



SHEET METAL FITTING

On all Chevrolet sheet metal and body assemblies, as on most parts of the car, provision has been made for service adjustments. This article is designed not only to provide body men with information that will be of use in their every day job but also to provide servicemen with some body adjustment fundamentals that will be extremely useful on those days when the body shop is filled to overflowing or while conditioning new cars for delivery. We will divide the article into three parts (1) Hood and Front End Sheet Metal (2) Doors and (3) Deck Lid. The main items with which we will be concerned, of course, will be appearance and proper operation of the moving parts.

HOOD AND FRONT END SHEET METAL

In regard to the hood and front fenders, we are mainly concerned with the appearance of the fit between the hood and adjoining sheet metal parts. By this we mean that the hood should be centered between the fenders and the gaps all around the hood, at the fenders, doors and cowl, should be according to the specifications shown in Figure 1. Of course, we have to have a starting point for any job so let's measure across point "A" and point "B" (fig. 2). The measurement at "B" should be $\frac{3}{16} \pm \frac{1}{16}$ longer than "A". If it is, then drop the hood into place and check to see whether or not

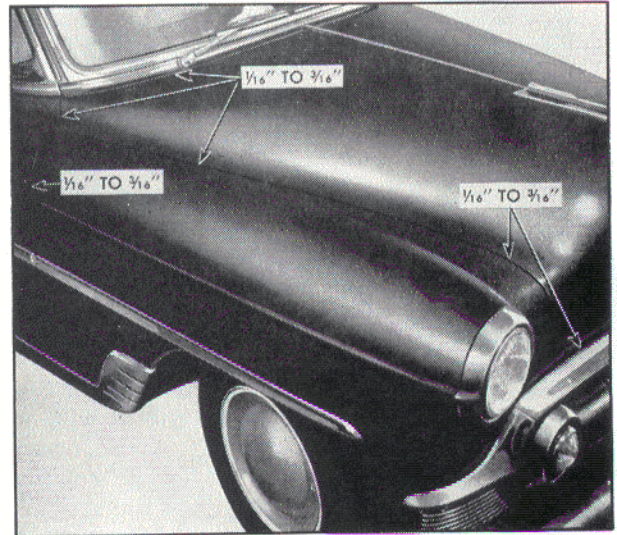


Fig. 1

the hood is centered in the opening at the front. If it is not, then a number of possibilities are uncovered. The first thing that we should do is see how the hood fits at the cowl. If it is also out of adjustment at the cowl, then it is very possible that a mere adjustment of the hood will correct the trouble. The specification for the fit at the cowl is shown in Figure 1. If the cowl to hood fit is correct

REMEMBER:

If the thing that brought the customer in has not been corrected, no amount of other work, even if done no-charge, will satisfy him.

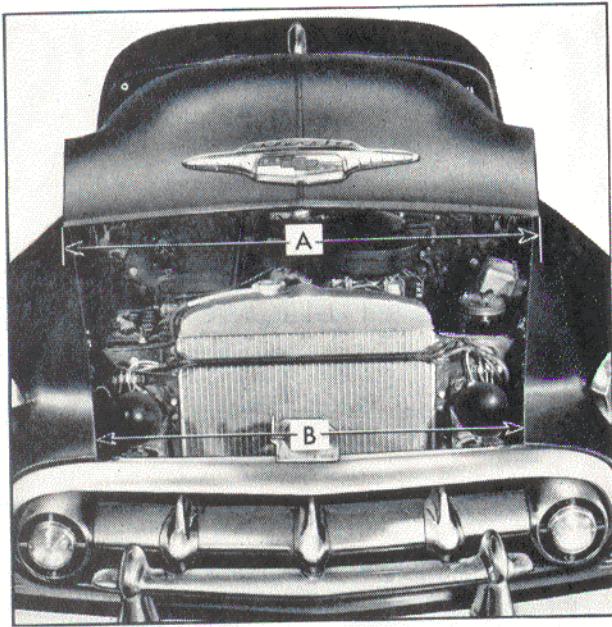


Fig. 2

then the fenders are out of adjustment.

One item that we must not lose sight of is the fact that we can not change the position of a sheet metal part without affecting its relationship to other parts. For instance, suppose we shift those fenders over so that the hood to fender fit meets the specifications all of the way around. The next thing we must do is check to see how we have affected the fender to door fit. In a lot of cases we will have changed it enough so that it will be necessary to do additional fitting of the doors and fenders. However, we will cover the relationship of the doors to the fenders later in the article when we get into the subject of front door fitting.

There are a number of pieces of sheet metal that have to be maintained in the proper relationship in order to keep the front end within specifications, both appearance wise and from a functional standpoint. For this reason we cannot attempt to give you all of the possible adjustments. However, we will try to indicate to you the points where adjustments can be made to obtain certain desired results.

In the first place we always remove the hinge springs before we begin to adjust the hood. This permits us to move the hinge easily without the spring cocking the hinge. After we determine that it is the hood and not the fenders that is out, then we have two items that we can change to reposition the hood. First, we can loosen the hinges which will ordinarily allow us a certain amount of freedom to move the hood forward and backward and also will allow us to raise or lower the hood line at the cowl. Second, in some of the more remote cases,

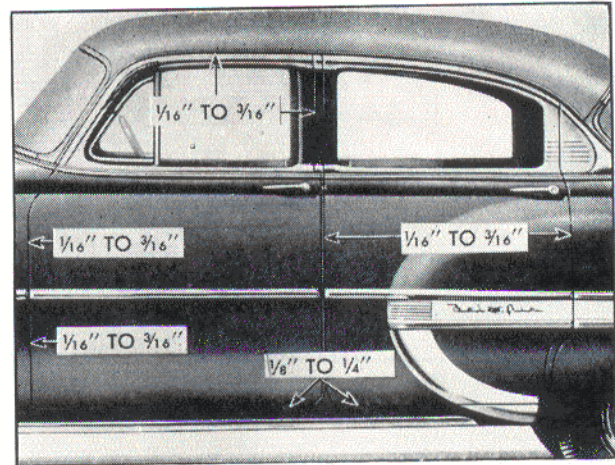


Fig. 3

the hood latch may be mispositioned which of course, would mean that the hood would be held off center one way or the other. When checking on the hood latch be sure that the hinges are tightened. Otherwise you will not be able to get a true picture of the latch alignment. In some cases the hood may ride higher than the fenders because of the rubber bumpers which are placed at intervals along the sides. You might assume when you see that condition that it would necessitate spreading the fenders, but in most cases the condition can be fixed by lubricating the bumpers with a non-corrosive lubricant.

The fenders are not as simple to fit as the hood, mainly because they are attached in so many more places. Those of you who are familiar with the construction of front end sheet metal will realize that

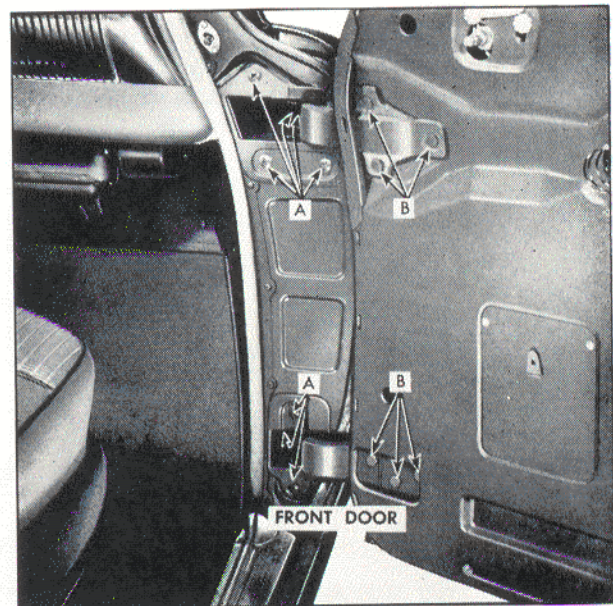


Fig. 4

it is possible to move the fenders in all directions, up and down, in and out and from front to rear. Since there are so many different results possible from a movement of the fenders, we will not attempt to cover them. However, it should be easy for you to experiment with the various movements of the fenders and come up with a system that best suits you from both the time and the results standpoint.

DOORS

The two factors which we must watch for, when we are adjusting doors, are appearance and ease of operation.

The cardinal rule for door adjustments is **DON'T ADJUST THE DOOR WITH THE STRIKER**. When you start making door adjustments at the striker plate you come up with a condition that means that the lady of the house will have to drop back twenty paces and run at the door to get it shut.

So let's take the striker off and let the door hang free and see how it looks in the opening. Figure 3 shows how both the front and rear doors should look and also shows the clearance specifications for the gaps around the doors.

Service Adjustments of the doors are accomplished by means of slotted and oversize hinge bolt holes in both the door pillar and the adjacent body pillars.

Figures 4, 5, and 6, show the points where all of the adjustments are accomplished on both the front and the rear doors.

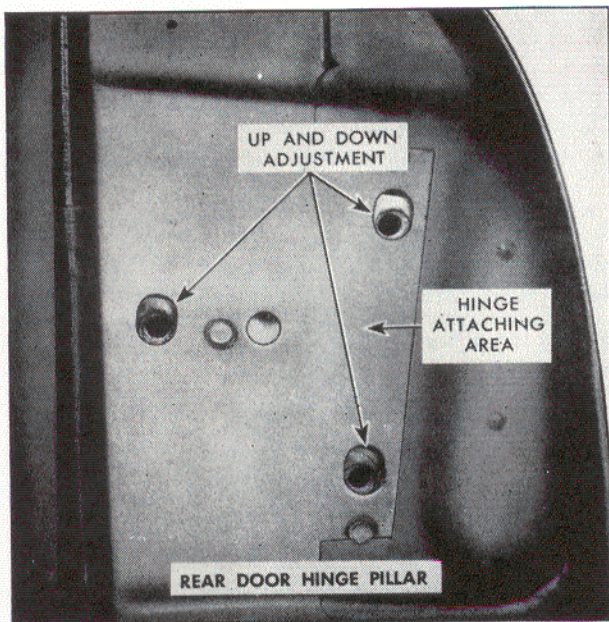


Fig. 5

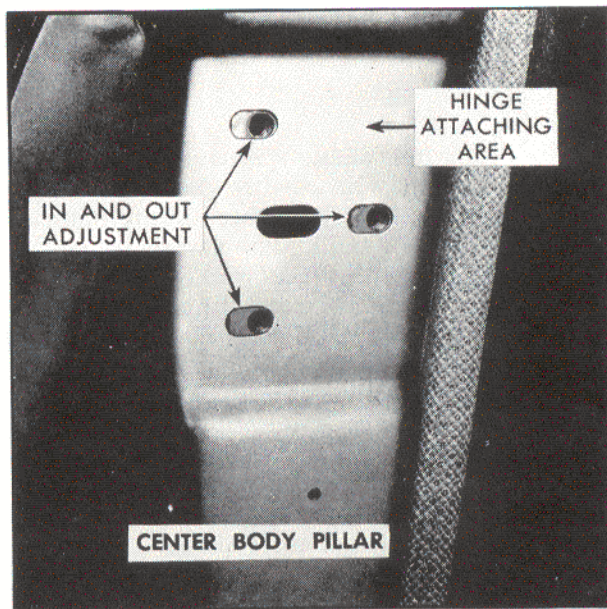


Fig. 6

Now let's consider some regular door adjustments. In the illustrations for this section the misalignment conditions have been greatly exaggerated for purposes of clarity.

Figure 7 shows a front door that is cocked forward in the opening. As you can see, the clearances are very close at points "A" and "B" and very wide at points "C", "D" and "E". The fix for this condition on front doors is to loosen the hinge

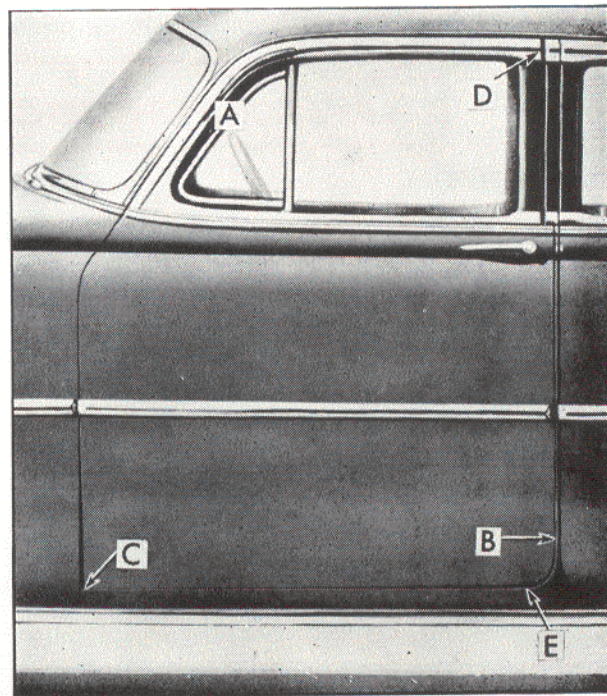


Fig. 7

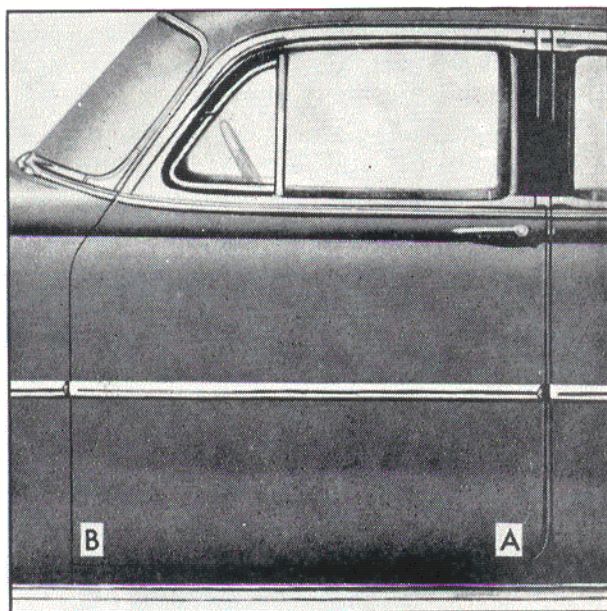


Fig. 8

strap bolts where the hinges attach to the door under the trim pad and move the door into proper position. On rear doors the fix is to loosen the half of the upper hinge that is attached to the center pillar and slide a thin waterproof, cardboard shim behind the entire hinge.

Figure 8 shows what is generally called a "sagging" door. As you can see, the door is practically overlapping the rocker panel at point "A" and also the gap to the pillar at point "A" is abnormally large while the gap at point "B" is abnormally small. The "fix" for this one is also the same as above on the front doors and the rear doors merely require the loosening of the lower hinge from the center pillar and the sliding of a thin, waterproof shim behind the entire hinge. You may be wondering, by now, just how thick these thin shims, to which we keep referring, really are. Well, actually that will depend on how much adjustment your job requires, but we can assure you that in most cases it will be pretty darn thin.

Figure 9 shows the rear door shifted too far forward. You can see the gap is wide at the rear, close at the front and just right at the top and the bottom. In cases like this just loosen the hinge strap bolts as you did for sagging and raised doors and move the door to the rear by shimming as required. Be sure to scribe around the hinge strap so that you will be able to maintain your up and down adjustment easily. Since the adjustment of this type of misalignment on rear doors requires disturbing both of the hinges, let's just work on one hinge at a time to prevent losing our up and down adjustment. As a starting point place a nar-

row waterproof shim between the hinges and the body pillar at the outside edge only.

Rear doors which are too far to the rear require the same "fix" as described above with the exception that the shim on the rear door is placed under the inside edge of the hinges on the center pillar. NOTE: This adjustment is applicable only to the rear doors due to the method of attaching the front door hinges to the body pillar.

If a door is uniformly too high or too low it can be adjusted by just loosening the hinge mounting bolts. Then raise or lower the door, making use of the elongated holes shown in Figures 4, 5 and 6. In cases where the "in and out" adjustment is all right be sure to mark the hinge locations so that you will be able to return them to that adjustment.

Front doors that are out at the hinge pillar can be adjusted by loosening the bolts at "A" in Figure 4 and moving the door in or out as necessary. In exceptional cases where this adjustment isn't adequate, additional "out" adjustment may be obtained by shimming under the front part of the door hinge strap and additional "in" adjustment may be obtained by shimming under the rear portion of the door hinge strap.

For rear doors that are "in or out" at the hinge pillar, you can make use of the elongated holes shown in Figures 5 and 6. For doors that are "in or out" on the lock side, on either front or rear, the adjustment can be made by repositioning the striker. Figure 10 shows that the striker plate and the body pillar are serrated in such a way as to allow the striker to be held firmly in any position

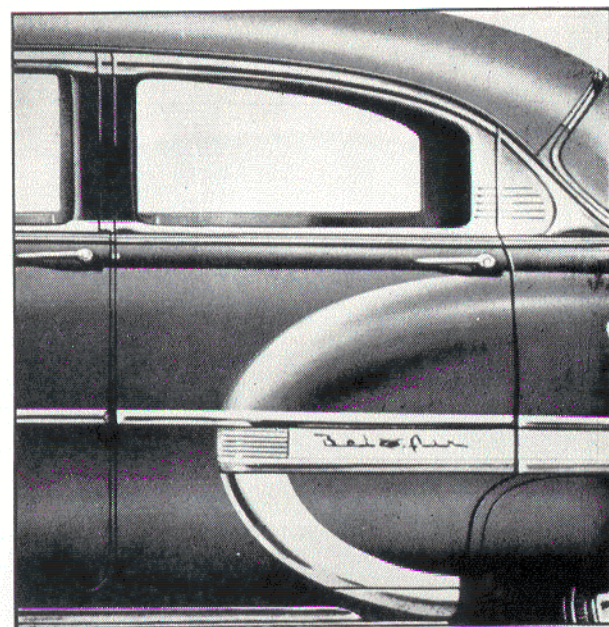


Fig. 9

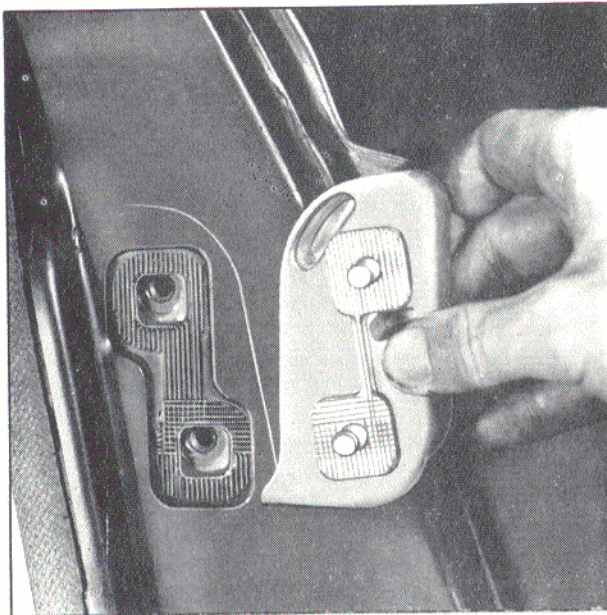


Fig. 10

in which it is placed. REMEMBER, the striker is to be adjusted to correspond with the door fit. It is not to be used to make the door fit. If it is used to make the door fit the main result is a hard operating door.

Another item that you might watch, too, is whether or not the sill plate remains close enough to the door to seal out dirt and moisture. The sill plate is adjustable "in and out" to compensate for the "in and out" adjustment of the door.

DECK LID

The deck lid hinges are provided with floating

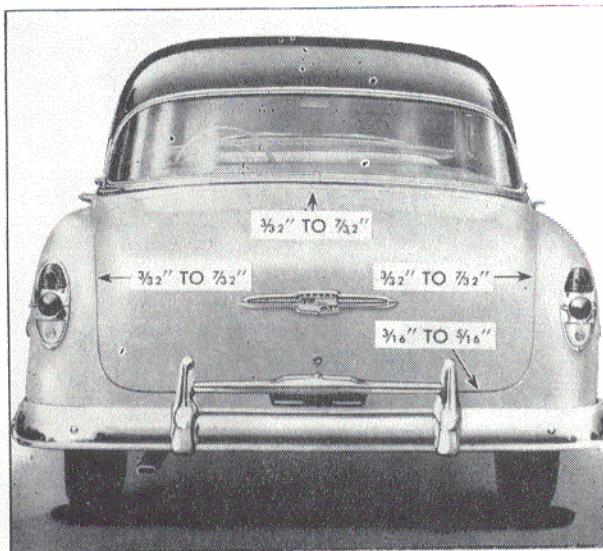


Fig. 11

anchor plates located between the inner and outer panels of the deck lid. The purpose of these plates is to allow adjustment when fitting deck lid.

These floating plates allow the lid to be moved "fore" and "aft" and sideways for adjustment. To adjust, scribe around the hinges, loosen the bolts enough so that you can move the lid in relation to the hinge straps. Then move the lid into the proper position by hitting it with the heel of your hand. Tighten up the bolts and you should be in business.

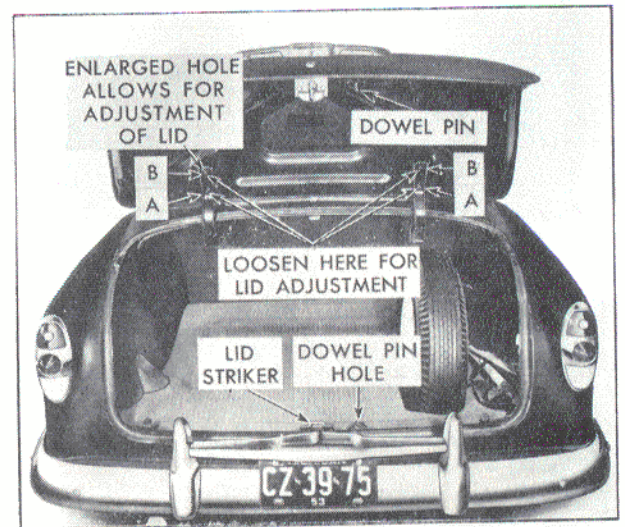


Fig. 12

If the deck lid is low in relation to the upper rear end panel you can correct by shimming at points "A" Figure 12. If it is high in relation to the panel you can correct it by shimming at points "B", Figure 12.

The lid striker may be adjusted to make proper contact with the lock by moving striker up and down since the holes at the attaching points are elongated.

The aligning dowel pin can be moved around so that it lines up with the dowel pin hole due to the old stand-by, elongated holes.

These fundamentals of where the sheet metal parts can be adjusted, combined with a thorough evaluation of what is wrong with the misfitted unit, and sprinkled generously with common sense, should give you a foundation upon which you can build a good system for sheet metal fitting.

Remember, properly fitted sheet metal is an appearance factor that does more than almost any other item to establish a car's reputation as a quality product.

Tips to the Beginner Mechanic Engine Vacuum Test

Engine vacuum tests give information which may be used to diagnose faulty engine performance due to mechanical or carburetor fault. The Chevrolet engine is designed to pull from 17 to 21 inches of mercury at correct idling speed which is 450 to 500 RPM's for conventional transmission jobs and 425 RPM's in Drive range for Powerglide transmission jobs. The vacuum gauge is connected to the intake manifold by means of a fitting which is screwed into the windshield wiper connection. Following are some of the indications noted by vacuum gauge readings:

1. Vacuum gauge indicator installed on a properly timed engine should remain steady at 17 to 21 inches.
2. A steady low reading is indicative of late ignition timing or possible leakage around pistons due to worn or scored pistons, piston rings or cylinder walls. Another possibility could be stuck piston rings. Another test which can be used, to check the above conditions, is to race the engine then to quickly close the throttle. If the needle swings up to 25 inches momentarily as the throttle is closed the compression is probably satisfactory. If the needle does not swing this far there is a compression loss which should be corrected.
3. Needle flickers and will not hold a steady reading, the flickering is more pronounced with increased engine RPM and indicates weak valve springs.
4. Needle drops back at regular intervals which indicates a valve stuck open, warped or chipped valve head, tight valve or a plug not firing.
5. Needle drops back at irregular intervals and indicates gummy valve stems, faulty spark plug—carburetor mixture too rich or too lean.
6. Heavy irregular drop of the vacuum needle may indicate a head gasket leak.
7. Very low vacuum reading is indicative of leakage at the intake manifold or a valve stem leak.
8. A floating needle shows an excessively rich carburetor mixture or possible late valve timing.
9. A gradual decline of the vacuum reading with the engine operating at steady idle RPM indicates a restriction in the exhaust system.

INTERIOR PAINT SPECIFICATIONS 1950-53 TRUCK MODELS

MODEL	PART	*SERVICE PAINT
All trucks except Suburban Carryall (3106 and 3116)	All interior trim panels and parts except as shown below	Sheen Gray Metallic—Duco Stock No. 740
	Instrument panel compartment door, radio grille and ash tray cover plate	1950 and first run 1951 models: Metal Gray—Duco Stock No. 739
		Later run 1951 models, 1952 and 1953 models: Sheen Gray Metallic—Duco Stock No. 740
Suburban Carryall (3106 and 3116)	All interior trim panels and parts except as shown below	Pecan Brown—Duco Stock No. 1476
	All garnish, division, side panel trim moldings, molding caps and seat frames	Wicker Brown—Duco Stock No. 1475
	Gearshift remote control assembly	Gray—Duco Stock No. 671

**Service Paints for 1950-53 Truck models should be ordered by the Duco Stock Number indicated. These paints are available in lacquer only and may be used for refinishing original synthetic enamel finishes.*