch and tack completely along the roof bow and rear roof rail and both side roof rails, taking up any excess fullness as you proceed.

Next tack seaming cord with the skirt up, over the front face of the rear bow, so as to cover the edge of the headlining where it is secured to this bow. The rear edge of the next headlining section is now centered and tacked across the front face of this same bow, with the finished side to the skirt of the seaming cord.

At this point it is necessary to make what is termed a breakover. This is a strip of fibre board cut ½ inch wide, extending the full length of the bow. This is tacked securely in such manner that when the section is lifted, stretched, and tacked to place on its forward edge to the front face of the next marked bow there will be a smooth, unbroken finish at the joint hidden by the seaming cord.

The next operation is to raise this second section of the headlining and tack

the front edge to the proper roof bow, proceeding as already outlined. Continue these operations with each individual section until they are all in place. It is important to keep stretching the leather firmly as the work proceeds to insure freedom from fullness and wrinkles.

A leather seaming cord is cut sufficiently long to extend completely around the side and rear roof rails. Tack this seaming cord with the skirt down so that the cord itself fits snugly against the headlining.

Finally, reinstall the various trim strips and the upper quarter trim that were previously removed or loosened.

Door Trim Panels

Trim panels on the doors are nailed to the wooden framework and can be removed by prying loose with a screw driver. To remove trim on door, first remove the garnish mouldings; this can be done by taking out the garnish moulding screws. (Remove side mouldings first).

The door trim pads on some models are slightly different. The nails are an integral part of a metal strip, and will be removed with the foundation board intact. This can be done with a screw driver. On the replacement use care to see that the nails are put back in the same nail holes to assure a good fit.

A badly bent or broken nail can be replaced by driving a brad through the trim. Drive it a little below the surface of the trim cloth, then use trim regulator to prick up the cloth and conceal the head.

Front Seat Back Cushion Upholstery Assemblies

The front seat back cushion upholstery assembly consists of the seat back spring

assembly, the seat back padding, and the seat back upholstery cover assembly.

The complete assembly is installed in the body as follows: The seat back spring assembly is fastened to the seat back frame at the top by hanging it from leather loops, which are tacked to the front seat top trim rail. The seat back upholstery cover assembly is then centered and tacked to the top side of this trim rail, using 4-oz. tacks.

Padding is placed over the spring assembly, and the seat back upholstery cover assembly is stretched and tacked to the trim strip at the bottom of the seat frame assembly. Care should be taken in stretching this material to place, to remove wrinkles, but the material should not be stretched tightly enough to compress the springs.

Rear Seat Back Upholstery Assemblies

Two methods of installing the rear seat back assemblies are employed. The first method is the same as is used in the front seat back, except that pasting lace is used to finish the top edge instead of reed moulding.

The second method employs a detachable seat back frame which, when trimmed, is fastened in place with two steel seat back clips at the top to the belt rail and screwed at the bottom of seat back to two wood blocks at the rear body cross sills. In building up the detachable seat back assembly, the spring assembly is fastened to place on the wood frame with leather loops at the top and bottom, and padding is placed over the spring assembly. The upholstery cover assembly, after being centered, is tacked to the back of the top trim rail of this detachable back frame. It is then drawn up over the top of the

rail, stretched over the spring assembly and tacked at the bottom. The upholstery cover assembly should be stretched only tight enough to remove wrinkles.

Occasionally, it is necessary to repad or readjust the padding in the seat cushion or seat back assemblies. To do so, it is only necessary to loosen upholstery where it is tacked at the bottom to the trim stick, raise it, and either readjust the padding or insert an extra layer of padding.

To eliminate noise in spring assemblies, occasioned by the steel coils rubbing against each other, untack and lay back the upholstery cover assembly and padding, then insulate the springs causing the noise by inserting between the coils pieces of cotton wadding.

Body

REMOVAL:

Remove hood.

Remove radiator brace rods.

Remove front floor boards and toe boards.

Remove cable and lighting and ignition wire from starter switch. Tape the ends of cable to prevent shorting. Disconnect two wires at ignition switch.

Remove the two bolts in steering gear bracket at instrument panel.

Remove the cap bolts which attach the steering gear housing to frame.

Disconnect speedometer cable at rear of transmission.

Disconnect steering gear throttle rod from cross shaft throttle lever.

Disconnect accelerator pedal from

throttle rod—tie inner end of accelerator pedal up to prevent its being bent when lifting body.

Remove carburetor choke and heat control rods.

Disconnect two wires at horn. Slip horn wire conduit out of clips on front of dash panel.

Disconnect temperature indicator conduit from water manifold or cylinder head.

Disconnect oil pressure gauge tubing at the crankcase end.

Disconnect two light wires at bottom of steering column and slip the conduit out of clips allowing it to remain with body.

Disconnect primary wires from coil and circuit breaker. Slip conduit out of clips and allow it to remain with body.

Disconnect gasoline gauge tubing from gauge and pull out through dash.

Disconnect dome or pillar light ground wire from the frame.

Disconnect inlet and outlet oil lines at top of oil filter.

Remove rear fenders.

Remove rear tire carrier.

Cover steering wheel, to prevent its being scratched.

Remove body.

INSTALLATION:

Reverse operations of "Removal."

Be sure that all body shims and anti-squeak material are in good condition and in place.

Tighten body bolts and check alignment of doors and hood. See "Door Alignment," page 26 and "Hood Alignment," page 42.



Adjustments

Shims and Body Bolts

The life of a body as well as its general quietness depends very much upon its being properly aligned and bolted to the frame. The shims under the body sills at the body bolts serve three purposes. First: To insulate the body from the chassis. Second: To correct alignment of body sills with frame and brackets. Third: To provide means of correcting door alignment.

Before attempting to eliminate any noises, inspection should be made to see that all shims are in place, that they are of proper thickness to place doors in correct alignment and that all body bolts are drawn down only as tight as is necessary

to just compress the lock washer.

Special Note: Do not use make-shift shims.

Whenever it is necessary to install shims, the recommended shims designated for the particular bolt position should be used, as the body shims are especially designed and made of rubber, suitable for the purpose.

Shims should be ordered under Buick parts number as follows:

1241023	1241817
1241067	1246429
1241089	1246430
1241102	1246431
1241104	

Door Irregularities

Proper alignment of doors depends upon alignment of body with the frame. Inspection of body bolts and shims should always be made before attempting any correction of door irregularities. See "Shims and Body Bolts," this page.

Caution: Do not use rubber bumpers between hinge pillar and door frame in an attempt to eliminate door rattle.

These bumpers will only act as a temporary correction and will strain the hinge screws and hinge pins and cause other stresses and noises.

Door Alignment

A door in proper alignment will have equal spacing in the opening at top,

bottom and sides. The moulding on door will match that on the body and the dovetail wedge plate will enter the dovetail bumper assembly centrally.

In most cases of door misalignment the door is low at the lock side due to one or more of the following conditions:

1. Hinges

- (a) Top hinge spread, screws loose or pin worn.
- (b) Lower hinge bent back or compressed.

Correction—Bend hinges to original condition, tighten hinge screws, fit new hinge pins or replace hinges.

2. Body Shims

- (a) Shim nearest body lock pillar too thick.
- (b) Shim nearest body hinge pillar too thin.

Note: Improper shimming may also cause a door to be high at lock side as described on page 29 under "Four Door Sedan."

Door misalignments due to improper shimming are illustrated in Figs. 32 to 38

and corrections for the different types of bodies are given on page 29.

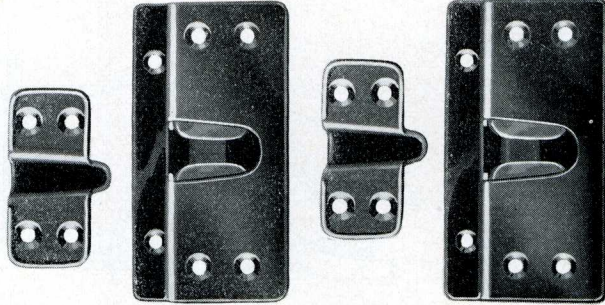


Figure No. 33
Improper Alignment

Figure No. 34
Proper Alignment

The following illustrations indicate the different types of door misalignment which may be encountered:

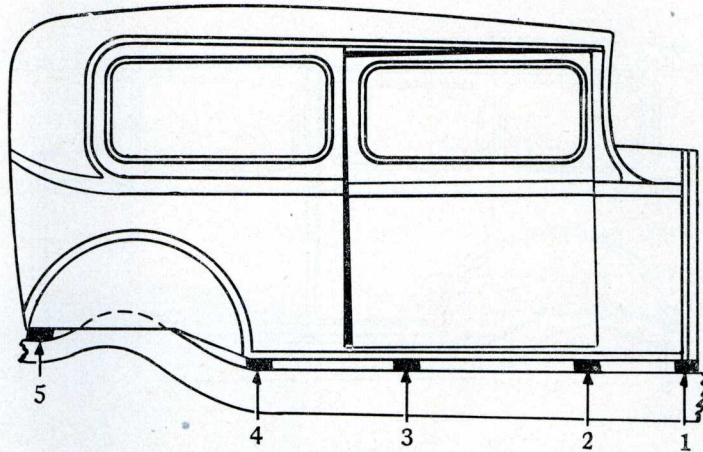


Figure No. 32

Two-Door Sedan—Door Low at Lock Side

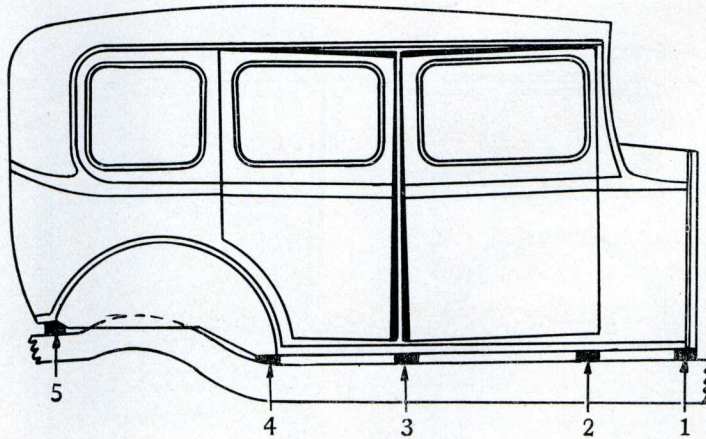


Figure No. 35

Four-Door Sedan—Both Doors Low at Lock Side

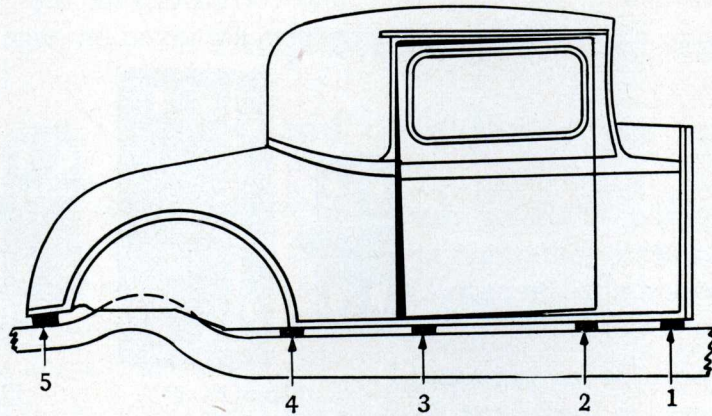


Figure No. 36
Coupe—Door Low at Lock Side

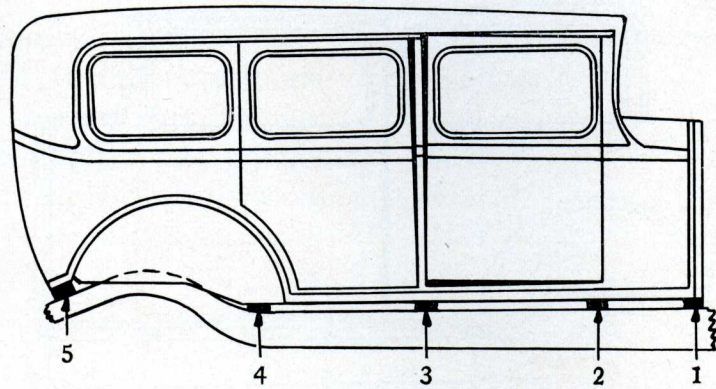


Figure No. 37
Four-Door Sedan—Rear Door in Alignment and Front Door High at Lock Side

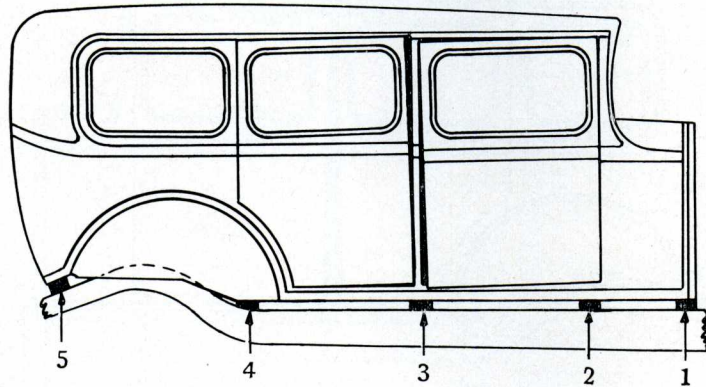


Figure No. 38
Four-Door Sedan—Rear Door High and Front Door Low at Lock Side

Correction for Improper Shimming Two-Door Sedan

See Fig. 32.

Door low on lock side. (Dovetail wedge plate below center of dovetail bumper assembly). Install shim $\frac{1}{8}$ " to $\frac{1}{4}$ " thick at No. 2 body bolt.

Four-Door Sedan and Coupe

See Figs. 35 and 36.

Doors low at lock side. (Dovetail wedge plate below center of dovetail bumper assembly).

Install additional shims $\frac{1}{8}$ " to $\frac{5}{16}$ " at No. 2 body bolt for coupe and at Nos. 2 and 4 for sedan.

Four-Door Sedan

See Fig. 38.

Front door low at lock side. (Dovetail wedge plate below center of dovetail bumper assembly).

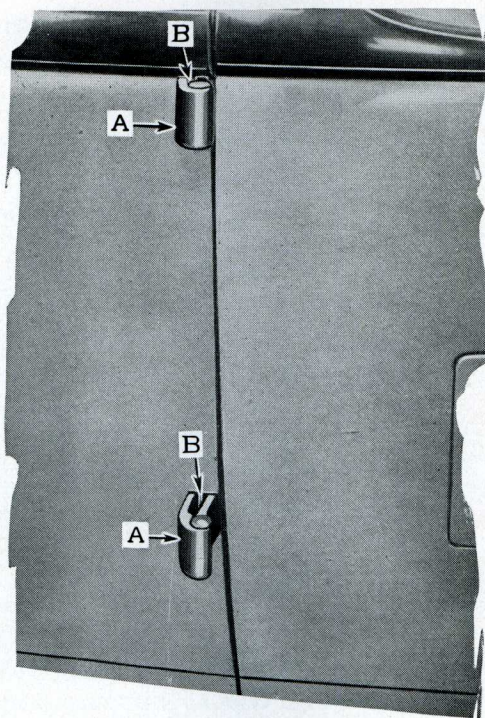


Figure No. 39
Door Hinge Clearance

Rear door high at lock side. (Dovetail wedge plate above center of dovetail bumper assembly).

Install additional shim at No. 3 bolt to raise lock pillar to proper alignment for rear door.

Install additional shim at No. 2 bolt to align front door with lock pillar.

Four-Door Sedan

See Fig. 37.

Front door high at lock side and rear door in correct alignment.

Install additional shims at Nos. 3, 4 and 5 body bolt to raise the body at the rear. Thickness of shims added should be the same at each bolt and just sufficient to bring body to front door alignment.

Door Hinge Noises

Noise at door hinges may be eliminated by tightening hinge screws and bolts, lubricating the hinge pins, and removing metal contact of hinge and door panel by filing the edges of panel. See A and B, Fig. 39.

Failure to lubricate the door hinges and hinge pins allows the hinge and hinge pin to rust at the moving parts and, as a close limit is maintained between these parts, a slight rust coating causes them to tighten or bind. The hinge pins on the 1931 Models have been copperized to assist in rust prevention.

The hinge pin turns only in the male half of the hinge and if this section of the pin becomes rusted, it will cause the hinge to bind and, in extreme cases, will throw the door out of alignment as well as cause noise.

This difficulty, in most cases, could be prevented by properly lubricating the hinges when making predelivery inspection and whenever the car is brought

in for service inspection or repairs. Periodic lubrication of hinges is essential to the proper operation of doors.

In cases where the hinges have tightened only slightly, they may possibly be freed up by the external application of penetrating oil at the joints of the hinge. By opening and closing the door, this lubricant will be worked into the hinge joints and hinge pin bearing surface.

If the hinge pin is "frozen" or rusted in, it may be necessary to remove the hinge. This may be done by removing the hinge screws and bolts. By placing the hinge in a vise, the pin may be driven out with a punch and heavy hammer.

If hinge pins are worn, oversize pins should be installed as follows:

(a) Remove Door from Body.

1. Rough ream the body pillar half of hinge with No. 355-P solid reamer.
2. Ream with No. 360-P solid reamer, which will fit this half of hinge so that .015" oversize hinge pin will fit to a hammer drive and anchor fit.

(b) Ream the Door Half of Hinge.

1. Rough ream with No. 355-P solid reamer.
2. Ream with No. 360-P reamer.
3. Ream with No. 355-E expansion reamer, fitting the pin so that it may be inserted and withdrawn from this half of hinge with finger or thumb pressure.

Rehang door, first inserting a tapered drift in pin hole of top hinge, and close door to full closed position.

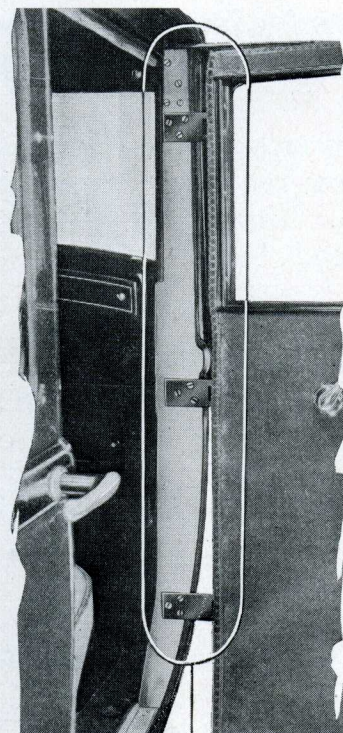


Figure No. 40
Hinge Screw Clearance

Then insert hinge pins into center and bottom hinge, remove drift from top hinge, and insert pin in top hinge.

Blank hinges (without screw holes) may be obtained to fit all models.

See that screw heads have proper clearance to prevent contact of door and pillar halves of hinges. Also that there is no contact between door pillar and hinge pillar. See Fig. 40.

When hinges have been sprung the door will be thrown out of square with the door opening. Check the flange at the lock side of door for amount of lapover at lock pillar at both top and bottom of door at lock side.

After door has been brought square with door opening, check the door dovetail wedge plate for alignment in the dovetail bumper assembly. If wedge plate is

found to be high or low, door should be aligned properly. See "Door Alignment," page 26.

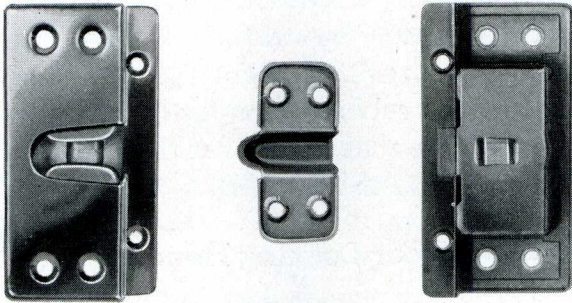


Figure No. 41
Dovetail Assembly

Door Dovetail Bumpers

See Fig. 41.

Excessive friction of wedge plate in dovetail bumper assembly is caused by misalignment of door or by insufficient clearance between the dovetail bumper shoes.

Align doors properly. See "Door Alignment," page 26.

Lubricate the shoes and wedge plate very sparingly with light machine oil.

Door Side Bumpers

Two rubber bumpers are installed at each lock pillar to prevent shock when door is slammed and to keep a light pressure against the door to prevent rattling.

Pressure should be equal on the two side bumpers when door is closed and it should be possible to close the door to latch position by the pressure of one thumb.

To determine if pressure is equal on each bumper, chalk the face of each and press door, closed lightly. Open the door and note the deposit of chalk. If one bumper shows heavy contact, cut off some of the rubber from the face. Do not shim

under the low bumper. Fit bumpers so that there is no play at the lock bolt and striker plate. After bumpers show even pressure, chalk the inside of the door flange from top to bottom at the lock side and lightly slam the door. Open the door and note if any chalk has been deposited on the lock pillar cover. If so, pein the flange of the door enough to remove contact at those points.

Doors Close Hard

Hard closing of doors is caused by misalignment of door in opening, excessive pressure of door side bumpers and door dovetail bumpers or lack of lubrication at bumper shoes and wedge plate, or binding hinges.

See "Door Alignment," page 26; "Door Side Bumpers," and "Door Dovetail Bumpers," this page.

Door Lock

Noise at door lock may be due to one or more of the following causes:

1. Lock bolt chafing on striker plate. Use an oily cloth to wipe a light coating of oil on the striker plate and lock bolt.
2. Excessive play of lock bolt in lock body. Pein or prick punch at the lock bolt opening to reduce clearance.
3. Loose striker plate. Screws may be loosened by excessive pressure of door side bumpers. See "Door Side Bumpers," this page. If the screws are loose in the holes fill the holes with hard wood plugs dipped in glue. Redrill to proper size. Do not use longer screws.
4. Worn striker plate. Replace the plate with a new one or replace the worn metal by welding with bronze.

To fit a new or welded striker plate:

- (a) Remove door side bumpers.
- (b) Screw striker plate to place.
- (c) Chalk the surface of striker plate.
- (d) Close the door easily but firmly, as far as it will go, allowing the lock bolt to rub on the striker plate and thus show the extent of its travel on the chalked surface.
- (e) Remove the striker plate and file its thicker end smooth and square to within $\frac{1}{16}$ " of limit of lock bolt's travel as indicated by the chalk.
- (f) Replace the side bumpers and slam the door lightly. If lock bolt does not catch, file thick end of striker plate until the lock bolt catches securely.

When proper corrections have been made, it should be possible to close the door to latch position by pressure of one thumb.

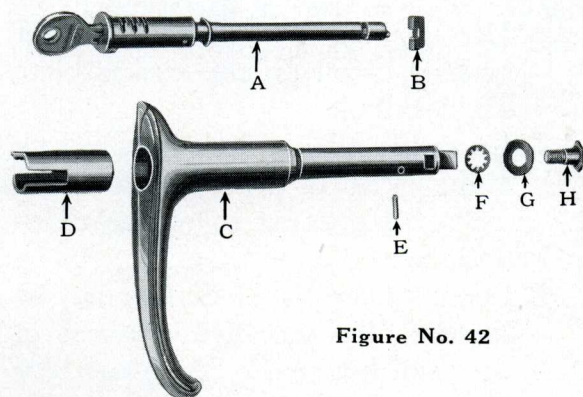


Figure No. 42

Safety Locking Handle Disassembled

- | | |
|------------------|-------------------|
| A. Lock Assembly | E. Retaining Pin |
| B. Lock Bolt | F. Star Washer |
| C. Handle | G. Plain Washer |
| D. Lock Sleeve | H. Retaining Bolt |

Outside Door Handle Binding

This condition causes the lock bolt to stick and the handle to set at an angle.

Tap the handle lightly on both sides

with the hand. If this does not loosen it, remove the handle by removing the small machine screw in the end of the handle on the inside of the door. There may be an obstruction inside the door or the rubber spacer may be swelled. Remove the spacer and trim off about $\frac{1}{32}$ " from outside face of rubber, or replace with a new spacer. See that handle has proper clearance in wood of lock pillar.

Outside Door Locking Handle

The safety outside door locking handle is designed to withstand attempts to break the lock by turning the handle from the outside.

When the outside handle is turned on the shaft by force, the handle is sheared loose from the shaft. When this occurs it is necessary to replace the damaged handle with a new one.

Warning: Do not repair a damaged handle by drilling through handle shaft and inserting a pin. This practice defects the safety purpose of the handle.

When ordering the new handle give the number of the door key and the old lock will be duplicated, thus eliminating the necessity of having two keys for the same car. If the lock cylinder is not damaged, it is only necessary to order a skeleton handle; the old lock cylinder and key may be used in the new handle. When ordering specify handle, less lock cylinder.

To Install New Lock Cylinder

See Fig. 42.

1. Remove handle assembly from door by removing retaining bolt (H) at inner end.
2. Turn key one-quarter turn and pull handle assembly out of the door.

3. Drive out retaining pin (E). Pull out lock assembly. Key must be left in lock to retain tumblers and springs.
4. Replace lock assembly putting lock bolt in position with notch toward handle.
5. Replace pin (E).

Remote Control Connecting Link

Occasionally a noise is caused by the remote control connecting link vibrating

against the wood of the door lock board.

CORRECTION:

Remove trim on door, first remove the garnish mouldings.

Trim panels on the doors are nailed to the wooden framework and can be removed by prying loose with a screw driver. Insert a piece of trim material between the connecting link and the door lock board, tacking the material to the lock board.

Windshield and Window Irregularities

Windshield Regulator Adjustment

To adjust the windshield glass, remove the regulator board. See "Removal and Replacement," page 16. Set the head of each adjusting screw out from the board $\frac{5}{16}$ ". See Fig. 43. One complete turn of screw gives approximately $\frac{1}{16}$ " adjustment.

Reinstall regulator board. Check action of windshield glass. Glass should show contact for its entire length. Use three strips of paper about 1" wide, place one at either end and one at center on top of lower weather strip. Close glass down on the papers. Glass should close with a cushion action and pressure sufficient to prevent the withdrawal of papers. If the papers are loose or handle stops abruptly

it indicates that the adjusting screws have not been backed out far enough.

Windshield Regulator Noisy

Remove the regulator board. See "Removal," page 16. See that the leather washer is in place over the lug on each regulator arm to take up looseness between the arms and the brackets on the sash channel at the top of the windshield glass which will prevent rattle of arms; and install two pieces of trim material, inserting them between drive shaft (2) and the regulator board. See Fig. 43. Tack these pieces of trim to the regulator board. This trim acts as an insulator between board and shaft, stopping chatter of shaft at board.

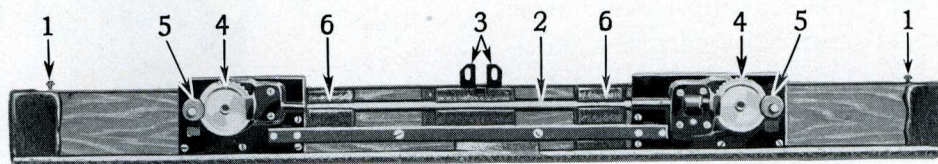


Figure No. 43

Windshield Regulator Assembly

1. Adjusting Screws
2. Driven Shaft

3. Center Bracket
4. Driven Gears

5. Regulator Arm and Leather Washers
6. Fabric Trim Insulator

Windshield Glass Rumble

Rumble of windshield glass may be prevented by setting the garnish mouldings to make closer contact with windshield glass run channels which will close the width of run channel.

Fill the screw holes in the pillar with hard wood plugs dipped in glue. Drill new holes in hinge pillar and replace screws, setting slots in screw heads parallel with sides of mouldings.

Set mouldings just snug to sash run channels, but not tight enough to cause binding of the glass.

Windshield Glass Sticks to Lower Rubber Weather Strip

Occasionally after a windshield has been closed for a long period, the glass will adhere to the lower weather strip and to the sash run channels at the sides. Attempting to raise the glass when in this condition may pull the windshield upper sash channel from the glass.

The application of a little penetrating oil to the outside upper edge of the windshield lower weather strip rubber will loosen the glass at this point. It is well to break the seal of the rubber to the glass along the edge to allow the oil to enter between lower edge of glass and rubber.

Regulator Does Not Raise Glass

Windshield upper sash channel pulled away from glass. This may have been caused by the glass sticking to the lower rubber weather strip, or by garnish mouldings being adjusted too tightly. Remove the windshield regulator board and windshield glass. See "Removal," page 16. If the windshield sash channel fillers are broken, replace with new and replace the glass. Reinstall the glass and channel

assembly and the regulator board. Adjust garnish mouldings.

Garnish Moulding Adjustment

It may be necessary to reset the side mouldings to prevent window rumble or to free the operation of window glass.

Remove the side and bottom mouldings. Plug the screw holes with hard wood plugs dipped in glue. In the case of front mouldings of front doors, it is only necessary to loosen the screws and drive the moulding, to or from the glass, using a padded wedge block. Set glass in fully closed position. Set side mouldings just snug to run channels but not tight enough to cause binding of the glass. Top and bottom garnish mouldings serve as a trim only. It is only necessary to set them in alignment with the two side mouldings for appearance.

If side garnish mouldings are so long that they can not be set snug, to channel runs, ends should be filed to conform to curvature of top and bottom mouldings. Drill new holes and replace screws setting the slots in heads parallel with sides of mouldings.

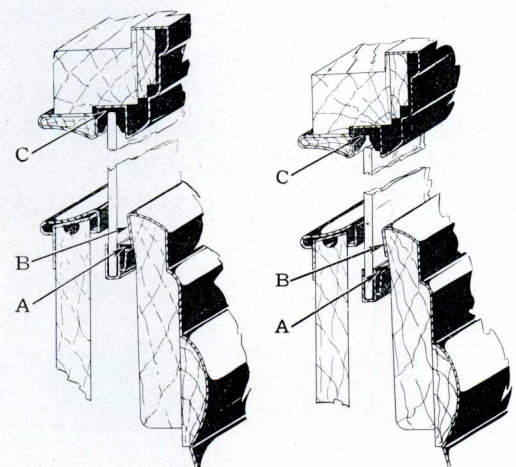


Figure No. 44
(Window Properly Closed) (Window Improperly Closed)

Window Adjustment

When window is closed the window sash rubber weather strip (A), see Fig. 44, should fit snugly against the panel turn over (B). The glass at the top should seat properly in the window header strip (C). As the window is being closed the bottom of the glass should move toward the inside of the body about $\frac{1}{16}$ " when glass is about $\frac{1}{4}$ " from being fully closed.

If the side garnish mouldings are set too tight against the run channels at the bottom, the glass will not move inward and proper contact will not be had between the rubber weather strip and the panel turn over. See "Garnish Moulding Adjustment," page 34.

If garnish mouldings are properly adjusted and yet the glass does not lock into position it may be caused by the rubber weather strip being too stiff. This may be remedied by lowering the glass and applying a little light oil to the rubber.

Window Rumble

Rumble of the window glass may be prevented by setting the window garnish mouldings to make closer contact with the glass run channels. See "Garnish Moulding Adjustment," page 34.

Lubrication of the window regulator arm at the lower sash channel and the regulator handle shaft at both ends in the bushing will reduce rattle at these points. See No. 1, under "Regulator Handle Turns Hard," this page.

If the glass does not fill the full width of channel runs, it may move edgewise. Install a filler strip to take up play. See Fig. 45. Also see No. 3 under "Regulator Handle Turns Hard," this page.

Glass Breakage

The glass used in production in all bodies varies from $\frac{5}{32}$ " to $\frac{9}{32}$ " thickness. This variation in thickness has very little bearing upon the strength of the glass and may be compensated for by garnish moulding adjustment.

Breaking of window glass may result from the following conditions:

1. Improper adjustment of garnish mouldings. See "Garnish Moulding Adjustment," page 34.
2. Glass makes contact with metal of window top panel or top garnish mouldings, or with tacks in the run channel. Adjust garnish mouldings closer to glass run channel. See "Garnish Moulding Adjustment," page 34.
3. Necessity of slamming doors to close. See "Doors Close Hard," page 31.

Regulator Does Not Raise Glass

Teeth are worn or stripped on regulator sector or gear. Remove the complete regulator assembly and replace with a new one. Do not repair a damaged regulator.

Regulator Handle Turns Hard

1. Lack of lubrication at the regulator shaft and the glass channel. Raise the glass to closed position. Using a squirt can apply light machine oil along the upper edge of the sash channel on the inside for its entire length. This oil will flow down on channel and lubricate both the channel iron bracket and the regulator arm knob.

Remove the regulator handle. See Figs. 22 and 23. Lubricate each end of the regulator shaft with light machine oil. Replace handle. Set

the window in full lowered position. The inner end of shaft may be lubricated as follows: Hold a piece of wire with one end touching the shaft. Apply a few drops of oil to the wire and allow it to run down to the shaft.

2. Side garnish mouldings set too tight against the glass run channels. Adjust mouldings only tight enough to prevent rattle of window glass. See "Garnish Moulding Adjustment," page 34.
3. Glass binds in run channels due to improper fit.

If glass is loose edgewise, insert a filler strip $\frac{3}{4}$ " wide of water-proof material (cardboard well covered with shellac) back of the glass run channel on the side toward which the glass tips at the top. See Fig. 45. Filler strip should extend from the top of the glass run channel to a point three inches below the lower garnish moulding. Tack the filler strip and channel run in position.

If glass is tight edgewise, lower glass to full open position. Remove

side garnish moulding and tacks from top of glass run channels. Pein the high spots in the metal turnover of window panel which will provide more clearance for glass. Replace run channels.

Regulator Rattles When Window is Open

Remove side and bottom garnish mouldings.

Remove the window glass. See page 18. See that leather washers are installed over the window regulator arm knob so that, when the roller is installed in the window channel cam slot, the washer will come between the arm of the regulator and the cam plate.

Regulator Handle Rattles

Remove handle and escutcheon plate. Install a washer of trim felt or wadding back of escutcheon plate to put a slight tension between plate and handle. See that coil spring "E," Fig. 23, is in place in the hole of the handle to bring pressure against end of shaft.

Regulator Handle is Obstructed in Operation

The wood screws by which the window regulator is fastened to the regulator board may have backed out so that they interfere with the regulator sector. To correct, remove the window regulator board and set the screws back in position. See "Regulator Removal," page 19.

Regulator arm may be bent so that the end of the arm interferes with the window sash channel. Remove the window glass. See "Removal," page 17. Using a bar or long screw driver straighten the regulator arm. Care should be taken to prevent marring the finish of window lower panel.

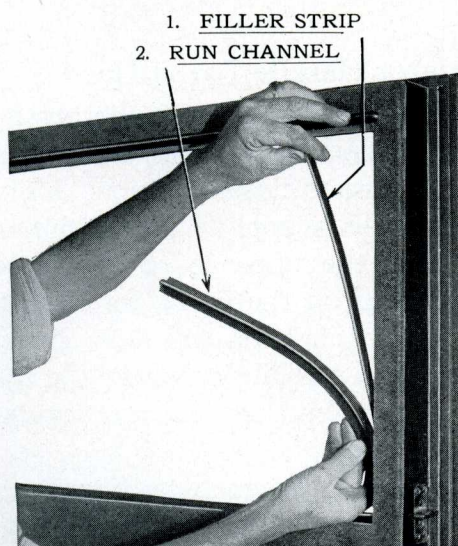


Figure No. 45
Installing Filler Strip

Water Leaks and their Correction

One of the most important phases of preventive service on automobile bodies is the sealing of water leaks. Such leaks, if discovered in time, can be stopped with very little effort and cost. If they are permitted to go unremedied serious difficulty may follow. When water is permitted to penetrate the body, it may rust the panels, loosen the glued joints, and cause the wood framework to deteriorate, not only weakening the body structure in general but giving rise to noise.

When it is considered that the sealing of water leaks is only a minor service operation and that the neglect of this service frequently results in serious damage it will be understood how important it is for service men to recommend this service to car owners, thus saving them money and preserving their good will.

Leak at Windshield

Leak at windshield may be caused by improper setting of the adjusting screws at either end of the regulator board which prevents proper seating of glass in the lower weather strip. It may be necessary to back the windshield regulator board adjustment screws out one or more turns to provide greater pressure of the glass on the windshield lower weather strip. See "Windshield Regulator Adjustment," page 33.

Leak at Joint of Windshield Pillar Cover

See Fig. 46.

Water will leak through this joint "A" unless sealed properly.

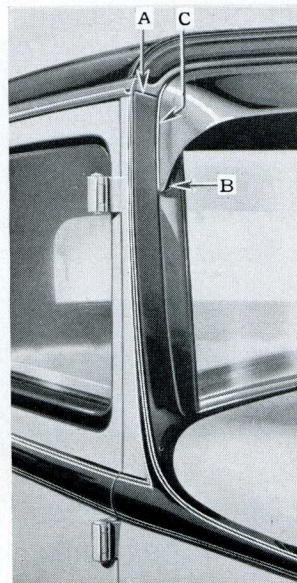


Figure No. 46

Windshield Pillar Cover

A—Joint at Roof Rail Cover

B—Visor Screw

C—Joint at Visor

Leak at Joint of Windshield Run Channel and Windshield Lower Weather Strip

Raise the windshield glass.

Remove garnish mouldings.

Take out tacks and remove the rubber run channel. See Fig. 17. Coat the back, and sides of each channel for about 6" from the bottom, also the lower ends with R. M. compound. See that windshield is properly adjusted for end play.

Leaks at Shroud Lamp Moulding

Water leaks may occur at the hold down bolts of the moulding at the front edge of shroud due to improper sealing at the rubber washers.

Correction may be made by tightening the bolts, or substituting new rubber washers or seal washers with R. M. compound.

Bolts should be tightened evenly, starting at the center and working either way.

Leak at Door Window Sash Weather Strip

When washing the car be sure that all windows are tightly closed so as to prevent an excessive amount of water from entering the window wells below them.

There are water drains at the bottom of each door and below the rear quarter windows. These drains carry off any reasonable amount of water that may seep in around the windows. However, there is danger that they will be overtaxed if a large volume of water is played directly on the windows from a hose. Then an overflow is caused which soaks the woodwork and trim. These repeated soakings cause mildew and rot.

Leak at Edge of Roof Cover

Improper sealing of roof cover along the sides and ends will allow water to seep through auto head lining.

Remove roof crown moulding. Raise edges of roof cover and coat the rails and

cover panels $\frac{1}{2}$ " wide for full length of the material, with R. M. compound or Repstick. Coat the under side of crown moulding with R. M. compound or No. 626 moulding sealer and replace. See Fig. 28.

Leak at Back Window Glass

A leak at this point is usually caused by the imbedding putty working loose from the glass.

If only certain portions of the putty have loosened, imbedding putty or R. M. compound should be forced into the cracks. If the entire glass has loosened it should be reset.

To reset glass remove the moulding and the glass. Take the rubber channel off the glass, give it a coating of shellac and replace.

Remove the old putty and reset the glass in fresh imbedding putty. Install the glass and channel.

Set the moulding tight against the glass and tack in place.

Body Noises

Windshield Lower Cross Bar

Inspect bolts "A" and "B," Fig. 47. If bolts become loose this permits windshield lower cross bar to pillar bracket "C" to move, creating noise. Bolts "B" may be tightened with the use of a heavy screw driver. Bolts "A" at the upper edge of bracket at windshield cross bar may also be tightened from this position.

See that there is a strip of insulating material between instrument panel where it is fastened to bracket "C," Fig. 47.

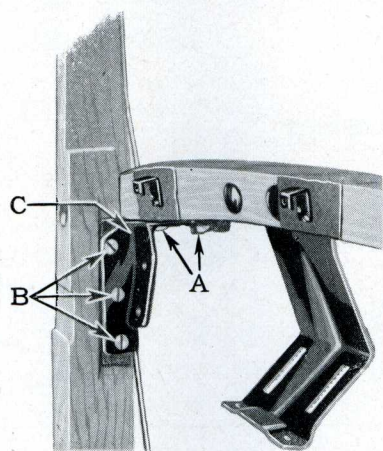


Figure No. 47

Cross Bar to Pillar Bracket

A—Bracket to Cross Bar Bolts B—Bracket to Pillar Bolts
C—Bracket

Instrument Panel

See that correct thickness of shims is used between the panel and the windshield cross bar to pillar brackets to which the panel is attached with two screws at each end.

Thickness of shims govern the adjustment of the upper edge of instrument and ventilator panel so that there is proper clearance between edges of panel and the windshield glass end channel irons.

Hood lacing material may be used for shims and they should be lubricated when installed.

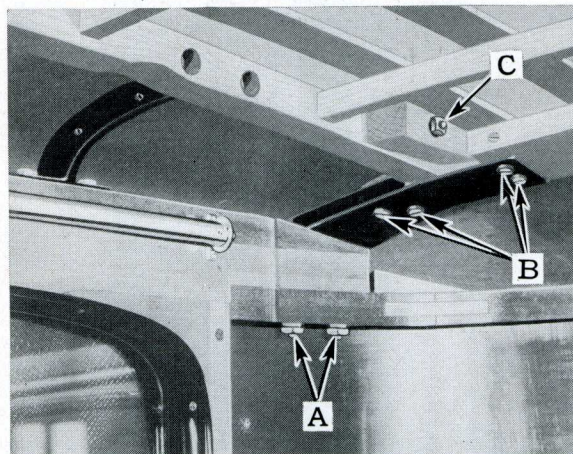


Figure No. 48

Roof Rail Rear Corner Bracket

Rear Corner of Roof

At the rear upper corner of the roof where roof rear crown rail fastens to roof side rail is a new and stronger type of metal bracket. This bracket is insulated where it makes contact to wood. Any noises developing at this point may be cared for by tightening bolts "A" and screws "B," see Fig. 48.

When roof cover or body panels are installed they should be insulated, using recommended compounds between wood before metal panels are fastened.

Rear of Body at Rear Seat

At rear of body at belt rail to sill rear cross member, there is a new type of strainer which is fastened to the belt rail and sill cross member with wood screws. These steel strainers are channeled, into which is fitted a wood filler which is insulated at body rear lower panel with a strip of felt. See Fig. 49.

Removal of seat cushion and seat back will permit access to strainer, for tightening of screws A and B or to install strips of felt between body pannel and strainers.

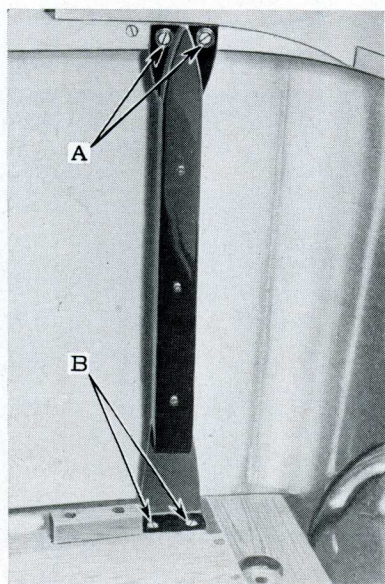


Figure No. 49
Rear Seat Strainer

Roof Rail Strainers

The roof rail strainers are fastened to the crown and side rails by means of step bolts and nuts. See Fig. 48.

To tighten bolts, release head lining at sides of side rails.

First, remove the boarded trim strip along upper roof rail. This is generally nailed on with wire brads and sometimes pasted down with trimmers paste.

After this has been removed, you will see that the head lining is tacked to the roof rail.

Next, loosen the head lining along roof rail, by prying out tacks with small screw driver, or with the aid of trim hammer claw. Loosen enough of the head lining to provide necessary room to work. Care should be taken in removal of trim so as not to soil or tear it.

To replace trim, reverse operations performed in removing it.

Deck Lid Adjustments

Deck rails are provided with brackets

to which the deck lid bumpers are fitted. If these bumpers are set too low, lid will rattle and if too high it will be difficult to lock or unlock the lid.

Chalk the faces of bumpers and close the lid. The amount of chalk deposited on the door from contact with rubber pads will indicate the height of each.

Adjustment should be made until the lock can be operated easily and the same contact is had on each bumper with pressure sufficient to prevent rattle. Adjustment is made by loosening lock nuts and screwing bumper studs up or down as required. Also see that the hinge screws are tight.

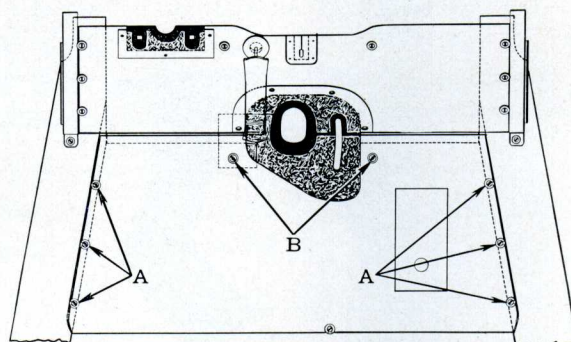


Figure No. 50
Front Floor Boards

Floor Boards

Removable wood floor boards require slight clearance at ends and edges so that they do not contact to one another. Also, see that the bottom of boards are properly insulated and that the screws are tight.

Metal floor boards and seat pans must be properly insulated where they contact with wood as well as screws which fasten them being properly tightened.

Roof Rail Front Corner Bracket Assembly

Owing to the shrinkage of wood,

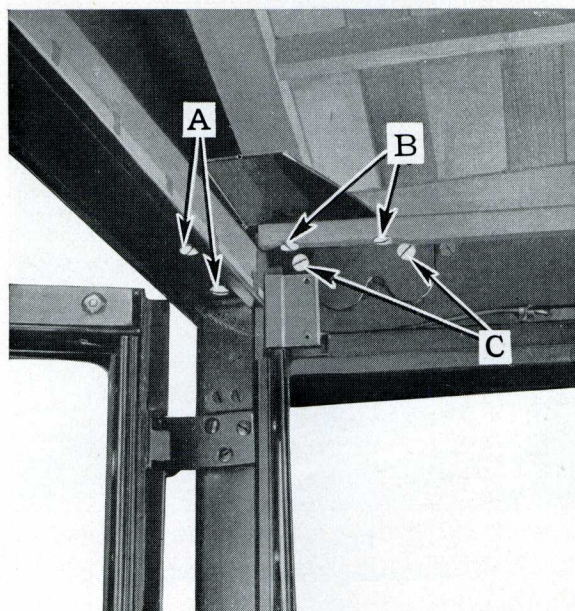


Figure No. 51
Roof Rail Front Corner Bracket

the roof rail front corner bracket occasionally becomes slightly loosened and causes a squeak.

Remove the windshield regulator board assembly. This uncovers the bracket so that it can be worked upon.

See Figure No. 51. Tighten bolts "A," "B" and "C."

Friction between the heads of the adjusting screws, of the windshield regulator board, and the front roof cross bow may also cause a noise. Apply a little graphite grease to the heads of the adjusting screws.

Windshield regulator board retaining screws may be tightened too much causing a strain on the front roof rail corner brackets. Loosen retaining screws in regulator board and retighten evenly.

Windshield glass should be closed with normal action for pressure of glass onto rubber weather strip.

Sun Visor

The sun visor is attached to the roof at front rail with round head wood screws, as well as at the ends at lower edges to the windshield pillar.

There is an insulating compound used between sun visor and roof front rail and finished with a trim welt. See "C," Fig. 52. This welt should extend to the lower edges of the ends of visor at the windshield pillar—as well as acting for a water seal, the welt also acts as an insulator between sun visor and windshield pillar cover metal. If this welt does not extend to the full length at ends of visor, visor edges will contact with the metal of the windshield pillar cover and cause a noise.

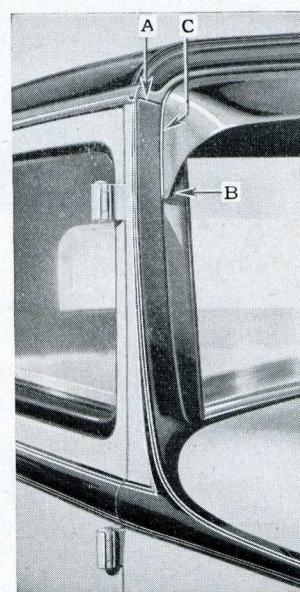


Figure No. 52
Pillar Cover and Visor Seals

Release the wood screws at inner lower edge at ends of sun visor and insulate between visor and windshield pillar cover with friction tape and re-install screws.

See "B," Fig. 52.

The upper edges of the windshield pillar cover should have clearance at lower edge of metal of roof front rail cover. If the edges of both panels contact use a thin edged tool, driven into joint to give clearance, then water seal the joint with R. M. compound to eliminate moisture entering.

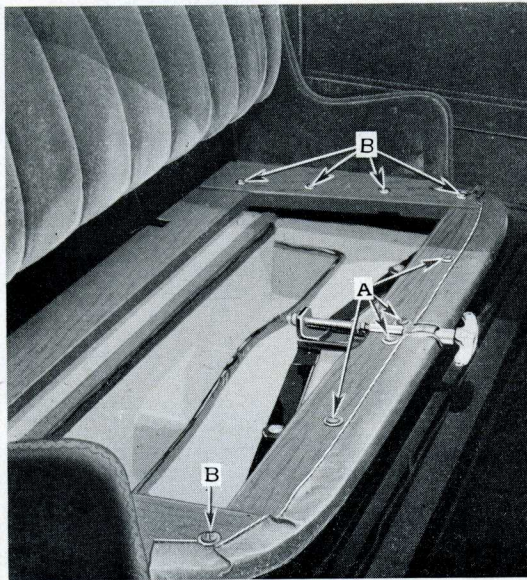


Figure No. 53
Front Seat Adjustment Mechanism

Front Seat Regulator Adjustments

If seat is tight, install additional shims in the guides to give more clearance of guide on track. See "B," Fig. 54.

If seat is loose, remove enough shims from track guide to take up play. Care should be used not to remove too much shim which would cause guides to bind and seat regulator to be difficult to operate.

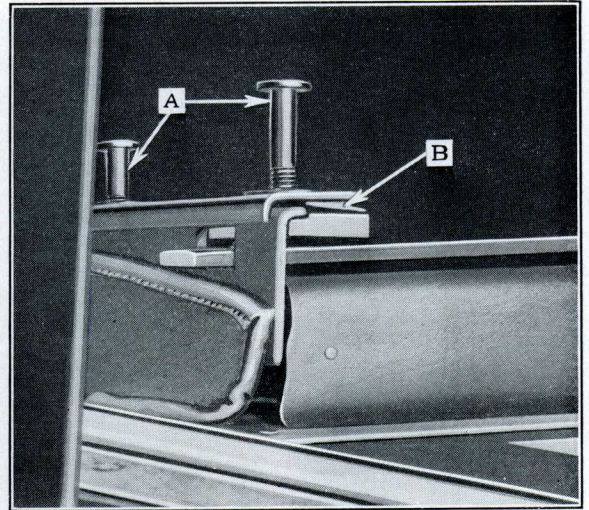


Figure No. 54
A—Retaining Screws B—Shim

Hood Alignment

When proper alignment is attained there should be $\frac{1}{8}$ " to $\frac{1}{4}$ " clearance between hood and shroud flange beading and between the hood and radiator shell beading.

Condition No. 1

Hood makes contact with shroud beading on both sides at lower corners.

Disconnect radiator brace rod at front end. Loosen radiator hold-down bolts. Place a $\frac{1}{8}$ " shim under radiator at each bolt. See Fig. 55. Adjust radiator brace rods and align radiator to give $\frac{1}{8}$ " clearance between beading and head.

Replace bolt in radiator brace rod. Tighten radiator hold down bolts.

Condition No. 2

Clearance between rear ends of hood and the shroud beading at lower corners is greater than $\frac{1}{4}$ ".

Make sure this condition is not caused by front hinge bracket or radiator being shimmed too high.

Remove any extra shims leaving $\frac{5}{32}$ " shim under radiator at each hold down bolt. Remove all shims from front hinge bracket.

If this does not provide proper alignment, install shims under hood center hinge rear bracket, 8-60, 8-80 and 8-90 Series only. Do not raise hood above shroud beading.

Radiator Shell

Contact of radiator shell bracket rivet heads to the inner top edge of radiator splash pan, see "A" Fig. 55, will cause a noise which may be mistaken for contact of fender and frame.

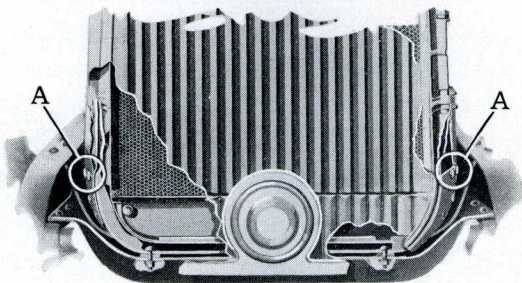


Figure No. 55
Radiator Mounting

This condition may be corrected by releasing the machine screws, which retain the radiator splash pan, and shifting the pan to allow proper clearance between pan and rivet heads. See Fig. 55.

Side Aprons

Rumble of side aprons may be detected by striking running board and apron. The

top flange of apron should be padded to prevent contact with frame and body sill. Apron should be securely fastened to running board for its entire length and all screws holding apron in place on frame side member should be securely tightened.

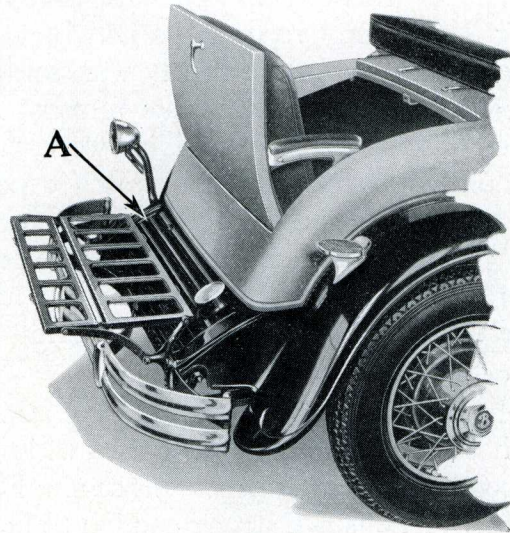


Figure No. 56
Gas Tank Cover

Gas Tank Cover

Felt pads are placed on the under side of the rear sill cross member and the side sill members to prevent contact of gas tank cover with the metal turn over of rear body panel. If it is necessary to increase the thickness of the shim at No. 5 body bolt, the felt pad should be increased a like amount to retain the proper pressure on the gas tank cover. These felt pads are nailed to the body sills and care should be taken to prevent contact of nail heads with gas tank cover.

Miscellaneous

Soldering

Soldering is not only necessary but important in many phases of body repair work and, therefore, a good working knowledge of how to handle solder is necessary to the body service man, who will find that many repair jobs can be surfaced most easily and neatly with solder. Consequently, he will have a constant need of soldering in his welding work, and should endeavor to make himself expert in the application of solder. It is necessary to know and understand how to prepare various surfaces for soldering and the materials and method to employ in this preparation.

In light articles, or joints where strain is not a factor, solder can be used without recourse to some other process. But solder alone is not strong enough to hold body panels together or to joint panels or fenders when they have been split. Such cases always call for welding.

After welding, soldering is necessary in finishing off the welded joint in order to give the panel or fender a perfectly smooth surface, for refinishing with Duco. The repair man who lines up his welding job carefully finds that he needs to use only enough solder to finish off the surface of the weld.

It is also used in filling in low spots in panels which can not readily be raised by bumping.

Care of Soldering Iron

The soldering copper, or soldering iron, should be carefully prepared. That is, it should be smoothed, cleaned and properly tinned on the flat surfaces and the point. To do this, file the copper smooth; then

heat it (Caution: never heat the copper to a red heat) apply a few drops of solder to the soldering copper and rub it on a block of sal ammoniac. Dip the copper into soldering fluid from time to time while tinning it, and while soldering with it, as this will help the solder to stick to the surface. The soldering fluid may be either muriatic acid cut with zinc or a commercially prepared soldering fluid.

Tinning

It is necessary to tin metal before applying solder. This provides a surface to which the solder will adhere.

1. Clean all paint and foreign substance at least one inch beyond the edge of the spot to be soldered.
2. Heat the metal and apply raw muriatic acid with a brush, brushing until the metal is bright and clean.
3. Apply soldering fluid to the metal, covering all parts of the surface to be soldered.
4. Heat the panel at the spot to be tinned with a soldering copper, applying solder until all parts are tinned.
5. Or, if a torch is being used, heat the metal so that solder will melt when rubbed on the surface. Then swab this solder over the surface with a coarse cloth or wire brush until it is completely tinned.

Finish the smoothing process by using a flexible body file. An application of raw turpentine to the soldered portion will aid the file to cut cleanly and smoothly. If a mechanical disc sander is available a high quality job may be produced on this final smoothing operation. Abrasive grit

No. 16 is suitable for disc smoothing. Finer abrasive will clog and load with particles of solder.

Manufacturers have developed special alloys for the express purpose of body filling.

40 parts tin and 60 parts lead or 30 parts tin and 70 parts lead solder is best for the paddling method. Solder made to this formula can be purchased.

Soldering With a Torch

A blow torch or welding torch and an oiled wood paddle are used in soldering on most body work.

Tin the surface as explained above. Then, when applying the solder, play the flame of the torch lightly over the tinned surface, so that it keeps the solder in a plastic paste form; do not apply enough heat to cause the solder to flow off panel.

Use enough solder to more than fill the depression. While it is in the paste form mould it, using the paddle which has been dipped in mutton tallow, so that it covers the entire surface that has been tinned. Any solder that is applied beyond the tinned area will not adhere; therefore, it should be removed immediately.

How to Level a Weld with Solder

In order not to sacrifice the strength of the weld by filing too much of it away, it is better to hammer the weld about $\frac{1}{16}$ " below the surface and fill the depression with solder. Enough should be used to fill the depression slightly above the level of the metal surface.

Then file the solder down to the level of the metal to make a perfectly smooth surface for the Duco finish.

After a panel has been soldered and filed smooth ready for Duco, it should be

neutralized with vinegar or high test gasoline. This should be rubbed over the finished work. This will remove all trace of acid used during the soldering operation, eliminating acid attacking metal, causing rust spots under the finished Duco, which as time goes on will spot and then chip Duco or peel off.

Brazing

Brazing may be used on cracked sheet metal panels. It is particularly valuable, however, in mending drop forgings and malleable castings which are used for body braces. Solder is too soft for this purpose, and the heat of welding would convert the malleable castings back to the original cast iron.

The parts should be prepared for brazing by grinding and filing the joints until they are perfectly clean and bright.

Then bring the parts to a low red heat.

Apply a prepared brazing flux, or common borax, to the faces to be joined. Allow it to melt and flow over the metal parts until they are covered with a film like melted glass. Then apply brass or bronze wire. Keep the parts constantly heated so that the bronze melts and flows into all parts of the joint like water. When the joint is entirely filled permit it to cool slowly.

Welding

In many cases where the body or fenders of a car are damaged, the metal is torn, requiring welding.

The cost of equipment for welding is comparatively small and a fairly complete knowledge of welding can be easily had if a little time and effort are devoted to it.

A welding outfit is essential for straightening fender braces, lamp brackets, bump-

ers and shrinking the metal of panels and fenders.

The first thing the operator must learn is to adjust his torch properly—in setting the acetylene gauge at 2 to 4 pounds and his oxygen gauge at the same pressure. Use a No. 2 tip on the torch. Turn on acetylene at the tank valve, and then at the torch valves, and light it. Turn on oxygen at tank, then at the torch slowly.

Next adjust the flame by using more or less oxygen to make a neutral flame; that is, a flame having an excess of neither acetylene nor oxygen gas. Too much acetylene turns the flame yellow and extends the cone of the flame away from the torch tip. Too much oxygen turns the flame blue, and causes an excessive pressure, making a hissing noise. The cone in a neutral flame should be about $\frac{3}{16}$ " long when a No. 2 tip is used.

After the flame is adjusted to a neutral cone, hold the torch in the right hand and filler rod in the left. The filler rod should be about 12" to 18" long to keep the left hand a safe distance from the flame. Hold the torch so that the tip points a straight line with the seam. The tip must be held $\frac{1}{4}$ " from the metal and at an angle of from 45 to 60 degrees.

Always remember that the two sides of the seam and the end of the filler rod must be heated to the same temperature, so that they will be flowing at the same time. The sides of the seam must be molten at the instant that the drop on the end of the filler rod touches them.

In case the end of the filler rod is heated to a molten drop and touched to the joint before the edges are molten, the result would be a small ball of cooled metal that would not adhere to either of the edges;

that is, no fusion would take place. Or if one edge were molten and the other edge not, then the molten drop from the filler rod would adhere to the side that is molten, leaving the other side free. This drop, when it touches the molten sides of the seam will bridge across it, and if the torch flame is raised, will tack them together as the drop cools and solidifies. This formation is called a "Tack." But, instead of raising the torch and allowing the tack to cool, continue the above operation and gradually move the flame ahead constantly keeping the last tack melted so that it will fuse with the filler, thus forming a continuous tack or weld.

Shrinking Metal Panels

Heat a spot about one inch in diameter in the center of the stretched spot in the panel. Cherry red heat is necessary. Strike the hot metal three or four medium blows with the mallet. The pressure of the surrounding colder metal and the impact of the mallet blows will shrink the metal. Smooth by applying light blows backed up with the dolly block. If the first attempt is not successful in removing the swelling, repeat until satisfactory results are obtained.

Frequently a great part of the work on a damaged car is the removing of dings or dents from fenders and body panels. Certainly there are very few cars that do not require this kind of repair work at one time or another.

Minor accidents are quite common in which body panels and particularly fenders are damaged in a way that detracts from the general appearance of the car. The car owner naturally is anxious to keep his car looking as well as possible, but he is oftentimes at a loss to know where he

should go to have the necessary work done. There is no question that he would be pleased and impressed if his Dealer were able to give him this service.

That is one reason why every dealer should be anxious to have his service men well trained in metal bumping work methods.

Another very important reason is that metal bumping provides a source of income. The necessary outlay for tools is very small and there are very few service stations that do not have available space in which this service could be rendered.

This type of work may be built up over a reasonable short period to a very satisfactory volume. Whenever a car comes into the shop, the service manager should look it over, and if there are any dents in the body or fenders, he should suggest to the car owner that they can be removed at a very reasonable cost.

Thus this additional work can be obtained with little or no effort and every job well done will recommend itself to other car owners who need the same service.

1. Always start a bumping job with a wood mallet, as its larger face covers a greater surface and works the metal back to place without causing extra dings or stretching of metal.
2. An important rule of bumping work is that several light blows with a mallet are better than one or two heavy ones. Work dents out gradually, using as much care as possible to strike them exactly on the ridges.
3. Always bump or hammer on the high side. That is, if working on a depression in the fender, bump it

from underneath, holding the flat side of the dolly on top of the fender over the part being bumped; if working on a high spot, hold the dolly under the fender and hammer on the top side of the fender.

4. A good method to follow in fender work is to bump up all low spots first so that they will not keep the rounded surface of the dolly from fitting the curve of the under surface of the fender. Then work out all high spots one by one until the surface is entirely level.
5. Always clean the under surface of a fender where a dolly block is to be used.
6. Never use a tool, either hammer or dolly, with a rusted or pitted surface; always keep the surface of tools smooth and well polished.
7. Turpentine, used on the surface of the metal, will make the job easier, and may prevent the necessity of reducing on small dings.
8. When you have the surface so smooth that you cannot see any unevenness, put talcum powder or chalk on the metal and rub your fingers over it. This will probably reveal irregularities. These should be marked with chalk and carefully worked out.
9. Do not use a file in smoothing off uneven spots unless it is absolutely necessary. This takes away part of the metal and consequently weakens it. It is possible to bring a panel to a smooth surface with dolly, hammer and sandpaper without using a file at all.

Shop Layout

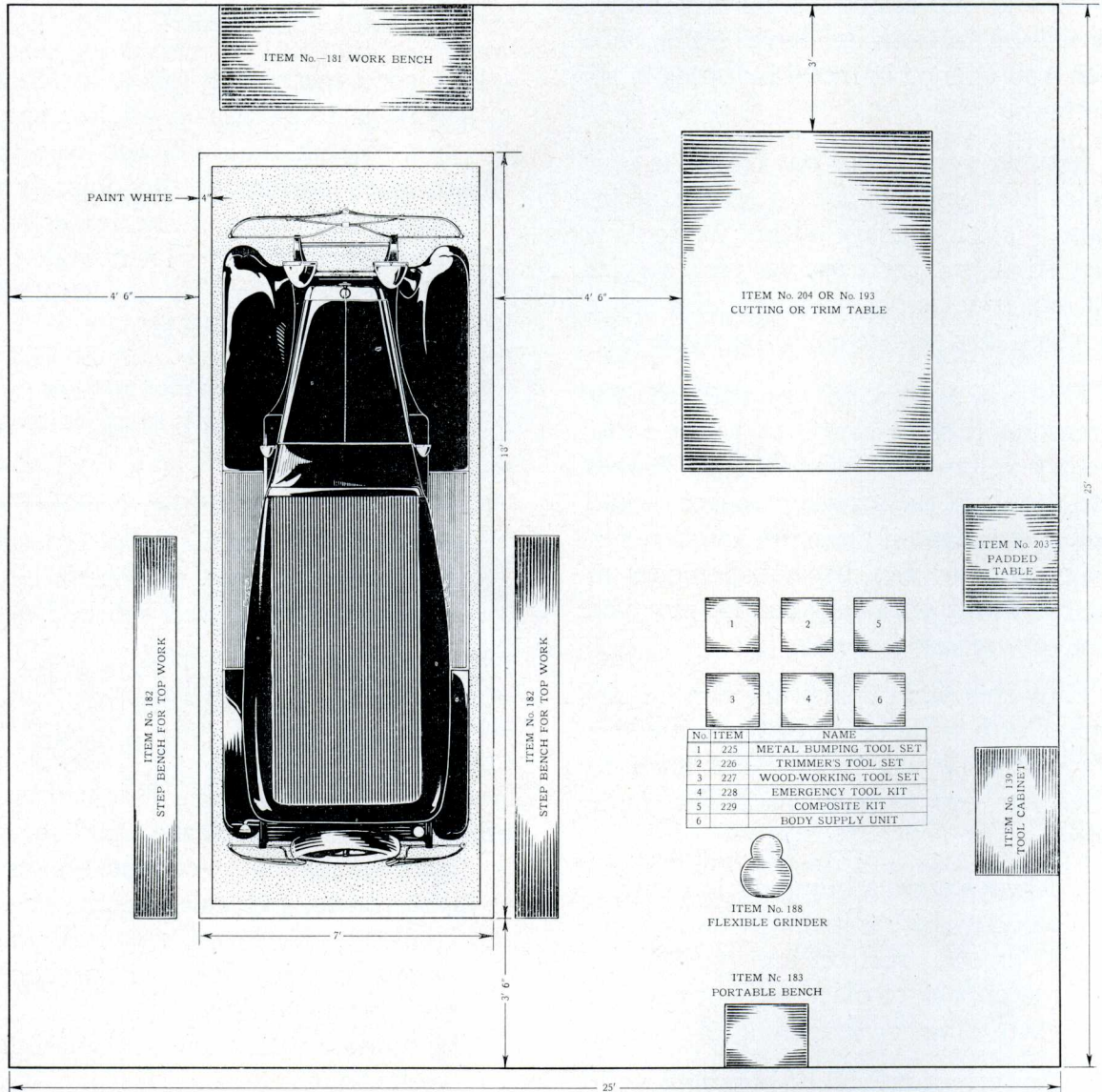


Figure No. 44

Shows a suggested layout for convenient arrangement of equipment in a minimum space which is sufficient for servicing one car at a time. It indicates also the minimum equipment and tools required for body service work.

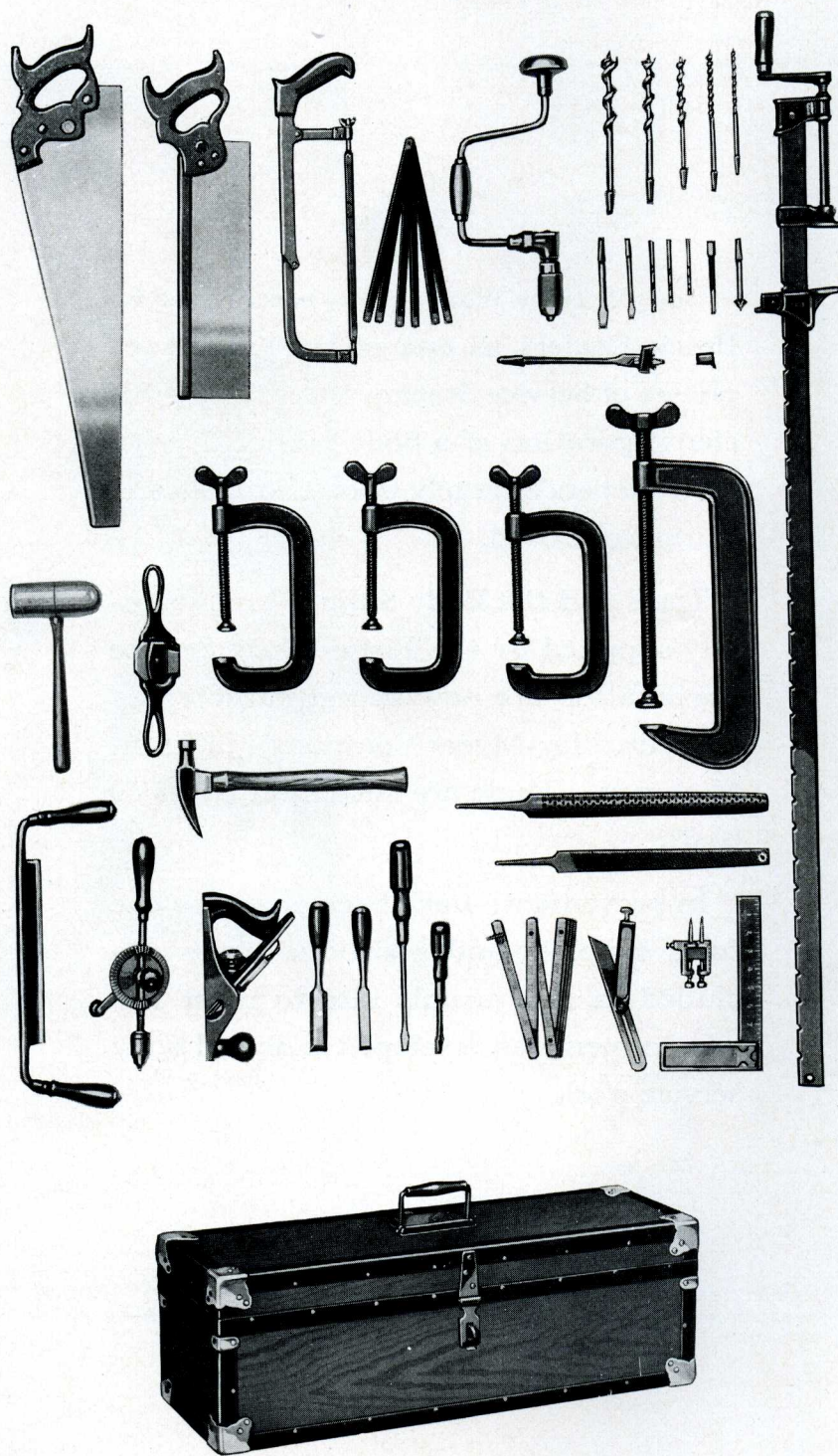
Tools

Body Service Work is now recognized by Buick Dealers as one of the important phases of Service Station operation. Efficient operation of a body service department depends largely upon the tools and equipment used.

Tools and the Body Supply Unit formerly supplied by the Fisher Body Service Corporation are now being marketed by the Hinckley-Myers Company, Jackson, Michigan. These are shown on pages 50 to 59.

Improvements have been made in the tools supplied and additional tools included in the various kits to meet the requirements as developed in actual body service work.

Woodworking Tool Kit



Order from HINCKLEY-MYERS CO., Jackson, Michigan

Woodworking Tool Kit

Tool No.	Name	Price	Tool No.	Name	Price
B 12	Wooden Mallet —Correct weight for use with wood chisels. Has the further advantage of one round and one flat face.	\$0.40			
B 15	Straight Faced Claw Hammer —Used to drive nails, draw nails, etc. For work in close quarters.	1.50			
B 22	Smooth Cut Mill File —12". To dress tools and file burrs off metal panel edges.	.45			
B 106	Wood Rasp —14". Half round bastard. A fast-cutting tool.	1.20			
B 29	Wood Chisel — $\frac{1}{2}$ " Butt, bevel edged. Used to cut wood to shape and to cut holes for bolt heads, etc. A superior type of tool; shank extends through handle.	1.25			
B 30	Wood Chisel —1" Butt, bevel edged. Same type and quality as No. B-29.	1.45			
B 33	6' Steel Bar Clamp —Specially tempered manganese steel. Used on body work to draw and hold tightly together wooden parts for splicing, gluing, etc. A clamping surface 2" x 2" between the jaws, these clamps can be used for a continual pressure up to 4500 pounds.	3.75			
B 35	12" Malleable Iron "C" Clamp —Is recommended for all types of body repair work. For gluing, splicing, etc.	2.00			
B 65	6" Drop-forged "C" Clamp —A superior type of heavy duty clamp. Per set of 3	4.85			
B 67	14" Backsaw —Hardwood Polished Handle. Used to cut lumber to make joints and splices. Use of this straight backsaw in cutting lumber when making a joint, insures a straight clean cut, with the least possible removal of sawdust.	2.00			
B 68	Cut-off Handsaw —24". Polished Hardwood Handle. Used for heavy sawing, and all rough cutting of lumber where a bandsaw is not convenient.	2.85			
B 69	Hacksaw Frame —Pistol Grip. Fabric Handle. Adjustable to take blades from 8" to 12" long. Used to saw metal panels, castings, bolts, screws and nails.	1.00			
B 69C	Hacksaw Blades —10". These are processed from Tungsten steel. $\frac{1}{2}$ doz.	.30			
B 70B	Sliding Bevel —All steel, 8" nickel plated.	1.00			
B 70C	Try-square —All steel, 8" nickel plated.	.80			
B 71	3" Blade Hand Screw Driver — $\frac{3}{16}$ " bit. Used to remove garnish moulding and other small screws; also to pry loose trim pads and binding. A superior type of tool especially built for hard service.	.65			
B 72	6" Blade Hand Screw Driver —Same type and quality as No. B-71. Shanks are double anchored against turning and blades are insulated from shock.	.85			
B 83	Ratchet Brace —10". For wood boring and driving down or removing screws. The finest brace on the market for the heavy duty required. Specifications are as follows: Box ratchet, nickel plated, metal clad, bronze bushed, ball bearing head. Forged universal jaws will take round bits and drills from $\frac{1}{8}$ to $\frac{1}{2}$ inch				
				and taper shanks as large as No. 2 expansive bit. Guaranteed to give universal satisfaction.	5.00
			B 73	Screw Driver Bit —Size $\frac{1}{4}$ ".	.25
			B 74	Screw Driver Bit —Size $\frac{3}{8}$ ".	.25
			B 75	Auger Bit —Size 1".	.75
			B 76	Auger Bit —Size $\frac{3}{4}$ ".	.55
			B 77	Auger Bit —Size $\frac{1}{2}$ ".	.40
			B 78	Auger Bit —Size $\frac{3}{8}$ ".	.30
			B 79	Auger Bit —Size $\frac{1}{4}$ ".	.30
			B 107	Expansion Bit With Two Cutters —Capacity $\frac{7}{8}$ " to 3".	2.10
			B 108	Rose Countersink —For wood and metal. Drop forged, tempered, and with sharp cutting edges. Used to countersink for screw heads.	.45
			The above Bits are used with Ratchet Brace, B 83.		
			B 84	Hand Drill —Complete with a $\frac{1}{4}$ " chuck, it is used to drill holes through metal and wood for nails, screws, etc. Also used to countersink screw holes. A new, improved type with solid gear and double pinions.	3.00
			B 80	Drill —Size $\frac{1}{8}$ ".	.10
			B 81	Drill —Size $\frac{3}{16}$ ".	.15
			B 82	Drill —Size $\frac{1}{4}$ ".	.20
			Use above drills with the Hand Drill No. B 84 to drill holes through metal panels, and in woodwork for screws, bolts, etc.		
			B 85	Nail Set —Length 4", $\frac{3}{32}$ " Point. Used to sink nail heads below the surface.	.15
			B 86	Trammel Points —(2) (Straight edge not furnished). Bronze with steel points, these points are made to fit a beam up to 1 $\frac{1}{4}$ ". When screwed on a straight edge they are used to take measurements and to square up the body. One point is fitted to take a pencil and can be used for marking out lumber when making repairs. Per pair.	1.20
			B 87	6' Aluminum Folding Rule with Hook —For all measuring. The hook is very useful when taking measurements on top material, where ordinarily two men must handle the rule. It is light in weight, non-rusting and durable.	1.60
			B 103	Draw Knife —10". A remarkable value. One of the most essential tools in a body shop for shaping out and smoothing up wood parts. Properly tempered, balanced, and offset to correct angle.	2.05
			B 104	Spoke Shave —A convenient tool for finishing panels, rabbets, etc.	1.30
			B 105	Rabbet Plane —Valuable tool for all wood workers. Cutter is fitted with cap iron and is adjustable like the cutter of a conventional bench plane. Bottom is of malleable iron and is practically indestructible. Rosewood handle and knobs.	4.90
			3-Ply Reinforced Tool Chest.		6.00
			Total Price		<u><u>\$57.30</u></u>

Buick Special Price—Complete with Kit, \$45.85

Less 5% discount for cash with order

Metal Bumping Tool Kit



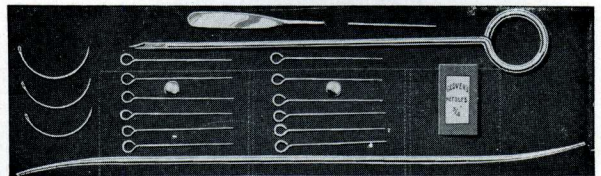
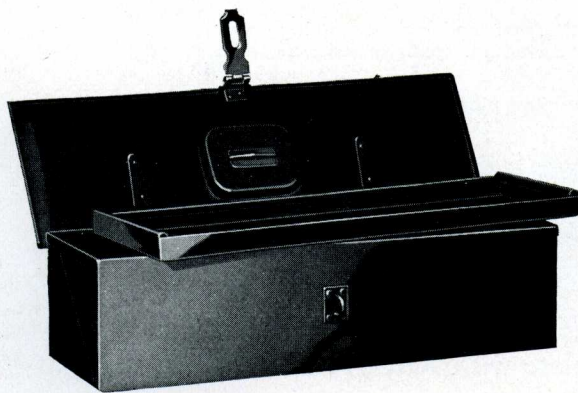
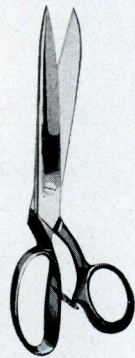
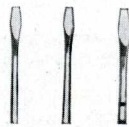
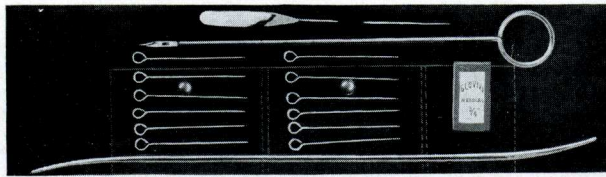
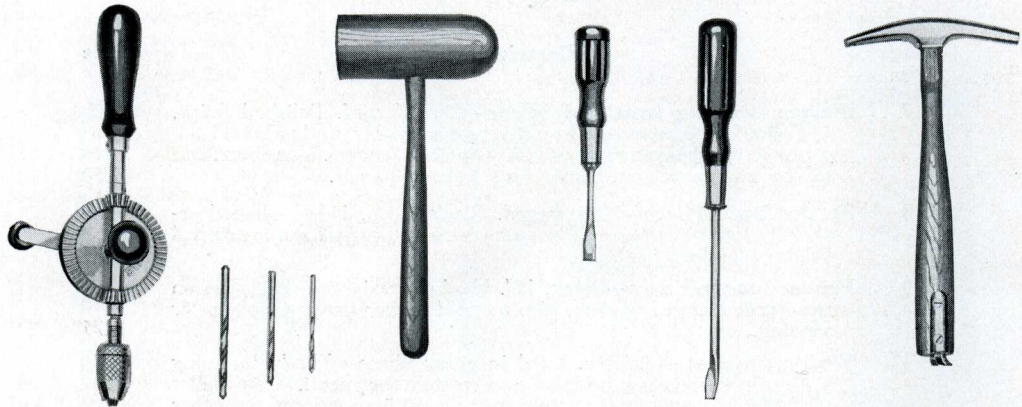
Order from HINCKLEY-MYERS CO., Jackson, Michigan

Metal Bumping Tool Kit

Part No.	Description	Price
B 7	Fender Bending Iron and Spoon —Drop-forged. Polished finish, 1½" x 16". The padded jaw on this tool is usually used to bend back to shape the flanged edges of badly crushed fenders. The spoon end can be used to pry out heavy dings in body panels.	\$1.50
B 8	Fender Bead Pliers —Drop-forged. Black finish, 11½". Shaped especially for the purpose of bringing back to original shape crushed beads of fenders.	1.75
B 9	Fender Flange Pliers —Black, 11". Used to straighten the apron on the flange edge of fenders, also to hold fender flange in place for welding.	1.75
B 12	Wooden Mallet —Hickory. Used in every phase of body bumping work where it is not necessary to stretch the metal. This mallet embodies a special feature in that one head is round and the other flat.	.40
B 13	Metal Bumping Hammer —Drop-forged. Polished finish. Used in all body and fender bumping work where it is necessary to reduce bumps or dings in the metal panels.	1.00
B 14	Fender Bumping Hammer —Drop-forged. Black finish. Length of head, 8½". Used to work back to shape badly crushed and dented fenders. Used for rough work only.	2.50
B 19	Toe Dolly Block —Drop-forged. Hardened and polished, 1½" x 2¼" x 4¾". Irregularly shaped. This tool has practically every angle and radius required on a hand anvil for hand bumping work.	1.75
B 20	General Purpose Dolly Block —Drop-forged. Hardened and polished. A very useful tool for both fender and body bumping work.	3.50
B 21	1¼" Flexible Finishing File —Used with File Holder No. B 24, it forms a metal plane, and is extremely useful in body and fender bumping work to reveal high and low spots, also to remove surplus solder after soldering.	2.50
B 24	Metal File Holder —When used with File No. B 10 it forms a metal plane.	1.25
B 25	Large Body Spoon —Hardened. Polished Finish, 2" x 11½". Used on the inside as an anvil against which to surface large depressions in a panel. Also used as a pry to bring out dents.	1.25
B 26	Medium Body Spoon —Hardened 1¼" blade. Especially shaped to fit the body panels; this tool is exceptionally handy, when dings are located directly on or near strainers.	1.00
B 27	Small Body Spoon —1⅛" blade. Used on very light bumping work. Can be used advantageously where a spoon is necessary to pry out dents on thin metal when finishing panels.	.70
B 28	Flat Cold Chisel —To be used for cutting nails and bolts, removing mouldings, cutting and stripping sheet metal, etc. Specially designed to lie flat with the work.	.50
B 31	Hinge Pin Drift —Used in knocking out hinge pins, locating bolt and screw holes, etc.	.25
B 32	Prick Punch —½" x 6". Drop-forged. Used to punch nail and screw holes in metal panels, roof and drip moulding. Also to mark out sheet metal for drilling.	.25
	Metal Tool Box Only. This box is specially made of heavy gauge sheet steel adequately reinforced and finished in olive-drab lacquer.	2.70
	Total Price	<u>\$24.55</u>

Buick Special Price—Complete with Kit, \$19.65
Less 5% discount for cash with order

Trimmers' Tool Kit



The Needle Set, B-96, while a part of the Trimmers' Kit, is available separately in cloth case.

Price \$3.20

Less 5% discount for Cash with Order

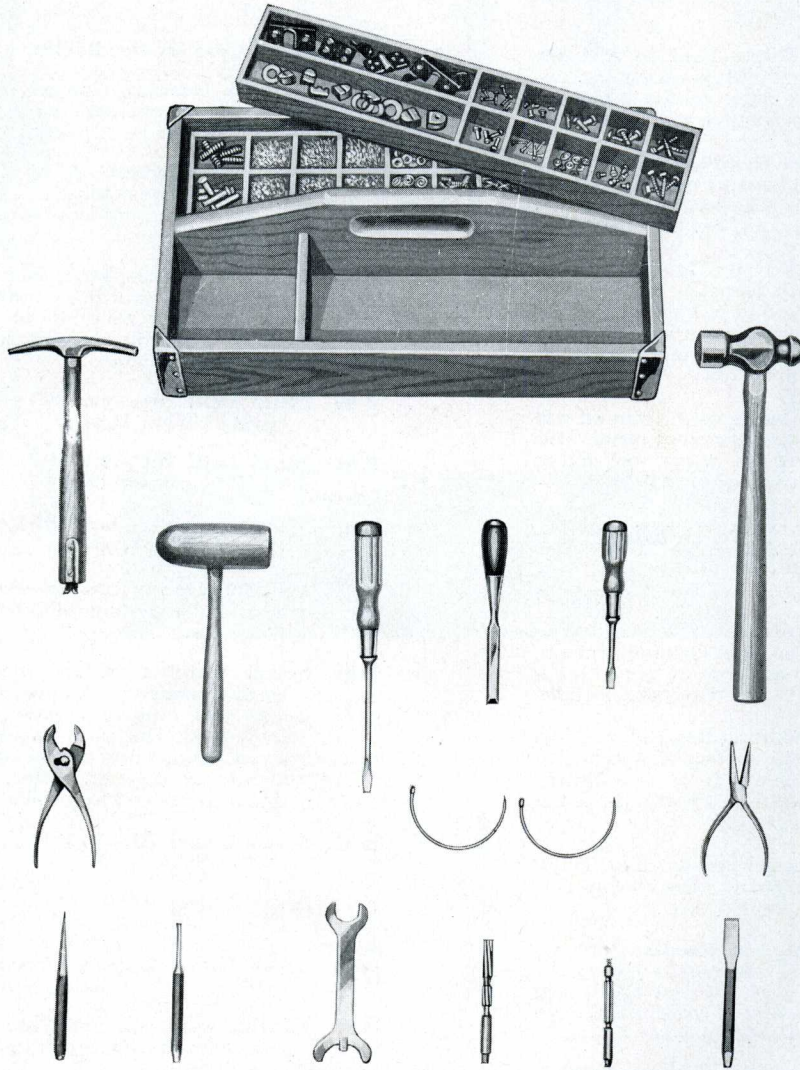
Order from HINCKLEY-MYERS CO., Jackson, Michigan

Trimmer's Tool Kit

Part No.	Description	Price	Part No.	Description	Price
B 10	Pliers, Blunt Nose —This tool is the best quality available. Will stand up under the most severe use.	\$1.00		the button into the hook, slip the needle off, and tension of the spring underneath will pull the button into place.	1.20
B 11	Long-Nosed Pliers —Used to pull out tacks and brads when taking out upholstery. The cutter on the side is for cutting bindings with a wire foundation.	1.40	B 111	Cloth Case for Needle Set.	.70
B 12	Wooden Mallet —Used to level trim edges where a steel hammer may cut the upholstery. This is a special designed tool with one round and one flat face.	.40	B 41	Glover's Needles —Specially made and used to sew upholstery material, leather, and imitation leather goods. Per doz.	.12
B 17	Magnetic Tack Hammer —Special type trimmer's tack hammer. It is magnetized at one end to pick up tacks. The claw attachment on the handle, makes it also useful to remove tacks and brads in the removal of trim.	2.00	B 71	Hand Screw Driver — $\frac{3}{16}$ " bit. Used to remove garnish moulding and other small screws; also to pry loose trim pads and binding. 7" overall.	.65
B 28	Cold Chisel —Can be used to cut off nail and screw heads, also sheet metal. This is a special design of flat tool and is valuable in removing mouldings.	.50	B 84	Hand Drill —Complete with a $\frac{1}{4}$ " chuck. It is used to drill holes through metal and wood for nails, screws, etc. This is a new, improved type with solid gear and double pinions.	3.00
B 32	Prick Punch —Used to start nails, screws, etc., through sheet metal or trim material. Can also be used as a scribing tool.	.25	B 80	Hand Drill Bit —Size $\frac{1}{8}$ ". Used with Hand Drill No. B-84.	.10
B 36	Trimmer's Knife —Used to cut the edges of top material, trim material, threads, etc. This is a new type of tool with adjustable blade and detachable handle.	.75	B 81	Hand Drill Bit —Size $\frac{3}{16}$ ". Used with Hand Drill No. B-84.	.15
B 37	Double-End Stuffing Regulator —Used to regulate the stuffing of wadding in overstuffed trim. It is of sufficient length to regulate wadding in the sewed pipings in seat cushions.	1.02	B 82	Hand Drill Bit —Size $\frac{1}{4}$ ". Used with Hand Drill No. B-84.	.20
B 38	Trimmer's Loose Pins —Used to pin upholstery material to place, before cutting and tacking. Per doz.	.24	B 88	10" Trimmer's Shears —Bent Type. Used to cut all kinds of upholstery material.	2.00
B 40	Curved Trimmer's Needle —Specially curved for the purpose. It is used for sewing arm rests, etc., on overstuffed upholstery, where glover's needles can not be used. Per set of 3	.26	B 89	Spiral Ratchet Screw Driver —(Bits listed separately). An improved heavy duty tool, positive in action and especially rigid. The spiral locking device is a new development. Clean cut knurling affords an easy grip when operating shifter sleeve and lock collar. Less bits.	2.25
B 90	Trim Regulator Needle —Used to prick up the trim cloth and conceal brad heads.	.42	B 92	Screw Driver Bit — $\frac{5}{16}$ ". Used with No. B-89.	.15
B 91	New Style Button Fastener Needle —Used to reinstall the buttons on overstuffed trim. Needle is pushed through cushion padding far enough so it can be engaged to the hook attached to the wire or chain device. After the hook is attached to the needle, pull it up through the surface of the cloth. Then insert		B 93	Screw Driver Bit — $\frac{1}{4}$ ". Used with No. B-89.	.15
			B 94	Screw Driver Bit — $\frac{3}{16}$ ". Used with No. B-89.	.15
			B 95	Flexible Tape —In Case. Used for taking measurements up to thirty-six inches.	.75
			B 101	Special Offset Screw Driver —The first step in removing old roof coverings is to pry off the crown moulding and side sections. This tool was designed to lessen the danger of damaging the side roof cover panel.	.55
				Metal Tool Box with Tray.	3.10
				Total Price	<u><u>\$23.46</u></u>

Buick Special Price—Complete with Kit, \$18.85
Less 5% discount for cash with order

Emergency Repair Kit



Order from HINCKLEY-MYERS CO., Jackson, Michigan

Emergency Repair Kit

Part No.	Description	Price	Part No.	Description	Price
B 10	Pliers —Blunt nose. This tool is the best quality available and will not fail under the most severe usage.	\$1.00	B 40	Curved Trimmer's Needle —Specially curved for the purpose. It is used for sewing arm rests, etc., on overstuffed upholstery, where glover's needles can not be used. Two furnished in this set.	.18
B 11	Long-Nosed Pliers —Used to pull out tacks and brads when taking out upholstery. The cutter on the side is for cutting bindings with a wire foundation.	1.40	B 61	Special Wrench for Inside Door Handle —It is necessary to use this wrench to prevent marring the escutcheon plate.	.20
B 12	Mallet —Wood with one round and one flat face. This design is a great improvement over previous types.	.40	B 62	$\frac{23}{32}$ " Expansion Reamer —Used in fitting oversize hinge pins.	2.00
B 16	Ball Pein Hammer —2 lb. An exceptionally heavy duty hammer for general use.	1.00	B 63	$\frac{23}{32}$ " Solid Hinge Pin Reamer —This is a special long pilot reamer used for rough cutting. Hinge holes should first be roughed out with this tool before using the more delicate expansion reamer.	2.00
B 17	Magnetic Tack Hammer —Standard type of trimmer's tack hammer. It is magnetized at one end to pick up tacks. The claw attachment on the handle, makes it also useful to remove tacks and brads in the removal of trim.	2.00	B 71	Hand Screw Driver —7" overall with 3" blade. This tool is of the highest grade obtainable. Blade is positively locked against turning and handles are capped and insulated against shock.	.65
B 28	Flat Cold Chisel —Specially developed to lie flat with the work. Will remove moldings without damage.	.50	B 72	Hand Screw Driver —12" overall with 6" blade. Is of the same high quality as No. B-71.	.85
B 29	Wood Chisel — $\frac{1}{2}$ ". Forged in one piece with shank extending through the handle. A blow struck on the head is transmitted directly to the cutting edge.	1.25	Emer. Tool and Parts Tray Only. This tray is especially built for the needs of body repair men. Is provided with a convenient handle and sufficient compartments to carry a representative assortment of emergency parts.		3.10
B 31	Hinge Pin Drift —Used in knocking out hinge pins and locating bolt and screw holes.	.25	Total Price <u><u>\$17.03</u></u>		
B 32	Prick Punch — $\frac{1}{2}$ " x 6". Drop-forged. Used to punch nail and screw holes in metal panels, roof and drip moulding. Also to mark out sheet metal for drilling.	.25			

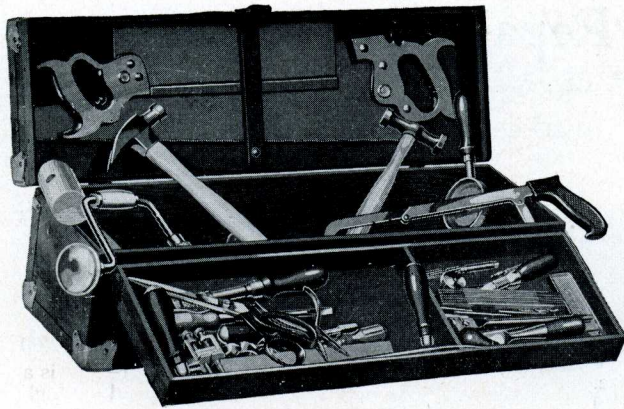
Miscellaneous Car Parts

Quantity	Description	Price	Quantity	Description	Price
12	Curtain Roller Bracket Screw (Oval Head N. P.)	\$.10	12	Door Hinge Screw (Wood Pillar)	.06
12	Garnish Moulding Screw (Oval Head N. P.)	.10	12	Door Hinge Screw (Steel Door pillar)	.06
12	Garnish Moulding Screw Washer	.02	6	Door Hinge Pin (Oversize)	.18
12	Garnish Moulding Screw (Steel Pillar)	.04	6	Instrument Panel Ventilator Lock Screw	.04
12	Garnish Moulding Screw Nut (Steel Pillar)	.22	6	Instrument Panel Ventilator Lock Screw Washer	.18
6	Door Check Link Screw	.24	6	Windshield Regulator Board Adjusting Screw	.02
6	Door Check Link Screw Lock Washer	.02	6	Windshield Regulator Board Screw	.02
6	Door Check Link Bolt Spring Washer	.06	6	Windshield Regulator Board Screw Washer	.04
6	Door Check Link Anti-Rattler Spring	.08	6	Window Regulator Bolts and Nuts	.04
6	Door Lock Screw	.04	6	Door Dovetail Bumper Screw	.04
6	Door Inside Safety Lock Screw	.04	1	Garnish Moulding Buffer Block	.20
6	Door Lock Outside Handle Ferrule Grommets	.22	12	Wood Plugs	.04
6	Door Lock Outside Handle Safety Screw	.60	2	Body Shims	.18
6	Door Lock Outside Handle Safety Screw Washer	.04	6	Regulator Arm Anti-Rattler	.16
6	Door Lock Outside Handle Safety Screw Lock Washer	.02	5 oz.	Trimmer's Tacks (2 $\frac{1}{2}$ oz.)	.14
6	Regulator and Remote Control Handle Anti-Rattler	.02	6 oz.	Trimmer's Tacks (12 oz.)	.08
6	Door Lock Remote Control Spring	.02	7 oz.	Japan Gimp Tacks (4 oz.)	.14
6	Adjustable Seat Handle Screw	.22	4 oz.	Moulding Nails 1 $\frac{1}{2}$ No. 14	.06
			5 oz.	Screw Nails $\frac{7}{8}$ No. 14 (Roof Slats)	.56
			5 oz.	Screw Nails $\frac{3}{4}$ No. 14 (Metal Panels)	.56
Total Price					<u><u>\$4.90</u></u>

Buick Special Price

Tools and Parts Unit Complete with Kit, \$17.55

Less 5% discount for cash with order



Composite Tool Kit

This 3-ply reinforced Kit contains all tools in composite set

A complete Set of one each of all items represented in the Kits without duplication
You may Order the Composite Kit Complete, a Single Kit or Single Tool

Tool No.	Name	Price	Tool No.	Name	Price
B 7	Fender Bending Iron and Spoon	\$1.50	B 70B	Sliding Bevel, 8"	\$1.00
B 8	Fender Bead Pliers	1.75	B 70C	Try-Square, 8"	.80
B 9	Fender Flange Pliers	1.75	B 71	Hand Screw Driver, 3" Blade	.65
B 13	Metal Bumping Hammer, Forged Head	1.00	B 72	Hand Screw Driver, 6" Blade	.85
B 14	Fender Bumping Hammer	2.50	B 83	Ratchet Brace, 10"	5.00
B 19	Toe Dolly Block	1.75	B 73	Screw Driver Bit, 1/4"	.25
B 20	General Purpose Dolly Block	3.50	B 74	Screw Driver Bit, 3/8"	.25
B 25	Large Body Spoon	1.25	B 107	Expansion Bit, 2"	2.10
B 26	Medium Body Spoon	1.00	B 108	Rose Countersink, 3/4"	.45
B 27	Small Body Spoon	.70	B 75	Auger Bit, 1"	.75
B 10	Pliers, Blunt Nose, 6"	1.00	B 76	Auger Bit, 3/4"	.55
B 11	Pliers, Long Nose, Side Cutting, 6"	1.40	B 77	Auger Bit, 1/2"	.40
B 12	Wood Mallet, 1 Round and 1 Flat Face	.40	B 78	Auger Bit, 3/8"	.30
B 15	Straight-Faced Claw Hammer	1.50	B 79	Auger Bit, 1/4"	.30
B 16	Ball Pein Hammer, 2 lbs.	1.00	B 84	Hand Drill	3.00
B 17	Magnetic Tack Hammer	2.00	B 100	Carbon Drill, 1/16"	.10
B 21	Flexible Body File, 1 1/4" x 14"	2.50	B 80	Carbon Drill, 1/8"	.10
B 22	Flat Mill File, Smooth Cut, 12"	.45	B 81	Carbon Drill, 3/16"	.15
B 24	Metal File Holder	1.25	B 82	Carbon Drill, 1/4"	.20
B 106	Half Round Wood Rasp, 14"	1.20	B 85	Nail Set Square Head, 3/32"	.15
B 28	Special Flat Cold Chisel	.50	B 86	Trammel Set, 2 Points	1.20
B 29	Wood Chisel, 1/2"	1.25	B 87	Aluminum Folding Hook Rule, 6 ft.	1.60
B 30	Wood Chisel, 1"	1.45	B 88	Trimmers' Shears, 10"	2.00
B 31	Hinge Pin Drift	.25	B 89	Spiral Ratchet Screw Driver	2.25
B 32	Prick Punch, 6"	.25	B 92	Spiral Ratchet Screw Driver Bit, 5/16"	.15
B 33	Adjustable Bar Clamp, 6 ft.	3.75	B 93	Spiral Ratchet Screw Driver Bit, 1/4"	.15
B 35	Malleable "C" Clamp, 12"	2.00	B 94	Spiral Ratchet Screw Driver Bit, 3/16"	.15
B 36	Trimmers' Special Knife, Detachable Handle	.75	B 95	Flexible Tape, 1/4" x 36"	.75
B 37	Stuffing Regulator, 18"	1.02	B 101	Special Offset Screw Driver	.55
B 38	Trimmers' Loose Pins (1 dozen)	.24	B 103	Draw Knife, 10"	2.05
B 40	Small Curved Needles (Set of 3)	.26	B 104	Spoke Shave	1.30
B 41	Glovers' Needles, 3 Cornered (1 dozen)	.12	B 105	Rabbit Plane	4.90
B 90	Trim Regulator Needle, 8"	.42		Composite Tool Kit only	6.00
B 91	New Style Button Fastener Needle	1.20		Emergency Kit only	3.10
B 111	Cloth Case for Needle Set	.70		Miscellaneous Car Parts Unit	3.90
B 61	Special Wrench for Inside Door Handles	.20			
B 62	Hinge Pin Expan. Pilot Reamer, 23/34"	2.00			
B 63	Hinge Pin Solid Roughing Reamer, 23/32"	2.00			
B 65	Drop-forged "C" Clamps, 6" (Set of 3)	4.85			
B 67	Back Saw, 14"	2.00			
B 68	Hand Saw, 24"	2.85			
B 69	Hack Saw Frame, 8-12"	1.00			
B 69C	Saw Blades, 10" (1/2 doz. package)	.30			

Total Price \$106.16

NOTE: B 96 The Needle Set, while a part of the Trimmers' Kit, and Composite Tool Kit, is available at \$3.20. Consists of B 37, B 38, B 40, B 41, B 90, B 91, and B 111.

Buick Special Price—Complete with Kit, \$85.80

Less 5% discount for cash with order

Order from HINCKLEY-MYERS CO., Jackson, Michigan

Body Supply Unit

SUPPLIES

Quantity	Name	Dimensions	Price
1 lb.	Moulding Nails (Screw type)	1" No. 14	\$ 1.32
1 lb.	Moulding Nails (Screw type)	3/4" No. 14	1.48
2 1/2 lbs.	Moulding Nails (Cement coated type)	1 1/4" No. 14	.42
5 lbs.	Roof Slat Nails—F. H.	3/4" No. 16	1.04
1 lb.	Trimmer's Tacks	2 1/2 oz.	.28
1 lb.	Trimmer's Tacks	12 oz.	.16
1 lb.	Gimp Tacks		.32
1 lb.	3/4" No. 18 or 20 Wire Brads		.22
1 gr.	Wood Screws	1" No. 5 O.H.A.	.86
1 gr.	Wood Screws	1 1/4" No. 6 O.H.A.	1.10
1 gr.	Wood Screws	1" No. 10 F.H.S.	.46
1 gr.	Wood Screws	1 1/2" No. 10 F.H.S.	.54
1 gr.	Wood Screws	3 1/2" No. 12	1.46
1 gr.	Wood Screws	2" No. 10 F.H.S.	.66
1 gr.	Wood Screws	1" No. 12 F.H.S.	.52
1 gr.	Wood Screws	1 1/2" No. 12 F.H.S.	.62
1 gr.	Wood Screws	2" No. 12 F.H.S.	.76
1 gr.	Wood Screws	1" No. 14 F.H.S.	.66
1 gr.	Wood Screws	1 1/4" No. 14 F.H.S.	.74
1 gr.	Wood Screws	3/4" No. 7 O.H.A.	.86
1 gr.	Machine Screws and Nuts	3/4" 10-24 F.H.S.	1.14
1/4 gr.	Screws and Barrel Nuts for Attaching Garnish Moulding		.88
1 gr.	1/4" x 3 1/2" Bolts and Nuts for Attaching Hinges to Body Hinge Pillar		1.34

Compounds

1 can	Plastic Wood		\$.60
2 (1/2 pts.)	Rinshed-Mason Compound (1/2 pt. cans)		1.34
1 pt. F.S. No. 604	Friction Paste—Used wherever iron is screwed against wood, also on Dome Light Block and under floor boards		.74
1 pt. F.S. No. 633	Black Putty—Used to fill Back Light Glass Groove before inserting glass		.66
1 lb. F.S. No. 714	Repstick—Used to waterproof Roof Covering Material when installing on job		.66
2 lbs. F.S. No. 730	Glucol, Midland Glue or Trimmer's Paste—Used to paste over Door Trim Assembly, Windshield Header Trim Assembly and Rear Seat Heel Board Cover Leather		.18
1 qt. F.S. No. 731	Rubber Cement—Used in making up all Trim Assemblies, using Cement		.90
1 pt. F.S. No. 626	Drip and Crown Moulding Sealer—Used to seal opening between Roof Covering Material and Moulding applied after Roof Covering is on		.74
1 lb. F.S. No. 745	Rubber Dough—Used under metal on top of Cowl Bar and around Windshield Wiper tubing		.54
1/2 pt. F.S. No. 681	Ventilator Cement—Used to cement Flat Type Shroud Side and Top Ventilator Rubbers in place		.66
1/2 pt. F.S. No. 696	Rubber Cement—Used to cement Back Light Glass Rubber Channel to Glass		.26
1 pt. F.S. No. 614	Cement—Used to cement Windshield Lower and Side Glass Retainer		2.00

Trim Materials

1 (2 oz. spool)	Barbours Irish Flax Thread—4 Cord O used for Trim Repair work	1.10
5 lbs.	Cotton Wadding	1.02
5 yds.	Boarded Trim Padding	1.08
10 yds.	Seamed Cotton Roof Padding	4.04

Total Price \$34.36

Buick Special Price for Unit, \$27.50

Less 5% discount for cash with order









Order from HINCKLEY-MYERS CO., Jackson, Michigan

Standard Supplies













The following illustrations show the screws, bolts, nails and tacks as used in Fisher Body production. Every body service department should be supplied with these items.

These illustrations may be used as a guide in the selection of the proper item for replacement of damaged or missing parts.

Standard Wood Screws

 <p>½", No. 4</p>	 <p>⅝", No. 5</p>	 <p>¾", No. 6</p>	 <p>¾", No. 7</p>
 <p>⅞", No. 8</p>	 <p>1", No. 10</p>	 <p>1¼", No. 12</p>	 <p>1¼", No. 14</p>

Special Screws and Bolts

 <p>⅝", No. 4 oval head nickel plate wood screw—dome light switch plate.</p>	 <p>⅝", No. 6 oval head nickel plate wood screw—dove tail casing assembly. Sill plates.</p>	 <p>1", No. 5 oval head nickel plate wood screw—window garnish moulding.</p>	 <p>1¼", No. 7 oval head nickel plate wood screw—dove tail casing assembly.</p>
 <p>1", No. 6 oval head nickel plate wood screw—door side bumper.</p>	 <p>1¼", No. 8 oval head nickel plate wood screw—robe rail.</p>	 <p>¾", No. 7 round head nickel plate wood screw—curtain bracket.</p>	 <p>1", No. 10 round head blued wood screw—visor panel.</p>
 <p>8-32x½" oval head nickel plate machine screw—door inside locking device.</p>	 <p>12-24x½" oval head nickel plate machine screw—foot rest bracket.</p>	 <p>¼-20x1⅛" oval head nickel plate lock screw—windshield regulator board to corner bracket.</p>	 <p>¼-24x1⅛" oval head nickel plate special screw—instrument panel to bracket.</p>

Special Screws and Bolts



3/4", No. 14 special sheet metal screw—deck lid strike catch.



1 1/4", No. 12 lintel head wood screw—front body hinge pillar to roof rail bracket.



No. 10-24x5/8" flat head machine screw and wood grip nut. Window regulator to regulator board.



1/4"-20x2 1/2" step bolt. Dash to dash mat. Used at joints of laps or splices.



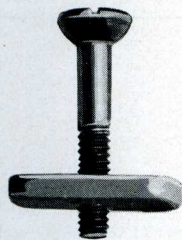
3/4", No. 7 lintel head wood screw—deck lid edge to lid frame.



1", No. 14 oval head wood screw—rear quarter panel to sill. At wheel house.



1/4"-20x1 5/8" lintel head machine screw. Rear door pillar to hinge.



1/4"-20x1 1/2" filister head ball shoulder machine screw, and special nut. Used at front roof rail to corner bracket.



1", No. 8 lintel head wood screw—lock to pillar exposed.



1 1/8", No. 14 lintel head wood screw—hinge.



1/4"-20x2 1/4", lintel head machine screw. Rear door pillar to hinge.



1/4"-20x1 1/2" filister head machine screw and wood grip lock washer. Roof trim bow to corner bracket.



1", No. 12 lintel head wood screw—door hinge block.



1 1/2", No. 10 hex head wood screw special — windshield regulator board adjusting.



1/4"-20x3" lintel head machine screw. Front door body pillar to center and bottom hinge, and rear door hinge to body pillar lower.



5/8" x 1 1/4" filister head cap screw. Front seat to seat mechanism.

Nails and Tacks



3/4", No. 16 countersunk cement coated. Used at window panel inside flanges.



3/4", No. 15 countersunk cement coated. Used to fasten metal panels and moulding.



1", No. 14 countersunk screw nail. Used at mouldings and panels.



1/2", No. 15 flat head barb nail cement coated. Used to fasten window glass run channel retainers to the pillars.



1", No. 16 flat head cement coated. Used to fasten top and bottom of door flanges to frame.



1 1/4", No. 14 flat head cement coated. Used to fasten trim sticks.



3/4", No. 17 flat head. Roof slat nail.



5/8", No. 18. Used at trim backed with cardboard, over windshield trim strip, over door weather strip, etc.



1", No. 17. Used to fasten rear window trim retainer.



12-ounce Swede trim tack. Used to tack material where turnover or pleats are thick, and there is strain; or at bottom edges of seat cushions, and at seat backs.

Note: Swede tack heads, when exposed acquire a brown or rusted appearance and should not be used where tack head may be exposed to view.



8-ounce Sweed trim tack. Used at over door weather strips, to tack through board, underneath top trim.



6-ounce Japanned lace trim tack. Used where trim is pleated, backed with cardboard, etc.

Note: Japanned tacks are generally used, to trim where heads may show or be exposed, being specially treated they do not show rust or stain.



4-ounce Japanned lace trim tack. Used at bindings, heel carpets, kick-up trims, or where tack heads may be exposed.



4-ounce Swede trim tack. Used for general trim work.



2 1/2-ounce Swede trim tack. Used to fasten trim material, of material thickness, such as head lining, top of door, lower trim at top of lock board, etc.



Fisher Body Schools

The Fisher Body Corporation are at the present time conducting Body Service Schools at key points in the territory. These schools are conducted for the purpose of training Buick mechanics in the proper methods of body repair and management of body repair departments. Dealers wishing to have mechanics attend the school should communicate with either the Zone Service Manager or Service Promotion Traveler for enrollment dates or other information pertaining to the schools.

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