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From Octagon Heaven

Help from F.E. Old, N.E.M.G.T.R.
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COACH WORK REPAIR -- ROTTEN WOOD

We can pay close attention to what our "T-series" owners have to say about coach work repair. The material below was picked up from the New England M.G. 'T' Register's "Sacred Octagon" Magazine.

Before you start reading I should call your attention to tech. article 158 which specifies shellac as a good sealer, if you use shellac, make sure that it is exterior shellac as interior shellac will break down under moisture!

So what does Mr. Old have to say about repair of rotten wood? -----
He responds to the following questions:

- a) what type of wood should be used for replacement?
- b) Is there any stop to decay in pieces which are structurally sound?

The original wood was English ash, although you will occasionally find a piece or two of another hardwood species in unstressed areas. In restoration work, ash and oak are the species most often used.

Oak is usually easy to obtain, so it is often used by do-it-yourselfers. It is heavy (40-50 lbs. per cu. ft.), very tough and hard-wearing, but it is not as elastic as ash and so cannot withstand bending and torsional stress as well. It is highly acidic and tends to corrode iron, so it is best to use brass or stainless steel screws and nails if you want your restoration to last a long time.

Ash is not so easy to obtain, since it is rarely used in furniture making, but it is worth the effort: English ash is almost as heavy as oak (45-48 lbs. per cu. ft.). American ash is slightly lighter, but no less durable. Its grain structure makes it much more elastic than oak, so it is better able to withstand the twisting and pounding it gets in a coach-built body. For this reason it has always been the preferred wood for structural timbers in carriages, wagons, and coach-built automobile bodies. It is also less likely than oak to split and splinter, so it is easier to shape with woodworking tools. It is not corrosive to iron.

If you find rotten wood in the body, the best course of action is to replace the rotten pieces completely.

If you are handy with woodworking tools you can save quite a bit of money by shaping and joining the wood yourself. There is usually enough of the original piece left to serve as a pattern, but if not you can make a mirror image of the same piece from the opposite side of the car. A band saw makes quick work of the shaping, but I've known people to do quite well using only hand tools.

Sometimes it is possible to salvage an original wood member by replacing only part of it with new wood. Although splicing can require more woodworking skill than making a whole new piece, in some cases it can save you from having to disassemble most of the body to get the new piece in. A spliced piece of wood is rarely as strong as a solid piece, so I hesitate to recommend this for highly stressed areas.

If the wood is soft on the surface but still seems to have solid joints and good strength, you may be able to save it without dismantling anything. It depends on how deep the rot has penetrated. One salvage technique is based on an epoxy penetrant originally intended for restoring rotten boat timbers. The thin epoxy compound penetrates deep into the wood, encapsulating the rot to keep it from spreading, and binding the remaining wood fibers into a solid mass. One brand I have seen in local marine supply stores

is called "Git Rot" or something similar to that, but I know there are other brands. The epoxy treatment technique has gained some popularity among restorers, but I have heard it said that it makes the wood too brittle and inflexible. Only time and more experience will tell.

Another approach involves saturating the rotten wood with a pentachlorophenol-based wood preservative. The most widely distributed brand is "Woodlife," but others are available. Other types of wood preservatives are available as well, but the penta type has the advantage that it will kill rot-causing micro-organisms already in the wood in addition to preventing new rot from starting. Penta preservatives are not as popular as they once were because penta is highly toxic and must be handled with care, but the stuff is really good. If the wood in our cars had been penta-treated when new, we would have no rot problems today.

The best way to treat the wood is to immerse it for several hours in the penta solution. This is practical only if the body is disassembled, but it is the only way to ensure complete penetration. Less effective, but more practical, is to drench the assembled wood using a brush or a low-pressure spray. Apply as much solution as the wood will absorb, but don't let one coat dry

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before applying the next. If the wood is really dry and aged it will soak the stuff up like a sponge, so plan to spend the better part of a day brushing it on. Wear rubber gloves and a respirator; rotproof wood won't do you a bit of good in the hospital.

Woodlife and similar products are actually only about 5% pentachlorophenol, the rest being inert solids and mineral spirits. In some areas you can get penta concentrate which is supposed to be diluted before use. Some restorers prefer to dilute the concentrate to a 10% or 15% solution, on the theory that the stronger solution makes up for incomplete penetration. It doesn't. Untreated areas will continue to rot regardless of the penta concentration in adjoining wood.

Most pre-mixed penta solutions contain resins which solidify after the mineral spirits evaporate, imparting some degree of waterproofing to the wood. Some restorers like to add more waterproofing by soaking the wood with a 50/50 mixture of boiled linseed oil and turpentine, applied after the penta solution has had a week or so to dry. I have mixed feelings about this. Linseed oil is a time-honored way to protect wood from moisture, or at least it was until more modern preservatives came along, but I've had too much experience with mildew-infested oil-finished furniture to put much faith in it for anything other than tool handles, antique planes, and the like. If you do try it, be sure to use boiled linseed oil. Raw linseed oil will stay sticky for a long, long time.

Some restorers apply a coat of spar varnish or polyurethane varnish to the wood to protect it and make it look pretty, but this is a waste of time. While it is true that this solid coating will keep most moisture out, it will not keep it all out, especially in the joints. Once moisture does get behind the coating, it will not be able to evaporate out again very quickly, resulting in more rapid rotting than if the wood was left uncoated.

If you decide to use new wood rather than trying to salvage the old, it is still worthwhile to give it the penta treatment. Pre-shaped wood from some sources is already treated when you buy it, so check with your supplier before you go to work with the paint brush.

As you disassemble the old woodwork, make note of how the joints are held together. Some are glued and screwed, while others are simply screwed. The latter will sometimes have a bit of tarpaper-like stuff in the joint to prevent squeaking as the joint flexes. Some restorers feel that all joints should be glued, giving the body more rigidity. Others say that joints which were originally screwed together should be rejoined the same way because too much rigidity in the joints will put too much strain on the adjoining wood, resulting in cracking. This is especially true of the TC and earlier models, which have very flexible chassis. If you do use glue, it must be a waterproof type like resorcenal, and the penta solution must be thoroughly dry before gluing. If the wood really soaked up the penta, drying can take several weeks.

As you repair your wood, bear in mind the fact that in a coachbuilt body the sheet metal has almost no structural strength of its own. It is simply a covering tacked onto the wooden framework, and its only functions are to make the car look good and keep its occupants reasonably dry and warm. It is the wooden framework which provides all the strength. Don't skimp on its repair if you expect the body to stay together long.