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Routing Form

Doc. No.: HULU-504

Date: 10 JUN 1954

Indicate title of person to take action and that of the originator. Place comments there under by numbered paragraphs. Initial in center of page and draw a line across the page and forward. Each recipient is to repeat above procedure until action completed and ready for filing. This cover-sheet must be retained with enclosure.

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DISPATCH NO. HUL-W-504

~~SECRET~~ ~~RYBAT~~
CLASSIFICATION

14 JUN 1954

TO : Chief of Station, Lincoln

DATE

FROM : Chief, WH

SUBJECT { GENERAL Support Material
SPECIFIC Passive Resistance

RYBAT/PBSUCCESS

Re: HUL-A-927

1. RIAS and other scripts of possible interest for passive resistance are being obtained as requested and will be forwarded as they become available.

2. Attached are the following papers of possible value for passive resistance work:

a. Check List for Motor Vehicle Preventive Maintenance,
b. Damage to Aerial High Tension Transmission Lines,
c. How to Put an Automobile Out of Commission in Two Shakes of a Lamb's Tail,
d. Passive Resistance in Railway Transportation.

[OLIVER G. GALBOND]

Attachments - 4

9 June 1954

Distribution:
2-Lincoln

14 JUN 1954

~~RYBAT~~
CLASSIFICATION

FORM NO. 51-28
JUN 1949

CHECK LIST FOR MOTOR VEHICLE PREVENTIVE MAINTENANCE

1. Do not use any oil or petroleum base product in the hydraulic brake system. It will damage rubber lines and rubber components in the brake system and make the brakes ineffective or inoperative after a short period of use.

2. Make sure all lubricants, especially engine oil, gear oil and ~~wheel~~ wheel bearing greases are clean and free from dirt, particularly oil base valve grinding compounds and abrasives. Such abrasives will cause premature failure of the parts due to excessive wear, even though the final breakdown or failure will not show up until appreciable use.

3. Gear cases (axles, transmission, etc.) should not be overfilled with lubricant. Check level carefully. Overfilling will reult in pressure build up and possible oil seal failure. This may show up particularly on long hard pulls much sooner than on short, light duty runs.

4. Hypoid type axle drive pinions and gears should not be lubricated with ordinary engine oils or transmission oils. Use the correct grade of extreme pressure or all purpose gear oil. The ordinary oil does not possess proper qualities to prevent gear scuffing and wear, which in some cases may be serious in less than 100 miles.

5. Do not adjust valve tappet clearances too close. This may cause early failure due to burned and warped valves, shortly after engine gets up to operating temperature, if correction is not made promptly.

6. Handle piston connecting rods carefully. Do not hit against sharp objects or throw them carelessly as this may cause sharp nicks and cuts in the rod where stress concentration may develop. It may take considerable usage to show up these defects as eventual failures.

7. Vents on gas tank, usually in the cap, should be open. See that they are not blocked. A vehicle will run only a very short distance under these circumstances and if inexperienced personnel ateempt to diagnose or correct the difficulty, they may do many repairs which are unnecessary in an attempt to eliminate the difficulty.

8. Engine crankcase ventilators or breathers should be clean and open. Insure that they are not clogged up or closed. They will cause back pressure, oil leakage and difficulty in engine idlig. Clogged ventilators will eventually cause oil sludge, valve sticking, high oil consumption and poor engine pefformance.

9. When filling gas tank be careful not to get water or foreign matter in with the gasoline. Substances such as sugar can be especially harmful. The water will freeze in cold weather and stop up the fuel system. Other foreign substances will result in varying degrees of fuel stoppage or carburetor and pump part failure.

10. Exhaust manifold should be cheked carefully to insure that all ports are open and that no obstructions are present that may partially or fully block the exhaust passages. Gaskets should be of proper size and type and not with reduced openings. Less of power will be noticed immediately.

11. Lubrication of distributor came and wick is required regularly but must be done carefully to avoid excess quantity of lubricant in distributor. Avoid excess grease when lubricating distributor cams. Excess grease may flow when hot and result in ineffective breaker paint operations, giving the effect of bad spark plugs, engine miss and difficult starting. Excess grease may not show up until engine gets hot.

12. When testing ignition coil for satisfactory performance, use the proper voltage and current settings. Overload on the coil by using higher settings, even of short duration may not necessarily show up as a defectiv coil although the coil will be erratic during use, and be difficult to diagnose.

13. When working on fuel system and lines for any reason be careful to place the lines as near their original position as possible, particularly where lines are in the area of the exhaust system. Lines placed too close to the exhaust system may cause vapor lock in the fuel system and consequent unsatisfactory vehicle operation and even stoppage. This can be especially troublesome because the difficulty will disappear when the lines are cooled down, only to recur again when they get hot.

14. Cylinder head bolts should be tightened to uniform torque and in proper sequence. Uneven tightening, or overlooking the center ones and leaving them loose will cause less of engine compression, poor performance, oil consumption and cylinder head gasket failure.

15. Universal joints in the drive line should be assembled with the cap screws fully tightened and lock washers in place. Omission of lock washers or incomplete tightening of screws will cause joint loosening and complete breakage if not properly attended to when noticed.

16. Make sure that all oil seals are in place and properly installed. Omission of oil seals or installation backwards may not be readily noticed, but will cause lubricant leakage and possible damage to brake linings and failure for the bearings and assembly due to lubricant loss.

17. When completing adjustments on items like wheel bearings be sure to lock the adjusting nut in place using the cotter pins, or other locking device provided. If this is omitted the nut will loosen and the components will come apart after a short time in use.

18. All mounting screws and bolts holding assemblies together or to the chassis should be tight. It not, assemblies such as engine, transmission and transfer case will shake loose and damage mating components or result in broken cases.

19. All flexible lines and hoses (such as brake hoses, oil lines and gasoline lines) should be clear of contact with other parts which may chafe or wear the hose and cause leakage or failure of hose and subsequent serious damage to the vehicle or component part.

20. When spark plugs are removed for inspection or replacement be careful to cover the holes so that small objects such as washers or screws may no accidentally fall in unnoticed and then cause serioud internal damage.

21. Use only good, clean water and approved anti-freeze compounds in the cooling system. Use of oils and certain salts as anti-freezes will cause harm to various components of the cooling system. Unclean water will soon clog the system and cause overheating and more serious failure.

DAMAGE TO AERIAL HIGH TENSION TRANSMISSION LINES

Many people think that only technicians and professional workers are able to engage in passive resistance. This is a great mistake.

Many times children, in their normal pursuits, cause very disagreeable accidents to factories.

You have surely seen the large electric cables which, usually in a group of 6, supported by poles or towers that keep them at least 6 meters above the surface of the ground, pass over hill and dale from one electric center to the next, and from one factory to the next. Many children make a game of throwing pieces of wire, weighted at both ends, over these cables. They find it very amusing to display their skill and strength, and also, after carefully hiding nearby, to witness the annoyance of the repair men, who, their faces turned upwards, stumbling over the numerous obstacles of copses, prairies, and ploughed fields, had to search for the short circuit that had stopped dead the machines of their factory, or often of several factories at once.

Nothing is easier than to throw a piece of wire a few meters long over the cables that carry electricity. It is necessary that the wire be weighted at each end by a bolt if it is to straddle at least two cables and not wind around a single one like a piece of spaghetti since this would be useless.

To be quite sure of what you do and not make an effort out of proportion to the result accomplished, you need a few superficial ideas on the transmission of electric power. This power is transmitted by underground cables or aerial lines.

Never touch the underground lines. Only experienced technicians can risk it. But anyone can damage aerial lines, either with short-circuits, or by destroying the lines. And there are many aerial lines throughout the DDR. Sometimes they pass through the most densely populated cities; sometimes they cross the loneliest fields and forests.

Generally speaking, there are two types of line: the heavy lines, transmitting up to 70,000 volts of current, and the ordinary lines. The cables of the heavy lines have a section of 210, that is, a 15 millimeter diamenter. They are made of aluminum wires around a core of steel wires made up of 7 strands of 15 tenths of a millimeter. The ordinary lines are copper wires as large as a think fountain-pen, and they are usually about 2 meters apart. One can immediately draw the conclusion that it is easier to damage the ordinary lines than the high-powered ones. In both cases the lines are 6 meters above the ground. But the distance between any 2 wires id 3 times as great for the heavy lines as for the ordinary lines. Hence, the weighted wires must be longer -- and thus heavier -- to damage the heavy lines.

If one wishes to do a complete job, i.e., to destroy the line, the wire used must be at least as thick and strong as the conducting cable. The 8 or 9 meters of wire one will then have to throw are quite heavy, especially as the heaviness of the weights should be in proportion to that of the wire used.

Let us return to simpletechniques causing a short-circuit. Any metal wire that connects 2 cables transmitting current causes a short-circuit, and a breakdown that lasts until the cause is discovered. But when one is able to throw over the cables' wires at least as strong as the cables themselves, the result is no longer a simple short-circuit; it is the destruction of the distributing cables.

It is the usual practice if power ceases in a factory (whether because of a short-circuit produced by a large-dimension wire or by a small one) to demand current from the central. And the central sends current. This current sent along short-circuited wires has the same effect, when it comes to the place where the large target wire is, as an express arriving at top speed against a buffer-stop. Everything breaks. There is a blinding arc-flame and a detonation like a cannon-shot. Thus the destruction of the line is manifested in noise and fire.

Because of the blinding light of the arc, the citizen should protect his eyes with dark smoked glasses. This electric arc is so visible at night that it is better to do in the daytime.

There are many ways to make up for lack of sufficient strength to throw the wire, especially if one wishes to destroy the cables. Sometimes it is a good idea to search along the line one wishes to destroy for a tree or an empty or deserted building on which to climb to be able to throw the wire more easily. A strong catapult will sometimes do the trick in destroying ordinary transmission cables, as a wire weighted with 2 bolts is not too heavy for an instrument of this sort. If you are destroying cables with a large cross-section, you can probably make a strong catapult with a little tree. After a few attempts, you will quckly find which type of little tree to select, how high the wire should be placed, how you must attach it, and how much tension to give the young tree by bending it. These bent young trees present one advantage. They enable the persons who turned them into catapults to take to the fields and be far from the scene when the accident happens. For nothing is easier than to think out and build, especially by chemical or pyrotechnical methods, a device to set off the catapult after a delay such as the blasting fuse type or the "rapid corrosive type" in which the cord that sets loose the tree is gradually worn through. The apparatus used to project clay pigeons can also be used th throw the weighted wire, especially where the electric lines cross through a city. This apparatus can easily have a device to set it off after a delay. Any watchmaker can build one, regulated to the minute.

As you can see, there is opportunity for sport, excellent sport: athletics, trapping, shooting clay pigeons, copious Boy scouting, archery and lance-throwing

A special warning to anyone who wishes to practice our national sport: always be extremely careful to let go both ends of the weighted wire, so as never to be in contact with one of the ends when the other is touching the cable. It would mean certain electrocution.

Practice throwing at first at some other target than transmission cables, so as to become absolutely sure of your movements. Only when you instinctively let go of the wire will you be ready for this technique which is too dangerous for a novice or a clumsy person.

How to Put an Automobile Out of Commission in Two Shakes of a Lamb's Tail

The two spots in an automobile most sensitive to damage are the carburetor and the ignition. The ignition and the entire electric system of a car are so fragile that anything will put them out of commission.

The slightest defect, the wrong attachment of a wire, etc., will cause a breakdown. There are a hundred other causes. They are so familiar that it is scarcely worth shile to mention them. At the worst, it is enough to loosen the wires, to cut them, or to remove the insulating material that covers them.

The carburetor is one of the best allies a clever worker can have, for it can both put the car out of order and empty the tank of its precious gas. All you have to do is make a little hole in the floater, preferably at the seam, with the end of a file, for example - so small a hole that if the driver inspects the carburetor when he starts out he will not be able to notice anything. But once the car starts, the little hole will have its effect. Soon the motor will "gobble up" twice the usual amount of gas. It will run on pure gas, unmixed with air. And it will have a fine breakdown.

There are many other ways to injure an automobile. Amost all mechanics know them. Let us mention a few.

Mixing foreign matter into the lubricating oil of the crankcase. The lubricatin; plug is easly to remove as it was purposely placed where the hand can reach it. But you must not forget to remove the oil filter before inserting any foreign body; afterwards you put the filter back.

If the car is one you yourself are driving, it is dangerous to put sand in the oil. In that case, empty out the oil when you start and keept it in a can, to be replaced when you have almost reached your destination. This "experiment" shoukd, of course, not last too long, or you may burn out the motor immediately and not be able to reach your destination.

When you are fixing a flat, you can shorten the life of the tire considerably by spilling a glass of benzine or caustic soda solution over the inside.

If you are looking for the tear in an inner tube by submerging it in a basin of water, add a little caustic soda to the water. If the tear is so obvious you don't have to look for it, use the water with caustic soda in it anyway to see if the repaired tube is watertight and if the patch is holding.

When the reparis are over, put the tube back i n the tire after sprinking pulverized resin inside the tire instead of talcum powder. The tube will stick to the tire and after its next flat will be practically unusuable.

The valve of the inner tube, instead of coming right out of its hole when the tire is being reassembled, should be placed quite out of the perpendicular, and the fastening screws on the rim should not be screwed all the way down. The valve will wear out the tube.

You know that when the tube of a tire has been replaced, it gradually "finds its position". You can hear it going so when you stop pumping air in. The simplest way to prevent it from finding its proper place and to cause folds in the tube is to pump it all the way up without pausing at all. The tubes will then wear out much more quickly.

If the car has double sheels, give the inner tire much more air than the outer. The latter will wear out very fast, while the former will be doing double service.

In putting on double wheels, always put the newer wheel inside. It will wear out much more quickly that way.

Put too much air in the back tires, especially if you know that the car will not be carrying a load. In the case the shaking caused by bumps in the road will be strong enough to injure the transmission and the body will be dislocated.

Still on the subject of double wheels; you should try to turn the outer wheels of double tires inward, out of line, either by means of a strong kick, or when they are being adjusted. A set of tires will then not last more than 3,000 kilometers.

If you have to touch the rear axle for any reason, try to get it out of parallel. It will wear out extra fast.

While you should oil the motor as little as possible, you should oil the rim and flanges of the tires as much as possible. They rot in a few weeks.

In assembling a tire, try to catch the tube between the rim of the tire and the rim of the wheel. It will give it a change to blow.

With pliers, pincers, or any similar kind of tool, slightly bend the valves that let the air in.

If there are tires in stock, wear them out ahead of time by spilling a strong solution of caustic acid or benzine into the hollow part.

When you are fixing a tire, leave the object that caused the flat inside the envelope.

Make a cut in the tire with a carpenter's chisel, preferably near the rim.

Put pebbles the size of a nut between double tires, preferably close as possible to the rim of the wheel. Pour a good amount of acid from the battery into the radiator.

In winter let the anti-freeze mixture out of the radiator, and with a little cement fix up the radiator plug so that it cannot be unscrewed. Most chauffeurs will not insist on opening it, will goff without water, and burn their engine.

Put a small quantity of copper filings or a copper screw into the battery.

Whenever you get the chance, remove the cotter pins.

Draw the fan belt too tight or remove the screw that hods the pulley and put a match in its place: the match will soon break and the fan will be out of commission.

Add a little quick-setting cement to the water of the cooling system.

Passive Resistance in Railway Transportation

There is no domain where one can engage in more effective passive resistance than in the railways. It is also among the personnel of the railways that there is the greatest proportion of persons with a highly developed sense of duty.

One of the best ways to commit passive resistance is to obey regulations to the letter especially in making up freight trains. The regulations require the workers not to run risks, and especially not to run--period. So walk, workers, walk. And particularly, you are strictly forbidden to cross moving trains by jumping on a foot-board and going down the other side by vaulting. From now on you will cross, at 5 kilometers per hous, behind trains that have stopped.

Don't be over-zealous, for you might regret it.

Apply the rule of switching down over the hump yard, as well as laying the stop blocks ahead of time. And when these rggulations, for instance in case of a short-circuit, prescribe that the yard-master should go to the scene to "observe what has happened," notify the yardmaster.

This strict observance of the regulations does not exempt you from making the normal mistakes in making up trains, especially if they are made up at the last minute. It is impossible, and we must emphasize this, not to misdirect some cars in a switching yard. Think of the number of cars that go through the larger of these yards.

The article of the regulations that deals with "receiving on occupied tracks" and with the sidetracking of trains should be one of those most scrupulously respected.

To vary working methods a little, try to see what result you can get by working between the two axles and stopping the cars before the white semaphore. That will relax the tension always brought on by observing the regulations strictly.

But let us study a few details closely.

When you are announcing rather long delays of unexpected changes in the time-table, what could be simpler than to take steps so that it becomes impossible to notify the other persons concerned of these changes, provided, of course, that only the Communists will have to suffer the consequence?

The engineers will carry their part in this great patriotic concerto. Nothing will induce them to make up for delays; they will follow exactly the prescribed time-table. They will stop their trains jerkily in the stations, and leave jerkily; the trains will wear out faster.

If the engineers observe that their engine has a defect noticeable only at high speed, they will be very careful not to metnion it. There is a prospect of too fine a breakdown.

Must we also mention putting heavy oil or tar in the boilers, preferably just after an inspection? And stopping up one of the two sanders to cause an irregular motion. And who is not aware of the result produced by adding a half kilo of soft soap to the water in the tender? The pistons of the engine dislike the taste of soap so much that they start kicking in their cylinders like fifty-year old automobile pistons going up a hill.

As for the "label game," it is as good as a game of snipe hunting. You take off the labels which put bad cars out of circulation and paste the labels on cars in good condition or cars containing perishable goods to be sent to the Soviet Bloc. On the other hand, you paste the destination "Moscow" label on a car full of straw hats.

The paradise of the railway technician is the electric installations. Whatever you do to electricity doeen't show, can't be smelled or guessed. What marvelous results you can get simply by applying, with a chicken feather, a little hydrochloric acid to the collector and its holder of an electric motor. All electric motors just love this acid, or other acids like sulphuric or nitric acid, or aquaregia. Baptism with one of these acids allows an electric motor to rest for the remainder of its days.

Salt, ordinary kitchen salt, of coarse salt, scattered profusely near railway switches, offers one of the best ways of causing the breakdown of a whole section as soon as it starts to rain. The earth, impregnated with salt water, suddenly becomes a good conductor and the most unlikely shortcircuits occur.

One of the best places for "sugaring" gasoline, which makes it entirely unfit for use, is the substation where gasoline motors are always kept in reserve in case of a breakdown of current. Naturally you must combine a breakdown of current with the "sweetening" of the reserve gasoline engines.

Let us cite, haphazardly, a few methods that signal-box workers and laborers especially may be able to use:

1. Reversing the stop blocks on the switch.

2. Spreading the two switch points and spiking them.

3. Removing four stop block tie plates in the middle of the long switch points.

4. Putting the signal-boxes of coincident stations out of commission by loosening the push rods.

5. Taking the switch-bars of the bell joints from the lugs by disconnecting them.

6. Putting the small control chains and wires out of action by about 10 consecutive twists.

7. Mislaying or losing the adjusting wrench.

8. Screwing the two fish-plate bolts all the way down toward the needle point to press down the lever in the signal box; this either makes the wires break or the motor burn.

9. Emptying the oil from the signal lamps.

10. Burnigg out electric bulbs with excess voltage.

11. Shaking the signal-lights on wire crossings.

12. Breaking the water lines feeding the pumps.

13. A few blows with a pick on the telephone cables and controls.

14. Neglecting to lubricate the articulated points and the rollers on the supports.

15. Applying hydrochloric acid in a paste or sponge in all the accessible places of electric transmission gear, to fuses, interrupters, and to the contact plugs, but in front of the insulating rubber.

The companies which export most to the Soviet Bloc should be the object of your particular attention. Most of them have had their factories connected to the network of railroads by siding. Damage the switches in every way you can think of: there is no danger of accidents. But try hardest to make the gauge of the siding too wide. It will mean the most complete de-railing accident.