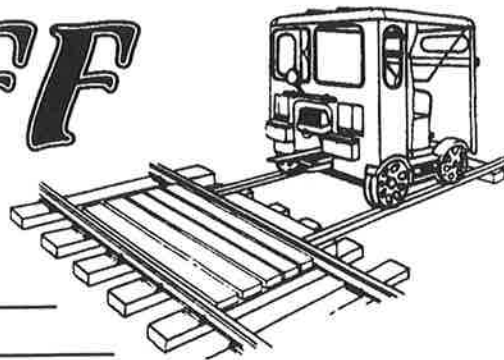


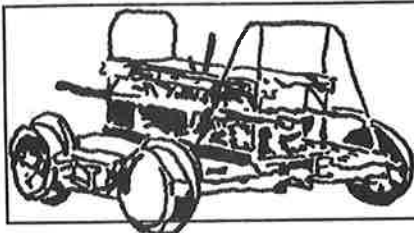
THE SETOFF

OFFICIAL PUBLICATION OF THE NORTH AMERICAN
RAILCAR OPERATORS ASSOCIATION (NARCOA)

July/August 1995



"Small World" Stuff: Bruce Frye, of Bloomington, IN, submitted this photo showing, from left, Ralph "Nip" Clark, Ezra Wray, Ora Koontz and William "Will" Doub on the Chicago, Indianapolis & Louisville (MONON) RR. The date is March 7, 1936. Ora Koontz was the great-grandfather of NARCOA member Mike Combs. Ralph Clark's son, Jack, and William Doub's grandson, Mark, work with NARCOA members Bruce Frye and Phil Childress in Indianapolis area machine shops. Major grade crossings were protected in this manner until the advent of automatic signals.



**Special "How-To" Pull-Out
Section Begins on Page 5.**

PROPOSED NARCOA RULEBOOK CHANGES

By Gene Tucker

As this issue goes to press all members should read carefully the proposed changes to the NARCOA Rulebook, which will be considered by the NARCOA Board of Directors at their September meeting in Chicago. Comments from the membership are invited. Comments and/or suggestions concerning these proposed changes should be directed to your Area Representative to the Board prior to the meeting. Changes to be considered consist of the following:

Page 1, Paragraph 2: (Addition) The railroad industry operates by rules, understands rules and expects rules to govern all railroad operation. Violation of NARCOA or host railroad safety rules may result in loss of riding and/or membership privileges.

Page 2, Paragraph 1: (Addition) GENERAL ADVISORY - Motorcars were built to many different specifications and standards over the years. The purpose of NARCOA mechanical standards is to ensure safe operation under NARCOA sanction while allowing the historic mechanical integrity of restored motorcars. It should be understood that meet operators may require additional equipment for certain runs. Motorcars not so equipped will not be allowed to run at these meets. It is the responsibility of the motorcar owner to ensure that his/her equipment meets requirements for events in which the owner wishes to participate.

Trackcars that have received substantial modifications will not be considered original equipment manufactured (OEM) and must meet the most strict standards.

Cars will be inspected for defects at meets. The operator of a motorcar is responsible for seeing that it is safe to operate and that their motorcar meets the requirements contained in the mechanical standards section.

Proper maintenance is also the owner's responsibility. Operators will be notified of the breakdown rule in effect at each meet.

Page 3, #6: (Change) 6. WHEELS... Worn

running surfaces on detachable plate wheels (pressed wheels) shall not be repaired by welding. Wheel running surface thickness on plate wheels shall not be less than 1/8 inch for light and medium weight cars, and 5/32 for heavy gang cars. Wheels shall be free from cracks. Only manufactured OEM wheels intended for railroad use shall be used. EXCEPTION - Wheels approved by the NARCOA Board of Directors.

Page 3, #7: (Addition) 7. INSULATION... All trackcars must be electrically insulated so there is no possibility that track circuits for grade crossings or any other signals will be activated. EXCEPTION: Un-insulated cars may run when approved by the meet coordinator.

Page 3, #7: (Change) 8. TOW HITCHES... It is required that all operators equip their cars with horizontal tow hitches with a 1/2" to 1" hole mounted on the front and rear of the car 8" to 16" above the rail head. The hitch must be at least as thick as the member to which it is mounted. Eye bolts used as a tow hitch must be cast or welded shut and 1/2 inch stock or larger. The hitch must be mounted on the center line of the car. A tow bar must be carried on the car. (Exceptions, cars with outrigger design or frame members not strong enough to accept a tow hitch need not be equipped with tow hitches.)

Page 3, #8: (Change) 9. TOW BARS, and PINS... Tow Bars shall have a minimum length of 20" and be strong enough for pulling or pushing. Fairmont link couplers are acceptable for pulling only. The ends of the tow bar shall lap over the top and bottom of the hitch. Tow pins shall be between 1/2" and 1" and have a mechanism (retainer clip) to secure them from falling out. Nuts and bolts are not acceptable for use as tow bar pins.

Page 3, #9: (Change) 10. GASOLINE TANKS... ARR standards require gasoline tanks be painted RED. We recommend that this standard be followed except for historic purposes. Tanks must be made of material approved by the D.O.T. for the purpose. Gasoline cans carried on motorcars or trailers must be secured and be made of D.O.T.-approved material.

Page 4, #12: (Addition) 12. BRAKE LIGHTS... It is strongly recommended that

(Continued on next page)

PROPOSED NARCOA RULEBOOK CHANGES

(Continued from previous page)

Motorcars be equipped with one or two red lens brake lights at least two inches in diameter mounted on the rear of the car, automatically illuminated upon brake application. Stop lights may be integral with the tail lights. Lights may flash with brake application.

Page 4, #11: (Change) 13. FLAGS... Two bright red or red orange flags, 12" by 12" or larger, must be carried on each car and be used for signaling and flagging crossings.

Page 8, #9: (Addition) 9. BRIDGES... Dis-mounting of trackcars while on bridges is prohib-ited. EXCEPTION: Bridges with walkways and handrails or in the event of emergency.

NOTES TO MEET OPERATORS: #4 (Addi-tion) Meet operators may include additional safety and operating rules that they or the rail-road deem necessary to special conditions or local regulations.

Editor's Notes

By Gene Tucker

THE SETOFF is no better than the materi-als and news items that appear in it, except for an occasional editorial, all of it contributed by the members. To that end, we'd love to have some contributions from our readers for several fea-tures we have run over the years.

Meet this Member: Send us a story about yourself (or a friend), your interest in motorcars, a restoration project, or perhaps your pride-and-joy.

Calendar: We've received only ONE photo for the 1996 Calendar. 1996 is coming fast, folks, and will be here before we all know it. Deadline is SEPTEMBER 30th for photos, so we can print and distribute the 1996 Calendar by December.

Technical or Safety Articles: Found a better way to do things, learn a trick or two to solve a problem, or want to pass along a safety story? We all benefit from each other's experiences.

Guidelines for Submitting Materials For Publication in *THE SETOFF*

1. Our editorial policy is to cheerfully publish in *THE SETOFF* all materials received, although they may be subject to editing for space considerations.
2. Photos and materials submitted for publication in *THE SETOFF* cannot be returned.
3. We cannot publish copyrighted materials such as: photos, posters, cartoons, or articles without written permission from the author or publisher. Written permission must be provided by the sender at time of submission.
4. Meet stories, technical articles and lengthy submissions should be typed or printed.
5. Ads, meet notices, and short articles may be handwritten.
6. Photos should be either black and white or sharp color photos. Photos print best when the subject of the photo is large. A picture of a motorcar sitting atop a bridge, for example, where the image of the motorcar is very small, or blends in with the background of the picture, doesn't print well. Please label the back of the picture as to its subject matter and who took the picture. Please do not send slides.
7. Finally, send materials to *THE SETOFF* editor by the deadline, the 15th of each odd-numbered month (January, March, May, July, September, November).

THE SETOFF

Volume 9 Number 3

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THE SETOFF is published bi-monthly by the North American Railcar Operators Association (NARCOA) to promote safe operation of railroad motorcars, and to encourage fellowship and exchange of information among motorcar enthusiasts. Membership in NARCOA, which includes a subscription to *THE SETOFF*, is \$20.00 per year, and is available from Joel Williams, Box 82, Greendell, NJ 07839.

Meets

Members who have organized meets are encouraged to advertise those events here. We will publish all notices received. Be as complete as possible in providing details of the trip: time schedules, costs, restrictions and conditions for attending the events, and total mileage of the motorcar trip. Also state whether or not NARCOA rules will be in effect, and whether NARCOA insurance is required. Send materials to: Dick Ray, 5 Hemlock Place, Randolph, NJ 07869, or to Hank Brown, 622 Oak Street, Cottage Grove, WI 53527. If time is short, send them directly to the Editor. Thank you!

The following events are sponsored by independent organizations or individuals:

August 26, September 30, October 21: Southern Michigan Railroad at Clinton, MI. Set on by 9 a.m. EDST. NARCOA insurance required. Several runs on 12 miles of track. Contact Ernie Jeschke, (517) 263-1322, or Eric Schwandt, (517) 451-2175.

October 7: Tentative. Wellsboro & Corning RR. 76 miles Wellsboro, PA, to Gang Mills, NY. Send SASE to Larry Maynard, RR 1, Box 351, New Columbia, PA 17856. Phone: (717) 538-9050.

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October 21: The Georgia Northeastern RR's second annual meet. Safety meeting in Ball-ground, GA, at 8:00 a.m., with departure at 8:30 a.m. Plan to go south towards Canton, Woodstock, and Marietta. Turn and return to Ball-ground, and continue north to Tate, Jasper and Ellijay. NARCOA insurance required. Cost is \$35.00 per car. Possible night run for advance registered motorcars only. The following safety items are a must: wheels, brakes, lights, fire extinguisher, first aid kit, and red flag. Must also have towing hitch and an approved tow bar. Send SASE to Bobby Moreman, 3520 Cold Spring Lane, Chamblee, GA 30341, or phone (404) 457-6212.

November 4 & 5: Seventh annual handcar/steamcar meet at the Wilmington & Western RR. Human-powered railcars and steam cars only; no conventionally powered motorcars. Cost is \$15.00 membership in Historic Red Clay Valley. Send SASE to Gene Tucker, 1004 N. Kentucky St., Arlington, VA 22205.

November 11: "Almost Heaven" motorcar meet on the South Branch Valley RR at Moorefield, WV. **THIS MEET HAS BEEN SOLD OUT!**

November 12: West Virginia Northern RR, Kingwood, WV, 18 miles total. Set on at 9 a.m. NARCOA rulebook; no insurance required. The 4.77% grades and switchbacks limit run to cars in excellent operating condition. M14 cars must have 3 1/2 inch front pulley to make grade. No trailers or handcars. Cost is \$18.00 per car. Pay at railroad. For information, send SASE to Gary Gadziala, 4115 Heritage Hill Lane, Ellicott City, MD 21042.

November 12: Winchester & Western RR, Winchester, VA. For information, contact Dave Johnson, 655 Fishel Road, Winchester, VA 22602.

The following meets are sponsored by regional divisions of NARCOA:

HEART OF THE HEARTLANDS Chapter sponsors the following events. Contact Jean O'Dell, P.O. Box 394, Cherryvale, KS 67357 for information:

September 10: Coffeyville to Chicago, Kansas.

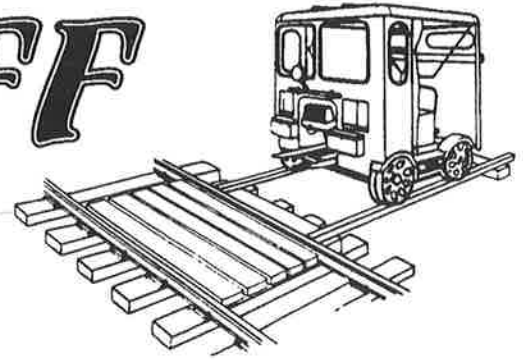
October 8: Cherryvale to Iola, Kansas.

HOOSIER RAILCARS sponsors the following meets:

(Continued on page 33)

THE SETOFF

Special "How-To" Pull-Out Section



Tips From NARCOA Members on How To Restore, Maintain and Run Your Motorcar!

Over the years, *THE SETOFF* has published many articles submitted by NARCOA members that have had to do with restoring, maintaining and running motorcars. We decided to collect these articles, and some new ones, and put them all together in a special pull-out section that you can remove from this issue of *THE SETOFF* for future reference.

NARCOA membership has grown so much since many of these articles appeared that we thought it was time to reprint them, especially for those who are new to the hobby.

We begin with the excellent and entertaining "Why Wont It Run" series written by Dick Ray and follow with lots of contributions made by other knowledgeable and experienced NARCOA members. An index to all articles appears on this page.

As always, we invite members to continue to send us tips and "how-tos" that we can publish in future newsletters for the benefit of all of our members.

Thank you to all those whose reprinted articles appear in this section. We appreciate your valuable and continuing contribution to our organization.

Happy motoring!

INDEX:

Page

Why Won't It Run - I: Ignition Systems	6
Why Won't It Run - II: Fuel Systems	7
Why Won't It Run - III: Coils	8
Why Won't It Run - IV: Electrical Systems	9
Why Won't It Run - V: Starting	10
Why Won't It Run - VI: Timing	11
Why Won't It Run - VII: Timer Lever Linkages	12
Why Won't It Run - Straight: Wheels	13
Generator Tune-Up for Fairmont Motorcars	14
Spark Plugs	15
Maintaining Fairmont Ignition Systems	16
A Bad Ground Could Cause Ignition Problems	17
Tips for Owners of 6-Volt Electrical Systems	17
Installation of 12-Volt Alternator Systems	18
Reformulated Gas and Your Motorcar Engine	20
The Engine Oil Controversy	20
Rod Clearance Adjustments	22
Those Onans Can Really Idle	22
A Cooling System Tip: Repairing a Condenser	23
Good Tracking Part I	24
Good Tracking Part II	24
Make a Simple Tow Bar for Your Track Car	26
F7614 Crankshaft Seal for RO-Cs	26
Make a Muffler for Your Motorcar	27
Build a Motorcar Lube/Work Rack	28
Helpful Tips About Painting a Motorcar	29
How to Hook Up an Air Supply for Air Horns	30
Check the Drawbar on Your Motorcar Trailer	31
Troubleshooting: Some Case Histories	32

Why Won't It Run - I Ignition Systems

By Dick Ray

(This article first appeared in the Spring 1990 issue of THE SETOFF.)

As you are putt-putting down the track enjoying the scenery on your favorite railroad, the exhaust noise on your track car suddenly becomes quiet. Signalling your intention to the car behind, you ease to a stop in a shady spot. "Now what!" you ask. The intention of this article, which is the first in a series of articles, is to help you out of this all too familiar jam by providing step-by-step procedures to help you get moving again. Along with this, we will learn ways to prevent the breakdowns in the first place, by learning some simple procedures.

Although most of the information in this series of articles will be aimed primarily at two-stroke engine equipped cars, much of the information applies to all cars.

Now, back to our poor fellow stopped along the right-of-way. Since he obviously wants to get going again quickly, so as not to hold up the other folks, let's eliminate some of the obvious causes: (1) out of gas, (2) passenger's camera or coat brushed against or turned off the ignition switch, (3) dead battery, (4) plug wire fell off, or was knocked off by heavy weeds. Next, check the coil for a "buzz." With the ignition turned off, crank the engine up to top dead center, remove the crank, close the ignition switch, and listen for the buzz. It may be necessary to move the timer lever a bit to find the correct position to enable the points to close on the engine.

If the coil doesn't buzz, turn off the ignition and remove the plug. Connect the plug wire to a new plug, lay it on the frame of the car, and watch for a spark as you turn on the ignition. No spark could mean that the plug wire is bad, or the spark is shorted out somewhere. Since this is a rare problem, the new plug should allow the engine to start on the first pull. Of course, if the ignition box has a lot of moisture in it, the spark can jump across the top of the coil.

If there is no buzz from your coil, get out your clip lead. I would heartily recommend that every tool kit contain one of these. The lead is

simply a three- to five-foot length of 16 gauge insulated, flexible wire with an insulated alligator clip soldered to each end. You can check for power to the coil by sparking the clip lead from the BAT terminal on the end of the coil (with the ignition on). No spark means no voltage to the coil. The ground side can be checked by connecting the COM terminal of the coil to a point on the engine with the clip lead. With the ignition switch on, buzzing should occur because you have bypassed the timer.

If no voltage reaches the coil, look for a broken wire to or from the ignition switch, or a dead battery. If the trouble seems to be in the timer circuit, look for a broken wire at the timer. The timer wires tend to break because they move a lot.

One way to prevent this breakage is to fasten the wires to the timer control rod with wire ties. A small loop at the timer absorbs movement there (kind of a "strain relief") and another loop or slack at the lever end keeps the wire away from the throttle rod. It also helps to run the wires through the loop of one spring clip on the timer before connecting them to the other clip. An external ground wire is an option, even though late model timers are supposed to be internally grounded. The external wire is insurance.

If power and ground seem to be okay, then try the clip lead from the moving vibrator point to the coil COM terminal.

The foregoing troubleshooting steps are for cars wired with a grounded battery, as normally found with a generator system. Older cars had the ignition switch in the ground side so that the driver would not get a shock when turning the ignition switch off. The procedure will be slightly different for these cars, but if the owner has memorized the wiring, the steps will be obvious.

Most ignition failures on the rails can be cured with the procedures presented here. ~~Fouled plugs are the most common problem.~~ Please do not install the fouled plug that you removed the last time that the engine quit . . . throw it away and use only new plugs. Keep several on hand for those emergencies.

If your car still does not run, keep in mind that any gas engine needs only air, fuel, compression spark, and the proper sequence of events to run. The next article will address fuel system mixes.

Why Won't It Run - II Fuel Systems

By Dick Ray

(This article first appeared in the Summer 1990 issue of THE SETOFF.)

The first article in this series described the ignition troubleshooting steps to follow when your car stops running during a run. All of your efforts have established that there is a good spark. Maybe the trouble is in the fuel system. By now several of your fellow track car operators who are running with you have walked up to your car to ask if it's out of gas. If you don't find the trouble soon, you will find yourself on the embarrassing end of a tow bar.

What to do . . . first, turn off the fuel flow valve, and remove the fuel bowl. If the bowl is full of dirt or water, empty and clean it. You should then open the valve for a few seconds, with the bowl off, to drain any potential dirt particles from the bottom of the tank so as to prevent refouling of the strainer. Next, drain the carburetor by loosening the petcock on the bottom. Leave the petcock open, replace the fuel bowl, and turn on the fuel flow valve to flush the fuel line and carburetor with fresh gas. Finally, close the carburetor petcock, and try starting your car. (Ed. Note: Before you begin cranking, it would be a good idea to push the car a few feet ahead from where the flushed gas spilled onto the roadbed so as to avoid a fire hazard from any "stray" coil or timer sparks igniting the gas fumes.) The engine should now start, unless you have other problems!

If dirt, fuel tank rust, or water was the problem, then the fuel bowl will have to be cleaned at frequent intervals. If it is excessive, ~~then the tank should be removed and cleaned~~ with lacquer thinner or other solvent. Placing a length of chain or crushed stone into the tank while shaking vigorously has been known to help. Do not be alarmed if the fuel bowl does not fill promptly with fuel after you replace it after cleaning. It is full of air which will "bleed" out as it is replaced with fuel.

The above procedures should solve 90% of the breakdowns due to fuel system problems.

However, other problems can cause a breakdown. A clogged vent in the fuel tank cap is especially subtle. The symptom is that the car will start after sitting, or priming, but will stop soon thereafter. Leaving the cap loose or off will get you moving again. (You didn't inadvertently switch gas and condenser caps, did you? The condenser cap has no vent.)

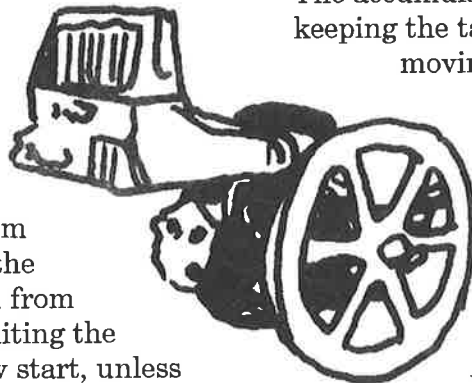
Flooding is rare, and is accompanied by all kind of rich fuel mixture symptoms. It could be caused by a bad float or dirt under the inlet valve needle. A small hole in the side of the carburetor is supposed to leak excess fuel onto the ground before it fills the crankcase. This vent hole also allows the air above the fuel level inside the carburetor to be at atmospheric pressure. The hole must be kept open.

If the engine is flooded, the spark plug will be wet with fuel. To clear the engine, open the crankcase petcock and drain it. While the spark plug is out, close the mixture adjustment, open the throttle, and crank the engine over. This will clear out excess fuel in the cylinder and ports. Now install a new plug, adjust the mixture to the normal setting, and start it up.

The presence of water in the gas tank is a normal occurrence for infrequently used vehicles. The accumulation can be minimized by either keeping the tank full of fuel at all times or by moving to Arizona! Water also comes from the bottom of your gas can. Never empty the very last pint of gas from your gas can because that is where the water may be.

A fuel bowl normally does an excellent job of separating the water and dirt from the fuel. It also gives a visual indication of when it needs cleaning. Adding an in-line fuel filter will really not help much since they are designed to work on a 3-7 psi pressure system instead of the gravity systems that most of our track cars utilize. In addition, these filters have little capacity and they plug up easily. Some forms of "dry" gas should be avoided since they frequently contain methanol, which could corrode some fuel system parts.

One final fuel system problem, which Fairmont also cautions about, is loops in the fuel line causing air locks. A flexible fuel line of the correct length is the long-term solution.



Why Won't It Run - III Coils

By Dick Ray

(This article first appeared in the Fall 1990 issue of THE SETOFF.)

Your car has stopped running and all of your troubleshooting has failed to find anything wrong with the ignition or the fuel system. Your allotted repair time has run out and you're being towed.

Resist the temptation to beat your car to death with a worn out crank. Maybe it's the coil. Yes, it did make an observed spark when you tested it, but there are no good, quick tests for a coil except substitution of a known good one.

Coils seldom fail suddenly, except for the broken internal connection which happens to the wood-cased Pontiac coil. They usually deteriorate slowly, giving erratic and weak ignition. It is an old axiom that coil problems always seem to be carburetor problems. Hard starting, lots of "plug fouling," and excessive sensitivity to mixture are the most noticeable symptoms.

Testing the coil by watching it fire a plug outside the engine is not a conclusive test. The reason is that the voltage needed for ionizing a 0.030 inch air gap in free air is much less than that needed when the pressure is five or six atmospheres, and a bunch of fuel and oil droplets—all insulators—are present in the air gap.

A good single-cylinder coil should produce a spark across a 1/4- to 3/8-inch gap in free air. This spark length is largely independent of voltage applied. However, the elusive "Fat Blue Spark" containing lots of energy requires at least five volts at the coil. For convenience, the vibrator point adjustment procedure is repeated on the next page.

Coils go bad due to broken internal connections or insulation failure. Do not operate a coil without a spark plug in the circuit to absorb the energy. If the points are vibrating, a spark is being generated and will jump somewhere. If it occurs inside the coil, the insulation will be damaged and will eventually leak off energy or arc over, bypassing the plug.

Some coils used to have an intentional air gap inside as a safety measure, but the Pontiac coils used on single-cylinder cars do not. They do contain a condenser which helps increase the

spark intensity, just as in automotive ignition systems.

This coil should measure 3,000-4,000 ohms from the PLUG terminal to the COM terminal. If the circuit appears to be open, a spark can still jump across the internal defect, but the wire is being slowly burned up. The coil should be replaced even if it seems to work okay today.

One subtle symptom of weak ignition, possibly due to a bad coil, is that the engine will misfire when the timing is retarded but runs better when the timing is advanced. The reason for this is that the pressure in which the plug must fire is greatest at top dead center. When the timing is advanced, the pressure may be only half as great, allowing the weak coil to fire. Reducing the plug gap to half of the normal setting may help get you home so that you can fix it properly.

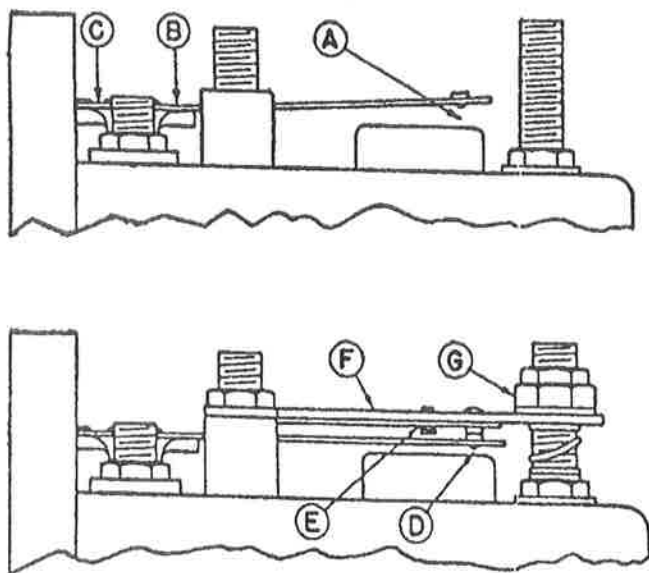
The metal-cased, dual-lead coils used on twin cylinder cars are not made by Pontiac. They also do not have a safety air gap inside. These coils should make a 1/2- to 3/4-inch spark from one plug terminal to the other, and the resistance should be near 10,000 ohms from one plug terminal to the other. These coils don't fire to ground except from one plug to the other through the engine. Arcing to ground inside the case will bypass the plug and cannot be determined except by bench testing with two 1/4- to 3/8-inch air gaps, each to the coil case. A weak spark on one side can cause one cylinder of the engine to stop firing or to be erratic. When it is firing sporadically, that plug tends to get all sooty. This in turn causes the owner to install a hotter plug in that cylinder, and to start researching ways to clean the old plugs. By now, you have realized that the coil is at fault, not the spark plugs. An RK engine with a good coil and clean fuel can run all year on one set of D21 or C88 plugs.

Therefore, efforts to clean spark plugs do not solve the fundamental problem. Some of the cleaning procedures can damage the porcelain and cause the plug to fail again. This leads to a new round of plug changing and cleaning. It's lots more fun to fix it properly and then enjoy the scenery.

Don't forget that a good solid-wire plug lead is part of the coil circuit. The high energy in the vibrator spark can quickly open up the resistive wire used on automobiles, and this wire can also be tricky to adapt to our coil connections.

Also, do not use an automotive spark coil. The Fairmont coil fires when the timer points close, while the auto coil fires when they open. This retards the spark by 36 degrees. If you can get it to run okay forward, it probably won't run at all backward.

Vibrator Point Adjustment Procedure for Fairmont Vi- brating Type Spark Cells



Install lower half of vibrator first. Carefully bend mounting bridge by tapping with a hammer and nail set or punch at "B" or "C" to obtain 1/16" gap at "A". Hold punch at "B" to reduce gap, and at "C" increase it.

Apply upper bridge, and adjust nuts "G" to obtain 1/32" gap at "D". When in this position, there must be some clearance between upper vibrator leaf and rivet head at "E". If there is no clearance at rivet head, tap upper bridge lightly with the punch at "F" until clearance is obtained. Then rest gap at "D" to 1/32". Be sure points match and seat together evenly.

Tighten all electrical connections, then connect Fairmont F7838 low reading ammeter in primary circuit and, if necessary, make further adjustment for .85 to .95 amperes current draw. This should be done by again tapping lower bridge at "B" or "C". Do not change the 1/32" gap on "D". Tighten lock nuts at "G".

Check and clean spark plug regularly, and maintain 1/32" gap at points.

Why Won't It Run - IV Electrical Systems

By Dick Ray

(This article first appeared in the Winter 1991 issue of THE SETOFF.)

One reason is bad wiring practices, which lead to bad electrical connections. These are very hard to find during your allotted five-minute repair time at a meet. Electrical troubleshooting has been discussed in previous articles, and we have discussed ways of finding and correcting obvious problems so you can get moving again. This installment is intended to help you prevent these wiring troubles.

Modern crimp-on terminals are the best way of making reliable electrical connections because the insulation fits inside the terminal sleeve, thereby absorbing vibration and preventing breakage. Blue-colored terminals are for 14- and 16-gauge wire, which is all that is needed for most cars. Yellow terminals are for 10- and 12-gauge wire, needed only for wires carrying more than 15 amps. Heavy battery cables are needed only for starter motor circuits. Good wire is available in several colors from your local auto parts store.

Fuses were not used by motorcar manufacturers, so there is no reason to add them during a restoration. Vibration has been found to open a fuse. Ask yourself: Why add something whose sole function is to cause a failure? It's better to replace bad wiring and to keep it simple.

If you fasten electrical accessories to the aluminum roof or body and use the metal for the electrical ground return, notice that there are lots of bolted-together connections in the path back to the battery. A headlight mounted on a Fairmont bracket attached to the front bar can have nine bolted-together connections in the ground side! Also notice that the roof is insulated by the rubber isolators on many cars. A strap will have to be added in this case to connect the roof to the rest of the car electrically. In general, you will have to pay attention to the ground return path as well as to the power path for every electrical item. The reliable connection problem is further compounded by the inevitable electrolyte corrosion which occurs between copper wiring lugs and aluminum panels.

(Continued on next page)

Why Won't It Run - IV Electrical Systems

(Continued from previous page)

One solution to the ground return problem is to bond each current-carrying body panel to the frame at one point, and from there to the engine. Your generator or alternator is grounded to the engine and ultimately all electricity must return to this point. A #10 or 1/4-inch stud added to the steel generator mounting angles makes an excellent single point for the return wires. Of course, the battery ground should go to the same point. Some Onan-engined cars attach the battery ground cable to a bolt on the transmission cover.

If you have carefully painted your generator and its mounting bracket, there are now two more uncertain connections in the ground path. Add a wire under the regulator mounting screw and run it also to your single point ground terminal.

Symptoms of bad connections are:

- Dim front or rear light.
- Low battery voltage and charging current.
- Erratic lights and accessories.
- Weak ignition.

Obviously, ignition, headlight, and battery charging are the most important to get you back to your trailer.

Question: How can you identify a car with good wiring?

Answer: The owner never gets out to see if his headlight is on!

Why Won't It Run - V Starting

By Dick Ray

(This article first appeared in the Fall 1991 issue of *THE SETOFF*.)

Previous articles in this series have tried to help get a car running after it has broken down. Of course, we assumed that it started and ran properly in the beginning. As you know by now, that is not always the case.

Maybe you recognize this scenario: Good ol' Charlie arrives early at the set-on point, unloads and gets his cameras, food, Pepsi, and boombox stowed in his car. Eventually he starts cranking . . . and cranking . . . and cranking, with no effect.

While others are learning about the history and scenic highlights of the railroad, he is lying under his car hammering on something. Finally, just as the safety briefing starts, the car does also and half of the people can't hear what is being said. He can't shut it off now because it always starts very hard and it may not restart. Charlie has his own unique way of starting his car and never accepts suggestions on how to do it easier. After all, he is the only one who understands this hard-starting car.

Of course, the foregoing is an extreme case, and could apply to a two-stroke, an Onan, or a Waukesha/Hercules engine.

The best advice for starting a two-stroke engine is given by Fairmont:

- Adjust the mixture to 1 1/2 to 2 turns open.
- Retard the timing slightly.
- Adjust the throttle to 1/3 to 1/2 open.
- With the ignition off, crank the engine over several times while holding the choke knob up.
- Turn on the ignition, release the choke, and lift the crank once—HARD.

In normal service and weather, it should start. Extreme cold or a long storage period will require more priming.

The big single-cylinder engines are very easy to start because of the huge flywheels. Some owners flip the flywheel and bounce the piston off compression to start it. Priming is difficult without a crank, and fuel must be dripped into the priming cups.

The RK two-cylinder engine has a somewhat undeserved reputation for being hard to start. Once all the ignition and fuel system problems are made right, the engine can be easy to start. Just follow the Fairmont instructions with several cautions. First, drain the crankcase if the car has been sitting overnight or longer. A lot of oil and gas condenses in a twin because of the large surface area in the crankcase compared to a single. Next, prime it with only two or three revolutions. Remember that fuel is drawn into the crankcase only when the piston is moving up on compression. If you lift the crank slowly as you try to overcome the compression force little fuel will be drawn in. Overpriming and flooding is easy because there are two cylinders pulling air through the same size carb as is used on the single. This creates a rich mixture.

Once flooding occurs in the crankcase the excess oil and gas is sucked into the cylinder where it lodges in the spark plug gap. The plug

can't fire because the oil is a better insulator than air. In addition, the transfer ports in a twin have a low spot where excess oil and fuel can collect. Don't forget to check the screen between the crankcase and transfer ports in a twin. This could get plugged with oil residues.

Another factor which affects starting a twin is the relative lack of flywheel inertia. While the one flywheel weighs as much as two RO flywheels, it is smaller and has less inertia. The compression forces are twice as much. If, when cranking, the timing is retarded too much the flywheel cannot carry the pistons up over top center again. If the timing is advanced too much, the engine can fire and simply stall in place.

So the RK has worse gas flow and less flywheel compared to a single and this tends to make it more intolerant of poor starting techniques. One way to learn the starting technique is to start your RK engine every few days and warm it up. Use the identical technique each time and change only one thing at a time. You may need a dozen plugs before you are done, but it will pay off in the end.

Starting a four-stroke engine is simple for those old enough to remember manual-choke automobiles. Pull the choke out, open the throttle slightly, turn on the ignition, and crank it over a few times. If it doesn't start, open the choke half-way and try it again. This procedure gets some raw fuel into the intake manifold and cylinders. In cold weather, it is necessary to wait for a moment after choking so that some of the fuel can vaporize into a combustible mixture. If you flood the engine from excessive choking and cranking (and maybe forgetting to turn on the ignition) simply open the choke all the way, open the throttle all the way, and crank it for five seconds. If it doesn't start, wait 15 seconds and do it again.

Back to good ol' Charlie's car. Part of his problem is due to all of the improvements he has made. A 10 to 1 mix of mink oil in avgas with a little benzol for stability, his special aircraft spark plugs which he cleans and re-installs after each run, his megaphone exhaust system, his special secret timer point adjustment, and the eight layers of shiny aluminum paint on his coil all contribute.

Few things in life are more satisfying than returning your motorcar to the factory specifications and having it start and run perfectly after that.

Why Won't It Run - VI Timing

By Dick Ray

(This article first appeared in the Winter 1992 issue of THE SETOFF.)

One reason we have observed is the improper use of the timer lever.

Twenty-seven two-stroke Fairmonts have climbed the long three percent grade and disappeared over the top, but your car has bogged down, unable to get moving again. What's wrong?

Some operators adjust the timer lever only according to the limited information on the timer instruction plate. This has only two points—START and RUN—for each direction. The instruction plate elaborates: "Partially advance spark for slower car speeds. Use full advance only for higher speeds." The last sentence is overlooked by some operators who don't realize that excessive spark advance costs engine power at low speeds.

It helps to understand just how timing affects engine performance. When the spark ignites the mixture, it does not explode, but instead burns in a finite amount of time. The burning causes a rapid rise in pressure in the cylinder which, of course, is the desired objective. The greater the pressure, the more push on the piston and the more torque at the axle to get you up the hill.

If the mixture is ignited when the piston is at the top of the stroke, burning will take place while the piston is moving downward, which reduces the maximum pressure. For this reason, it is beneficial to start the ignition and mixture burning process a little early so that the pressure rise peaks out when the piston is at top center. This gives the greatest push on the piston. As engine speed increases, it is necessary to start sooner, which translates into increased timing advance. Thus, the rule of using full advance only at maximum engine speed.

Do you ever accidentally reverse the engine while starting or on a grade crossing? This is the engine telling you that the timing is too far advanced. If you use excessive advance at low speed on a hill, the car may eventually stall. This is because the high pressures in the cylinder,

(Continued on next page)

Why Won't It Run - VI Timing

(Continued from previous page)

caused by igniting the mixture too soon, is trying to run the engine backward! More energy is consumed by working against this pressure on the upward stroke than is recovered by expansion on the downward stroke.

In addition, the plug can overheat and foul. Even though it looks okay, the high temperature has caused the center insulator to become conductive.

An experiment which you can perform will clearly demonstrate the value of proper spark advance. With the timer lever well forward of where you usually run, slow the car to the lowest speed possible, and then open the throttle all the way. You will detect very slow acceleration. Now bring the timer lever back toward center and notice that your motorcar now accelerates quickly. This assumes that your timing is accurately centered. If not, we'll cover that in a future installment.

Question: How can you tell an operator who has mastered the proper use of the timer lever?

Answer: You can't. They have all disappeared over the hill and into the distance.

Why Won't It Run - VII Timer Lever Linkages

By Dick Ray

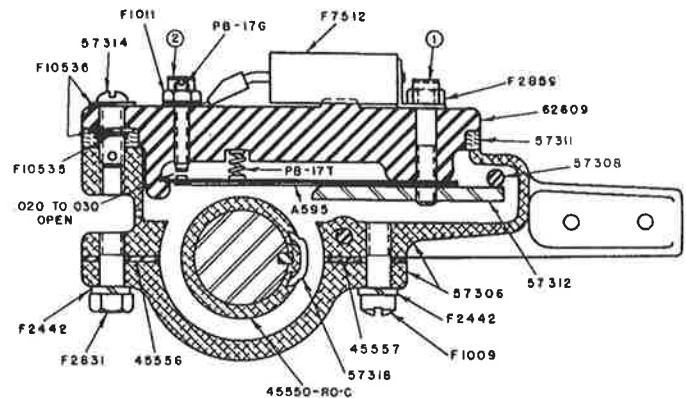
A previous article was published on the use of the timer lever and the effects of improper spark advance. Of course, this will be difficult if the timer lever linkage is mis-adjusted. The goal of the following adjustments is to get the actual spark advance to agree with the lever position and to get the spark duration to the proper 10% of a revolution.

The following instructions are paraphrased from the Fairmont instruction manual for a single-cylinder engine with a Weathersealed timer, but other engines are covered as well.

The best ignition is obtained with the timer points adjusted to a .020" to .030" gap. In order to set them, remove timer body from mounting

casting by releasing arc adjusting screw 57314. Loosen lock nut on point adjusting screw PB-17G. Turn this screw down until the two points just touch, then back the screw out one half turn, and tighten the lock nut. Check with a feeler gauge. If the points are burned or worn unevenly they can be dressed with a fine file. The gap is specified as .015" to .025" for the automotive-style points used in the RK twin-cylinder engine.

When reassembling, the mounting casting should be adjusted closely on the support casting,



yet be free to move when the spark is advanced or retarded. This fit is controlled by the clamping action of the lower screws in the sketch and the thin gasket between the upper and lower halves of the casting.

Next is the duration. The interval during which the timer points close to produce the spark should be about one tenth of a flywheel revolution. This measures about 5 1/2" on engines with 18" flywheels and 6 1/4" on RQ (big single) engines. To check this measurement remove the spark plug and lay it on the frame with the lead attached, close the ignition switch and slowly turn the flywheel until the points close and the coil starts to buzz. Mark the flywheel rim in line with some fixed referenced point on the engine. Now turn the flywheel in the same direction until the coil just stops buzzing. Mark the flywheel as before and measure the distance between the marks. If adjustment seems necessary, turn the arc adjustment screw (57314 in the figure) to the right to increase the duration or to the left to decrease it. Duration is not adjustable on an RK engine.

What you are doing is compressing a thick rubber gasket and moving the point assembly closer to the cam. The earlier timers that had

two clips holding the assembly together were not adjustable for duration. However, a patient mechanic could add thin shims in place of the gasket to decrease duration or close up the point gap to increase it. However, it is my opinion that the point gap is more critical than the duration.

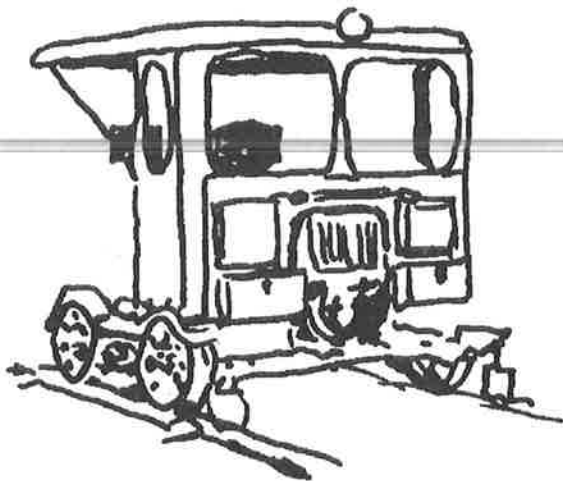
If proper duration is impossible to obtain, the nylon rubbing block may be worn out. Replacement of this item probably requires removal of the flywheel and is beyond the scope of this article. If anyone has a simpler way, we would like to hear about it.

Finally, we get to the centering, which was the original goal! We're going to adjust the linkage between the timer lever and the timer so that the timing is at neutral when the lever is straight up and down.

Since the spark plug is already out and laying on the frame, it is easy to put a screwdriver into the plug hole (use a large one so it won't fall in) and locate top center of the piston. Now mark the flywheel with a reference mark next to a fixed point on the engine and put the timer lever straight up. Turn on the ignition and watch the distance that buzzing occurs on each side of that center mark. If the distance is not equal, the timing is not centered. To adjust it you need to change the length of the rod between the lever and the timer.

Now is also a good time to eliminate slack in the linkage with washers or by other means. Long ago, I cut off the lever end of the rod on my car, threaded it, and put on a nice clevis with a pin. Don't forget to lube the moving points of the linkage with grease.

Once adjusted, you won't have to repeat this work for many years. Happy putt-putting!



Why Won't It Run - Straight: Wheels

By Dick Ray

(This article first appeared in the Fall 1991 issue of THE SETOFF.)

Did you ever wish that you could run on good rail so that your car didn't lurch back and forth? Maybe it's your wheels and not the rail. As it turns out, wheel contour is more important than rail contour. Worn wheels won't track well anywhere.

Several years ago, we ran an article on measuring wheel contour and another article on alignment. Since that time, the number of operating motorcars has tripled and few owners recognize when the wheels are worn out. There is a simple way to judge wear and contour.

Fairmont

A good wheel has a shiny stripe on the flange, then a rusty stripe on the tread next to the flange, and then a shiny surface on the outer half of the wheel tread. This does not mean that a car has narrow gauge—it means that the tapered tread is guiding the car properly and the wheels are not moving back and forth across the rail much.

A worn wheel, on the other hand, has a shiny surface all the way across. This comes from the wheel moving back and forth across the rail. Having ridden in cars with wheels like this, I can attest that they do not track well on straight track or curves. The wheels are often still plenty thick and safe, but they will wear rapidly.

An additional characteristic of a worn wheel is that on the outer edge of the tread a definite corner takes shape where the wheel once was rounded.

This makes wheel inspection as simple as walking around the car and looking for the dreaded totally shiny surface, and the dismaying outer edge corner. If you see these things, maybe it's time for new wheels.

Generator Tune-Up for Fairmont Motorcars

By Ron Zammit

A lot of Fairmont motorcars with two-cycle engines have an Autolite 6-volt generator and regulator TC-4301C for electrical power. If you are like me and want your car original, you keep these units. However, they usually don't work all that well and have been a source of mystery. Each one seems different and their operation is marginal at best. This article addresses how to get the maximum out of these components without damage.

In proper operation, the generator should trickle charge your fully charged battery at about 2 to 3 amps. When you load it with the lights, you should see the meter in the motorcar kick over to discharge for less than a second then come back up to a 2 or so amps charging rate. All of my generators have not worked this way when I purchased the motorcar. It has been difficult to get the things to work consistently in charging and keeping the system supplied with enough current to run the lights and wipers. (These generators will not handle a current load any larger than that required by the lights and wipers.) Additionally, the system should have the battery positive pole at ground; half of mine have been the other way when I first got the motorcar, so I've since reversed them since improper polarity will burn the regulator points very quickly.

I'm assuming the generator is working with good armature, field, brushes, bearings, etc. Almost any generator shop can check these parts. The true heart of the problems are in the regulator. This little box has two relays in it, the cutout and the step (regulator.) It is their adjustment which is so mysterious to most folks, and to most repair shops to which I have taken the units. So here is how I finally got mine to work.

To start, you need a DC power supply, variable up to 9 volts, and with a current capability of 1 amp or so. Remove the regulator from the generator body, marking the "A" (armature) and "F" (field) wires, as these can't be mixed upon reinstallation. Carefully open the regulator box, taking care not to touch any parts. The cutout is the relay with large diameter wire in its winding.

The first check is to make sure the contacts are not pitted or dirty. Remove pits with a point

file and dress with emery cloth. For the adventuresome, you can carefully remove the top contact blade from the relay and inspect both sets of points. The points are held in the upper positions with springs. Make sure these springs' bodies are not touching the frames of the relays.

Now let's make the first adjustments, on the gaps. There are two on each relay. (All data is from a Prestolite service manual dated 8/22/67.) First, the armature air gap (points open) on the cutout is to be 0.010" to 0.030" measured from the relay coil pole piece to the contact blade. Adjust by bending the blade stop. Next, the point gap: when the points are open, the gap should be 0.015" to 0.045" and this is adjusted by bending the stationary point holder. For the step relay, the armature air gap should be 0.044" to 0.046" (points closed) adjusted by raising or lowering the upper point (and stationary point) holder. The point gap should be at least 0.005" adjusted by turning the brass cam, or bending an adjustable stop on units without the cam.

The next adjustments are with power applied. Connect your power supply positive to the body of the regulator, and the negative to the "A" contact. Run the voltage up above 6.5 volts and the cutout should close between 6.5 and 7.25 volts. Adjust this action by bending the spring hooks, one or both. Note that this relay will not open again unless you lower the voltage quite a bit. On the generator, it will kick out properly, because a reverse current runs through that larger wire coil when the generator's output falls below the battery's voltage.

The step relay is the most finicky as its operation is temperature dependent. Here are some open and close voltages (open - coil is active): 60° - 8.17, 6.41v; 70° - 8.10, 6.35v; 80° - 8.03, 6.28v; 90° - 7.95, 6.21v. All voltages have a tolerance of plus or minus 0.15v. Adjust for the upper value by bending the spring mounts, the lower value by the brass cam (or adjustable stop). Now is a good time to check the field resistor value. With the step relay energized, points open, you should measure between 1.85 and 2.10 ohms between the "F" terminal and ground. With the step relay points closed (not energized), you should read zero ohms. This resistor is placed in series with the field winding when the generator has high rpm's so that the output current is

limited. Without proper operation and values, you can burn out the field winding. (Most railroads put a short piece of rod in the fuse holder—like putting a penny in the fuse box at home. Use a 5 amp fuse as a minimum, but this is just a guess. Does anyone know what value for this fuse is proper? The output current does not go through it, it is for the field current. The field may also be damaged if you run the generator without a battery.)

Next, if you need to polarize the generator, install the regulator with the lid off. Be careful not to touch the relay springs and their holders or your adjustments may be ruined. With the battery connected positive terminal to ground, touch a wire connected to the negative pole to the cutoff relay's body for a few seconds. If you have reversed the electrical polarity, don't forget to reverse the connections to the motorcar's ammeter so it will read correctly. Now install the regulator lid and let's do the final test.

Start the engine and warm up. Run up to normal running rpm's and the generator should be charging. With a good battery, 2 to 3 amps should be indicated. Turn on the lights, and the ammeter should kick into discharge, then back up to 2 to 3 amps. If the "no light" current is more or less than the 2- to 3-amp reading, you need to adjust the generator output.

Stop the engine and remove the brush cover plate on the generator. You can see the three brushes with the help of a mirror. Usually, the stationary brushes (two of them) are in the six o'clock and 12 o'clock positions. The "third brush" is movable and in the three o'clock position, toward the front of the motorcar. Carefully move this brush in the direction of rotation for more current, or against the direction of rotation for less current. **DO NOT TRY** to move a fixed brush. The holders are old, fragile, easily broken, and no longer available. I learned the hard way! Restart the engine and see if your brush adjustment was accurate. It may take several tries to get it correct, and only adjust with the engine stopped. When finished, stop the engine and replace the brush cover.

I hope this helps you get your generators tuned up. It takes a lot of patience to adjust those relays, but once done, you'll be able to do it faster the next go round. And with all the vibration these units undergo, they'll need work again. You can count on it.

Spark Plugs

By Dick Ray

(This article first appeared in the Fall 1989 issue of THE SET-OFF.)



At almost any gathering of track car owners, the talk usually seems to turn to spark plugs. There appears to be as many theories and practices about spark plugs as there are track car owners. This article will investigate some of the questions and present some answers, however it is not intended to be the final word on spark plugs.

First, we will discuss the topic of heat range. Fairmont recommends that its two-cycle engines be equipped with Champion brand D16 spark plugs. The equivalent plug in AC brand is the C86 plug. While these two plugs can certainly be expected to perform adequately, experience has shown that a slightly warmer plug can sometimes improve performance on some cars. The AC C87/C88 or the Champion D21 plugs are hotter than the C86 and D16. The D21 is equivalent to the C88, with the C87 plug falling in between.

"How can I determine which plug to use?" you ask. The key to this answer is to look at the center insulator on your plug after a long run at normal speed. White "ash" on the insulator indicates that the plug is too hot, black is too cold, with tan or brown being perfect. Black deposits can also indicate other problems with your ignition system, such as a low battery, bad or pitted timer or coil points, incorrectly tuned coil, or faulty wiring. Make sure that these other components of your system are in top notch shape before selecting the plug type that is best suited for your particular car.

A plug that is too hot can crack off the center insulator, which will rattle around in the cylinder, before being blown out the exhaust port. Another problem is that of oil deposits being baked on, and then firing erratically at full throttle. The cooler plugs, while performing fine on a correctly tuned ignition system, can sometimes foul more easily if the ignition system is not in top notch condition. The hotter plugs will improve performance slightly on a marginal system, although this is not a substitute for a system that conforms to recommended performance specifications.

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Spark Plugs

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Twin-cylinder RK engines sometimes operate better with different heat range plugs in each of the two cylinders. Usually this can be attributed to the fault of one side of the twin-lead coil shorting out. This leads to cylinder misfiring, which will foul one of the plugs. The hotter plug placed in the cylinder affected by the coil misfire won't do much for you . . . it's a temporary fix. A new coil may be in order.

Occasionally, after running your car for an extended time at very slow speeds, or when the car has idled for a considerable length of time, black, oily or sooty deposits may form on the plug. This is not necessarily an indication of fouling. These deposits will burn, and be blown off, if the speed and load on the car is increased for a short period of time. Continuous running at very slow speeds, or excess idling of the car will, of course, result in "baked on" deposits, ultimately fouling the plug.

If your car won't start with a fouled old plug, but it will after installing a new one, don't keep the old plug! It's better to find the cause of the fouling than to try and clean old plugs.

Finally, here's a tip that I use to further improve a good ignition system. I cut off half of the ground electrode on my plugs so that the spark will jump slightly further from the cut edge of the electrode to the center electrode. This puts the spark "out in the open" and insures reliable firing every revolution.

Maintaining Fairmont Ignition Systems

By Dick Ray

(This article first appeared in the Spring 1989 issue of THE SETOFF.)

The Fairmont vibrator-type ignition system has been firing spark plugs in track motor cars for over 70 years. The system works well for two-cycle engines because it provides a good hot spark to the plug on each revolution of the flywheel. The key to assuring that the system will continue to work well is based on proper maintenance.

The condition and adjustment of the ignition system electrical components is perhaps the most vital aspect of reliable operation. I have found that following Fairmont's adjustment instruc-

tions for both the timer and vibrator points is the best advice that one can follow.

Good electrical connections are vital. In the vibrator, connections to the points are made through the mounting studs and the brass nuts. Cleaning all of the mating surfaces when new points are installed will insure a good spark. Be careful not to allow any of the studs on the coil to turn when tightening the nuts or installing the wires. If the studs turn, the internal connections could possibly break. If this does occur by accident, a jumper wire can be added from the "BAT" terminal to the "pan" (moving) point terminals, thereby bypassing the internal connections. This method saves buying a new coil.

The timer points do not need to be serviced as often as the vibrator points. When doing so, remove the entire timer assembly for cleaning, addition of new parts, and cleaning. Occasionally dress down the points with a fine file, and polish with crocus cloth or fine emery. Don't "push" the limit of the points though as the cost of new ones is not worth being stuck out along the rails. An extra set of points kept in a sealed plastic bag in the motorcar tool box is a good investment also.

One often overlooked part of the ignition system is the high tension lead. Occasionally old insulation will crack, causing the spark to jump to another surface, causing shorts and misfiring. Periodically inspect your lead and, if replacement is necessary, use solid core wire.

When storing the car for the winter, it is advisable to bring the coil into the house. The wooden coils are not sealed quite as well as the newer automotive coils, and moisture can sometimes cause problems to the internal connections. Another cause of internal problems is "buzzing" the coil without grounding the high tension lead to either the car or spark plug lying on the frame. When testing the coil after adjustments and the addition of new parts, *always* ground the high tension lead.

Finally, the ignition system check should include the ignition switch and all connecting wires. Any problems with these are usually easy to find and replace if they are in bad shape. However, a bad ground connection to the frame can be difficult to find. The electrolysis action between the copper lug and an aluminum frame member can create an insulating barrier. An extra wire connecting the ignition system ground to the battery ground can be added insurance.

Tips for Owners of 6-Volt Electrical Systems

By Dick Ray

(This article first appeared in the Summer 1990 issue of THE SETOFF.)

As a railcar restoration and preservation enthusiast I am always a little distressed to read how someone has installed a modern 70-amp alternator on a Fairmont M9 or an M19. These earlier cars never had these modern devices as original equipment, but instead usually had 6-volt generators and associated 6-volt hardware.

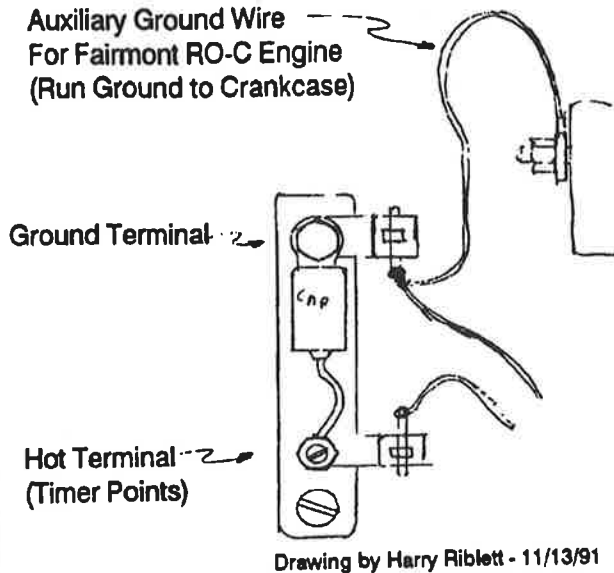
The Autolite 6-volt generator installation bulletin first appeared in 1944, although some larger cars such as the Fairmont A-3 had generators earlier. The alternator installation bulletin is dated 1969 and it is known that even into the 1960s these Fairmont cars still had 6-volt systems. If you desire to restore your car to the *original* type electrical system, then these dates can be used as a guideline.

The most common reason that many people switch to a 12-volt system is that 6-volt lights and accessories are sometimes hard to find. For headlamps, 5 1/2" diameter headlight bulbs that fit Fairmont headlamp shells are often found also on older off-the-road motorcycles with 6-volt systems. These bulbs can likely be found at a motorcycle parts shop. They can withstand vibration and have a wide enough beam spread to "see" out to the side as well as ahead. They are available in 35- or 40-watt versions. They usually have a low beam and high beam capability; the low beam is especially helpful going through switches and grade crossings and when following another track car. The 6-volt lamps from Fairmont are also available and are available with either a flood or spot beam pattern. The motorcycle lamps are a good compromise between the two.

For larger cars, the big 7-inch diameter dual-beam headlight bulb, like the ones that Volkswagen used to use, will fit into old street motorcycle shells. I used a shell from a Honda 450 on one end of our ex-Lehigh & Hudson River RR Fairmont A-3 and a shell of unknown origin

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Fairmont "Weatherseald" Timer Block



A Bad Ground Could Cause Ignition Problems

By Harry Riblett

(This article first appeared in the Winter 1992 issue of THE SETOFF.)

After struggling with a nagging ignition problem on my Fairmont M19 RO-C engine for over two years, I finally found the problem, which I'm happy to pass along to fellow NARCOA members.

Due to the design of the timer block, the ground circuit to the engine is not reliable. Accordingly, I added an auxiliary ground wire from the ground terminal on the timer block to the closest stud on the crankcase, and this now provides a reliable ground. The wire should be long enough to have a sizeable loop in it, since it flexes when the timer lever is moved.

What a difference it makes!

Tips for Owners of 6-Volt Electrical Systems

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on the other end. Joel Williams fabricated an authentic looking bracket for each and a forward-reverse switch provides power to one or the other.

Small 4 1/2" diameter lights for backing up can be found at tractor dealers or NAPA auto parts stores. They usually have the correct looking round metal shells available also. In this small size though, only the flood types seem to be available, but this is generally okay for low-speed backup moves. For tail lights, the small red "beehive" lights are authentic looking. These come with #1073 or #1157 12-volt bulbs, but you can replace them with a #1129 6-volt bulb from

an auto parts store. If you wish to use a dual-filament stop and tail light assembly, then use the #1154 6-volt bulb.

Small, flat clearance lights, sometimes used as tail lights, typically come with one or two wedge-base bulbs. These bulbs can be replaced with a #159, #259 or #555 bulb. These are three different brightness levels, and are usually available through electronics supply stores.

Other accessories are available in 6-volt also. Horns are available from Fairmont, and J.C. Whitney (an auto parts supplier that has 6-volt items for many pre-1955 cars). Some of you like the rotating beacons for your cars. They really weren't in vogue during the era of the earlier built cars, although they are sometimes helpful at crossings. A 6-volt version is available from McMaster-Carr, a nationwide industrial supply company. Radios are almost always 12 volt, but these should probably be operated from a separate battery anyway. I'll cover 6-volt generator and battery maintenance in a later article.

Installation of 12-Volt Alternator Systems

By Charlie Hulsizer

(This article first appeared in the Winter 1991 issue of THE SETOFF.)

I recently installed a 12-volt alternator/lighting system on my ex-B&M Fairmont M19, and would like to share the procedure with anyone else who would like to do a similar job. It is worth the trouble, as the car runs ten times better than it did with the six-volt/drycell arrangement.

I used a Delcotron alternator which is found on all GM automobiles and light trucks from 1973 onward. This is a common, easy to get alternator, and a trouble-free unit with a built-in electronic regulator. You can get a great deal on one at a junk yard. If you can take it off a car yourself and can cut the wires, take the two-contact connector that plugs in, snip the wires and leave yourself plenty of wire so you can use the connector.

Do likewise with the single large wire that goes from the single post to the battery. This should have a nice protective boot to cover the terminal. Just to save yourself some hassle, if you can take the used alternator to your friendly

local auto parts store and let them test it for you, you can assure yourself that you are installing a good part.

I was able to get a complete alternator bracket/lighting kit, minus alternator and headlight, from Dave Rose in New Jersey. This included the brackets, pulley, belt, battery box and wiring. Having all the goodies made the job easier, and buying all the stuff piecemeal from Fairmont would put you in the poorhouse quick.

You must pop the flywheel off to install the pulley. I was able to get mine off without removing the engine and using the puller. I gingerly tapped the flywheel with a lead faced hammer, and it came off fairly easily. Yours may or may not come off so easily. You must remove the drive belt pulley before doing this, three 9/16" bolts.

After you get the flywheel off, bolt the alternator pulley to the drive belt pulley. Caution! Make sure that the bolts that you used to secure the alternator belt pulley do not protrude too far and touch the car's drive belt or it will ruin the belt!

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Reformulated Gasoline and Your Motorcar Engine

By Mike Paul

Many articles have appeared in past issues of various motorcar publications regarding the type of oil to mix with the gasoline of the two-stroke motorcar engines, but nothing has been said about the use of oxygenated fuel. In the Milwaukee area last winter, oxygenated fuel was required by EPA (as was its use in other major metropolitan areas across the country), and was the only fuel that could be purchased. There were a number of complaints about two-stroke snowmobile engines seizing while using this fuel.

In the recent issue of a major recreational vehicle publication was an article about oxygenated gasoline, or RFG (Federal Reformulated Gasoline). The following information is based on information gathered from that article, and does not constitute my recommendation in any way regarding the use of RFG in motorcar engines.

RFG has an alcohol-based additive which contains oxygen molecules. This has the effect of adding more oxygen to the fuel mixture of a fixed-jet carburetor, which causes the fuel-air mixture to be leaner. Fortunately, the Fairmont two-strokers have a manually adjustable needle valve, so the mixture can be richened to offset the oxygen-rich RFG. Unfortunately, Onan engines don't have a readily adjustable main jet. The extra oxygen in RFG ensures more complete burning of the fuel-air mixture according to EPA, which avowedly reduces air pollution. That's the good news. The bad news is that lean mixtures can increase engine heat which, in extreme cases, can result in engine damage.

There are two types of RFG additives that gasoline manufacturers can choose from: MTBE (Methyl Tertiary-Butyl Ether) and ETBE (Ethyl Tertiary-Butyl Ether). It's easier if you remember only the first initial, and associate the "M" with methanol (methyl alcohol) and the "E" with ethanol (ethyl alcohol).

The problem with ethanol is that it attracts moisture. When enough moisture is present in the tank, the fuel will separate into two layers--an upper gasoline layer and a lower ethanol-water layer. When this lower layer comes in contact

with certain metal fuel system components, it can cause severe corrosion and, consequently, fuel leaks. Unfortunately for two-stroke engines, this is only the beginning of problems!

The oil mixed with the fuel for lubrication can separate into the top layer of fuel because oil is lighter than the ethanol-water layer. Because most fuel tanks draw from the bottom, the engine may not have adequate lubrication upon startup and could eventually seize. RFG containing MTBE is not susceptible to these problems.

Additionally, both types of RFG may loosen deposits in the fuel system because it is a better solvent than conventional gasoline. The loosened deposits can plug fuel filters and carburetor passages. Although this is not a common problem, it is most likely to occur when older vehicles are first fueled with RFG.

And finally, questions have also arisen about the compatibility of RFG with the seals, elastomers, o-rings, and hoses used in older engine fuel systems. There have been claims that RFG may cause damage to those components.

So what's a motorcar owner to do! Based on the information I've obtained, I personally will use straight gasoline when I can get it, and if I can't, I will use RFG containing MTBE. I haven't yet been faced with the dilemma of having no choice but ETBE gasoline, and I can't tell you what I would do if faced with that dilemma! In closing, I would restate what I said at the beginning of this article, that I am not recommending what type of gasoline you should or should not use in your motorcar engines. Only you can make that choice.

The Engine Oil Controversy

By Dick Ray

(This article first appeared in the Summer 1988 issue of THE SETOFF.)

Recently, there have been a number of discussions between NARCOA members about the pros and cons of different types of engine oils for two-cycle, single-, and twin-cylinder motorcars. These discussions have centered primarily upon the advantages and possible disadvantages of using either "standard" 30-weight, non-deter-

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The Engine Oil Controversy

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gent oil (as recommended in Fairmont operating manuals), or modern two-cycle (outboard type) oil, such as Pennzoil, Kendall, Castrol, and many others. With this article, I am presenting to you my findings and opinions after having spent a reasonable amount of time researching the subject.

Up front, I will state that I use a modern two-cycle oil, mixed 16:1 (one quart of oil to four gallons of gas), for my Fairmont single-cylinder M9 motor car, instead of the 30-weight, non-detergent oil recommended by Fairmont.

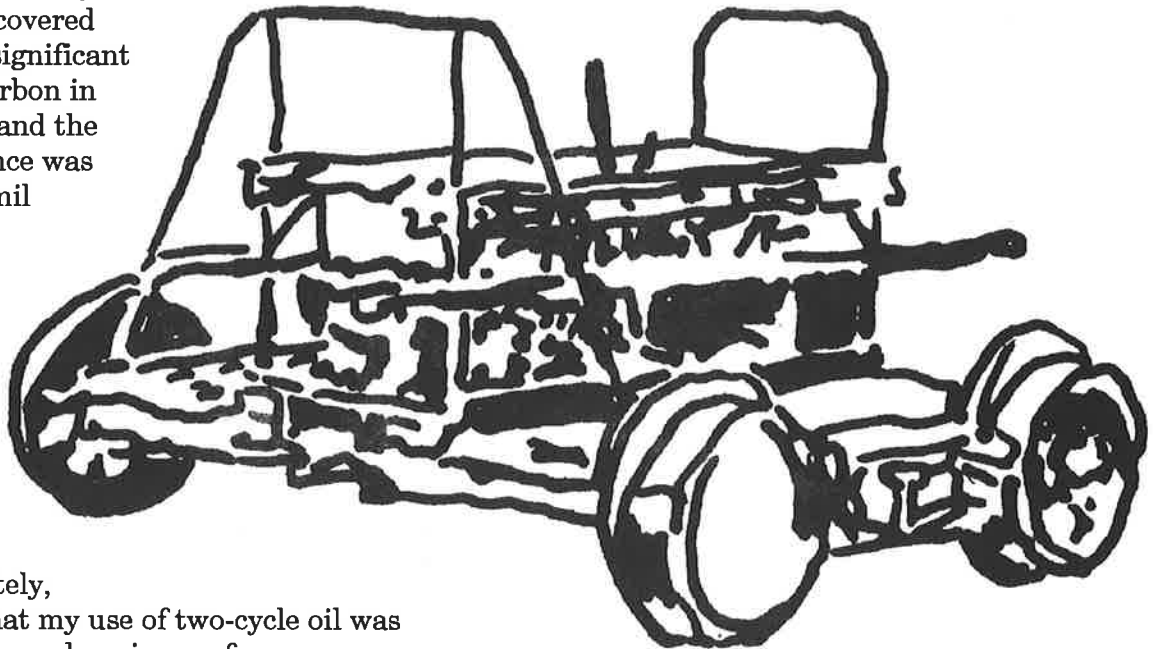
During a recent inspection of my 1951 Fairmont RO-C engine, with perhaps 4,000 miles of my own mileage on it, I discovered that there was no significant accumulation of carbon in the exhaust ports, and the rod bearing clearance was still in the 2- to 3-mil tolerance suggested by Fairmont. Additionally, all of the piston rings were free in their grooves, and the piston crown had very little carbon buildup. Immediately, I had the feeling that my use of two-cycle oil was the reason for such good engine performance over the years, as well as the "clean" condition of my engine.

Although I was personally convinced that two-cycle oil was the way to go, I decided to contact some oil industry experts to get some other opinions. I wound up talking with several staff engineers at three major oil companies to get their recommendations. I described our Fairmont engines, and our type of operating conditions.

All of the engineers agreed that "regular" engine oil would certainly work at providing satisfactory lubrication of the bearings (as does two-cycle oil), but none of the engineers would

recommend using it in our engines. Their reasoning was that regular, non-detergent oil is difficult to mix with gas into a uniform mixture (as some NARCOA owners have found). They also stated that even nondetergent oil will leave ash and deposits that can foul plugs, and cause cylinder wear, pre-ignition, and carbon buildup.

One engineer, Mr. Charles Pross, of Castrol, Inc., discussed the oil question with service department personnel at Fairmont, and afterwards, recommended that an oil with a TC-W (two-cycle/water cooled) rating be used for our engines. This is the highest rating of the Boating Industry Association (BIA). These oils are ash free, and contain more concentrated lubricating additives. He stated that they could be used in smaller concentrations than 16:1 (up to 50:1), however, I would be reluctant to use concentrations less than 16:1 since our engines need oil



lubrication while descending grades with the throttle mostly closed. I feel that if there is little or no carbon buildup in the ports or in the innermost portions of the engine, then there is no harm in providing this extra lubrication safeguard.

Incidentally, an easy way to mix these two-cycle oils with your gas is to leave one or two quarts of gas mix in the can, then pour in the oil and head for the gas station. The mixture will then mix easily when the "new" gas is pumped into the can.

Rod Clearance Adjustments

By Dick Ray

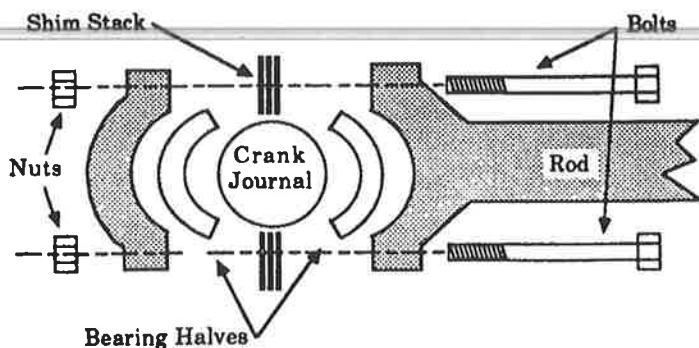
(This article first appeared in the Summer 1989 issue of THE SETOFF.)

Setting the rod clearance on a Fairmont single-cylinder engine is something that should be done when you are first restoring a car. Once this is done, you should not have to redo it for many years. The adjustment is significantly more difficult with the engine in the car; therefore, it is recommended that this procedure be done with the engine removed. It might also be advisable for you to do any engine cleanup and repainting at this time.

After removing the carburetor, unwire the rod bolts and carefully remove the cap. At each stage of the process, be careful to re-install the cap, bearing halves, and shim stack in exactly the same position that they were removed. If identifying marks are not there, you will need to scratch some on the rod, cap, and bearing halves. The stack of shims should also be preserved as upper and lower stacks.

After cleaning all the parts, and wiping oil off the crankshaft journal, reassemble everything with a piece of Plastigauge (available from NAPA auto parts stores) between the bearing and the crankshaft. Then remove the cap and inspect the width of the compressed Plastigauge. A scale on the package tells what the clearance is. If the clearance is more than 0.003 inches, remove one or two thin shims and repeat the process until the proper 0.002- to 0.003-inch clearance is obtained.

To reduce the clearance by 0.001 inch, it is necessary to remove one 0.001-inch shim from each side. Be careful to remove only the thinnest possible shim from each side. Always remove the thinnest possible shim each time you remove the



shims. All of this operation will be much easier if you have a helper to hold the flywheels from turning while you work on the bolts. The helper can also assist by holding the rod up against the crankshaft by pushing on the piston with a wood dowel through the spark plug hole.

Finally, clean all the Plastigauge material from the bearing surfaces and reassemble with plenty of oil in the bearings. Tighten the rod bolts alternately a little at a time, moving the crankshaft back and forth to make sure that it always turns freely. With the spark plug back in, the engine should rebound on compression. Don't forget to rewire the rod bolts to prevent loosening.

Before buttoning up the engine, wash out the crankcase with fuel mix and a toothbrush to remove all the sludge and dirt particles. This is also a good time to go through the timer, clean out the carburetor float bowl, and remove carbon from the exhaust ports. Your engine is now ready for at least another five years.

Note: The above procedure is similar for the Fairmont twin-cylinder RK engine, except that access is gained through a removable top cover, and the recommended clearance is 0.002 to 0.004 inches.

Those Onans Can Really Idle

By Ron Zammit

(This article originally appeared in a MOW newsletter and is reprinted here with permission from the author.)

It has been my observation that most of the Onan-engined cars sound like they are running a generator in a motor home when they are at idle. It always bothers me to hear an engine race so at "idle," because it not only wastes fuel, but things like the throwout bearing wear out a bit quicker with this condition.

I never thought about solutions when all I owned was a two-cycle car, but eventually I purchased an MT19. Sure enough, it could run about 20 m.p.h. in second gear at "idle." No adjustment of the two idle screws (mixture and butterfly position) seemed to help. I could only get it to "idle" faster! When I finally got around

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Those Onans Can Really Idle

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to tearing it all down, I discovered what I consider a design flaw in these cars. Well, it's a design flaw unless your carb has been carefully adjusted each time. The problem is that the Fairmont linkage is much more rugged than the carb's butterfly and its shaft.

To understand the problem, let's imagine you are starting with a brand new carb and the engine idles beautifully, just barely "ticking." (They can do that!) If the throttle lever had any space between it and the end of the control panel slot, there will be a problem soon. As you use the car, you tend to shove the throttle lever fully forward to idle the car, and the linkage is so strong it bends the butterfly and its shaft. Air leaking by the bent butterfly makes the idle faster, and you re-adjust things. If the throttle

linkage is adjusted to push the butterfly closed, the problem will get worse, as the butterfly gets bent again. In side view, the butterfly in my car looked somewhat like the letter "S" and the shaft was bent into a shallow "U." I played around with straightening them with some improvement, but new parts worked the best. (About \$15 for the two parts!)

Now the car idles great! Adjusting the main jet (under the carb) is a pain, but I suggest you do it as per the instructions to keep full torque coming as you come off idle. With the idle so fast, perhaps someone has incorrectly set the main mixture as was done on my car.

Even if your car idles now, I suggest you check the linkage. The carb idle screw, the one that adjusts the butterfly position, should be set for the desired idle speed, and the linkage then adjusted so the throttle lever is hard against the forward end of its slot at idle. In this way no pressure is applied to the butterfly and its shaft at idle, and it will not get bent.

A Cooling System Tip: Repairing a Condenser

By Mike Woodburn

(This article first appeared in a previous issue of *THE SETOFF*.)

With this short article, I would like to pass on another cooling system tip to those of you who may have to make minor repairs to the condenser on their Fairmont single- or twin-cylinder engines.

Over the last year or so, the gasket between the condenser and water hopper on my 1938 Fairmont, M9 OD-B single-cylinder engine had gradually deteriorated to the point where steam was escaping in great quantities. The car still ran great, but the water deposits at the leak location were gradually leaving a mess on the front of the water hopper. It was time to replace the gasket!

The Fairmont condenser on my M9 is attached to the water hopper by means of several bolts which fasten onto the base of the condenser housing.

Over the years I had heard numerous complaints from several NARCOA members who had twisted off a large percentage of these bolts in the process of removing the condenser. Even though it is no great problem to drill out broken off bolts and replace them with new ones, I came up with

an idea that would eliminate this problem altogether.

You see, the Fairmont water hopper is made of *aluminum*, which expands and contracts greatly with heat and cold. The idea hit me that if the engine were hot, the bolts would release much easier. So, I fired up the old M9, and let it heat up to "steaming temperature". The first twist of the wrench proved my theory to be correct . . . and they came off slicker'n a whistle! After I saw that the bolts would come off easily, I shut the engine down and finished the removal of the remaining ones. Not a single bolt gave me trouble!

After the engine cooled down, I proceeded to flush the hopper and condenser with the garden hose. The only problem I had with this, though, was that apparently a chipmunk had stashed his winter's supply of chestnuts in my water hopper one winter when I had left the cap off! To fix this, I removed the drain cock, and poked the chestnut "chips" out of the bottom of the water hopper with a length of stiff wire.

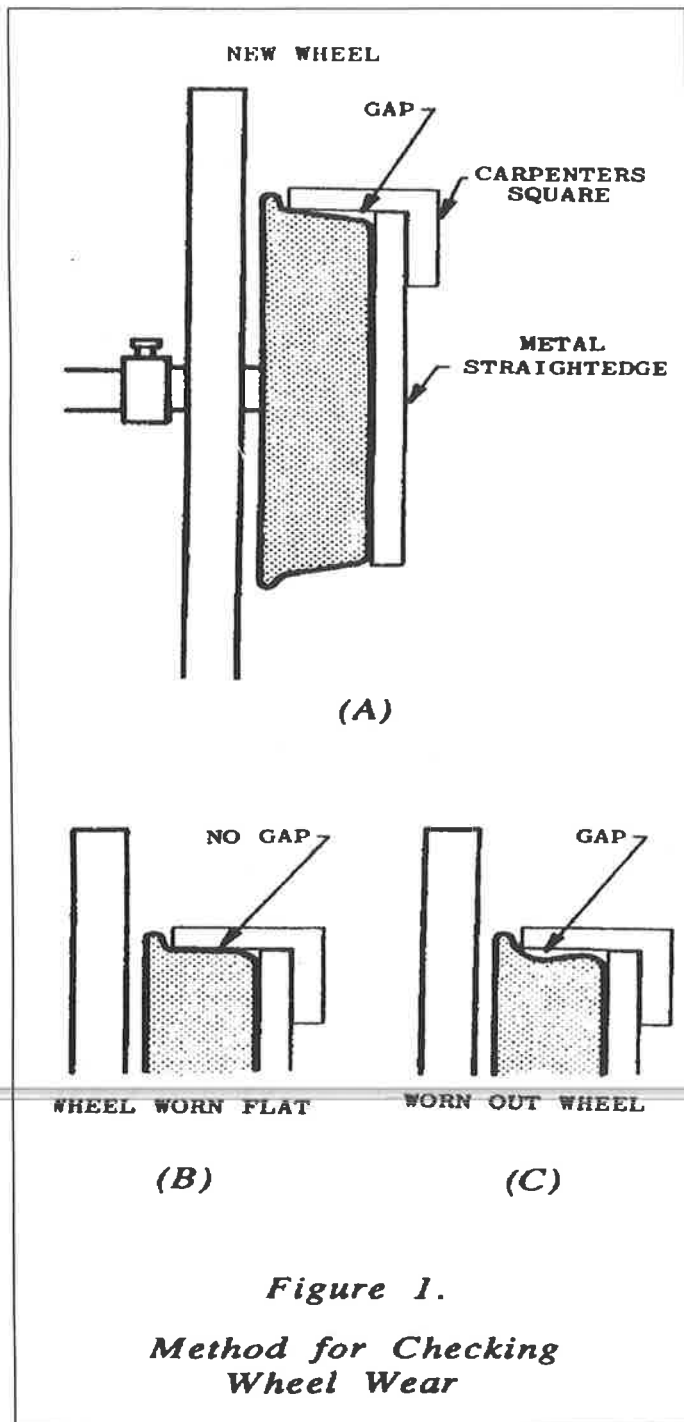
After the cleanup and flush, I applied a new gasket to the head of the water hopper and reinstalled the condenser. Now my M9 is ready to hit the high iron again!

Good Tracking - I

By Dick Ray

(This article first appeared in the Winter 1988 issue of THE SETOFF.)

If your motorcar does not track well, or lurches from side to side while running down the rails, it may be due to worn out wheels. The easiest cure is to install new wheels from Fairmont. However, with the cost of new 16" wheels being about \$82.00 each (plus freight), it



would be wise to check out the old ones first to make sure that they are indeed worn out. This article will show you how to check out your wheels to see if they need replacement.

The measuring method is simple, and requires only a carpenter's square and a metal straight edge about 1" wide and a minimum of 16" long. At left below, Figure 1(a) shows the ideal configuration of a good wheel. Look for a "gap" at the outer edge of the wheel, indicating the proper taper of the wheel surface. Figure 1(b) shows a wheel worn "flat" with no taper. Wheels like these are still usable, but the car will not track well. Figure 1(c) shows the configuration of wheels that are worn out from the rails and brake shoes to the point where the gap observed between the square and the wheel surface is in the middle of the wheel. Wheels that have this type of wear should be replaced.

If your wheels are worn nearly "flat", the low cost solution is to place the flat ones at the back of the car, and replace the front pair with new ones. In most cases, this will greatly improve the tracking of the car. Rear wheels should be kept as pairs; in other words, don't replace just one wheel at a time. This could cause the car to run toward one side or the other, causing rapid wear since the wheels have a different diameter.

One final tip . . . always handle wheels, especially new ones with a pair of gloves. The manufacturing process leaves a razor sharp edge around the inside edges of the spoke holes and these can cause nasty cuts.

Good Tracking - II

By Dick Ray

(This article first appeared in the Spring 1988 issue of THE SETOFF.)

In my previous article on good tracking, I discussed the aspects of wheel contour and how it affects the tracking characteristics of a motorcar. In this article I will describe how to check and make any necessary corrections to the wheel alignment of your car to further improve the tracking characteristics. The procedure requires four steps, and another person is needed to assist.

The first step is to place the car on blocks so the wheels will be free to rotate. As you rotate each wheel, watch for any signs of a bent axle or

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Good Tracking - II

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wheel. A minor flaw is tolerable, but this will make further alignment steps more difficult. During this step, it would be advisable to mark the exact center of each axle, and to carefully measure the wheelbase dimensions on each side of the car, as shown in figure 1(A). If the dimensions differ by more than 1/16th of an inch, the cause must be found and corrected before going on to the next step.

The second alignment step is to measure across the wheel outer faces at each end of the car, as shown in figure 1(B). Hold a straight edge across each wheel face and measure the distance between the straight edges. The Fairmont instruction manual says the distance should be 62 13/16 inches for cars with 14-inch wheels, or 62 15/16 inches for cars with 16-inch wheels. One can assume that the tolerances are similar for other makes of motorcars. Keep in mind that minor deviations from these tolerances are allowable, but major ones should be corrected.

After pulling the hub with a wheel puller, you can add a layer of package sealing tape to

widen the distance, or sand the insulation to narrow the distance. Ideally, both ends of the car should measure the same.

The next step is to adjust the axle thrust collars so that all slack is removed and the wheels are equally spaced from the frame. The collars should be tightened at this point, but not wired, because they may have to be moved.

All of the preceding adjustments are in preparation for the final check, which is the most important one for good tracking. This check begins by placing a long straight edge across both wheels on one side, as shown in Figure 2. The straight edge should touch the two wheels in four places (as you rotate the wheels). This should be done several times to assure accuracy with all wheels, in four different positions. It is very important that both sides of the car are even. Adjust the axle thrust collars to achieve this, then tighten and wire the set screws.

I have been through this process with two cars that had tracking problems, and the results following these procedures were well worth the effort. Both cars track much better now. Perhaps this procedure might help make your car track better also.

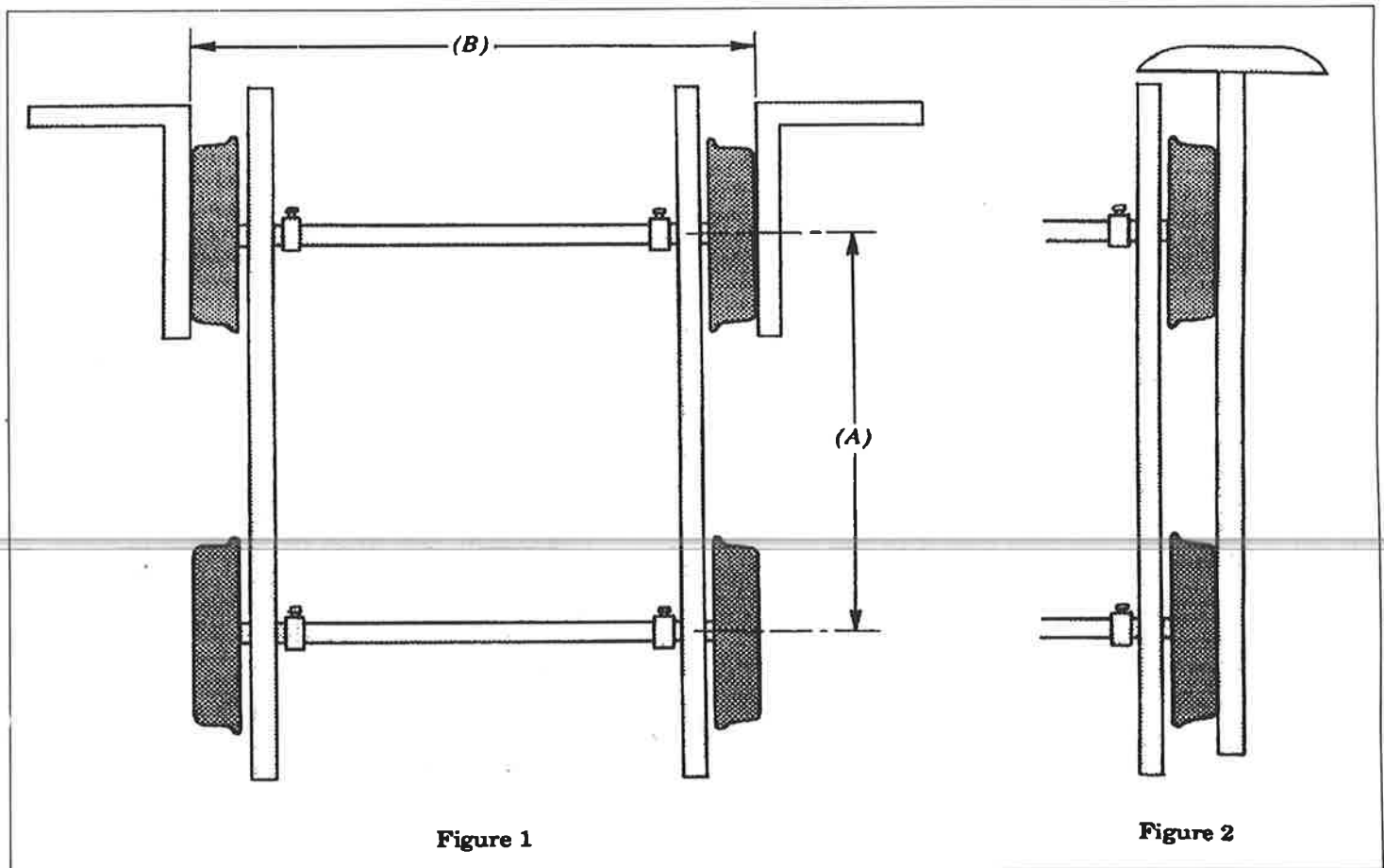
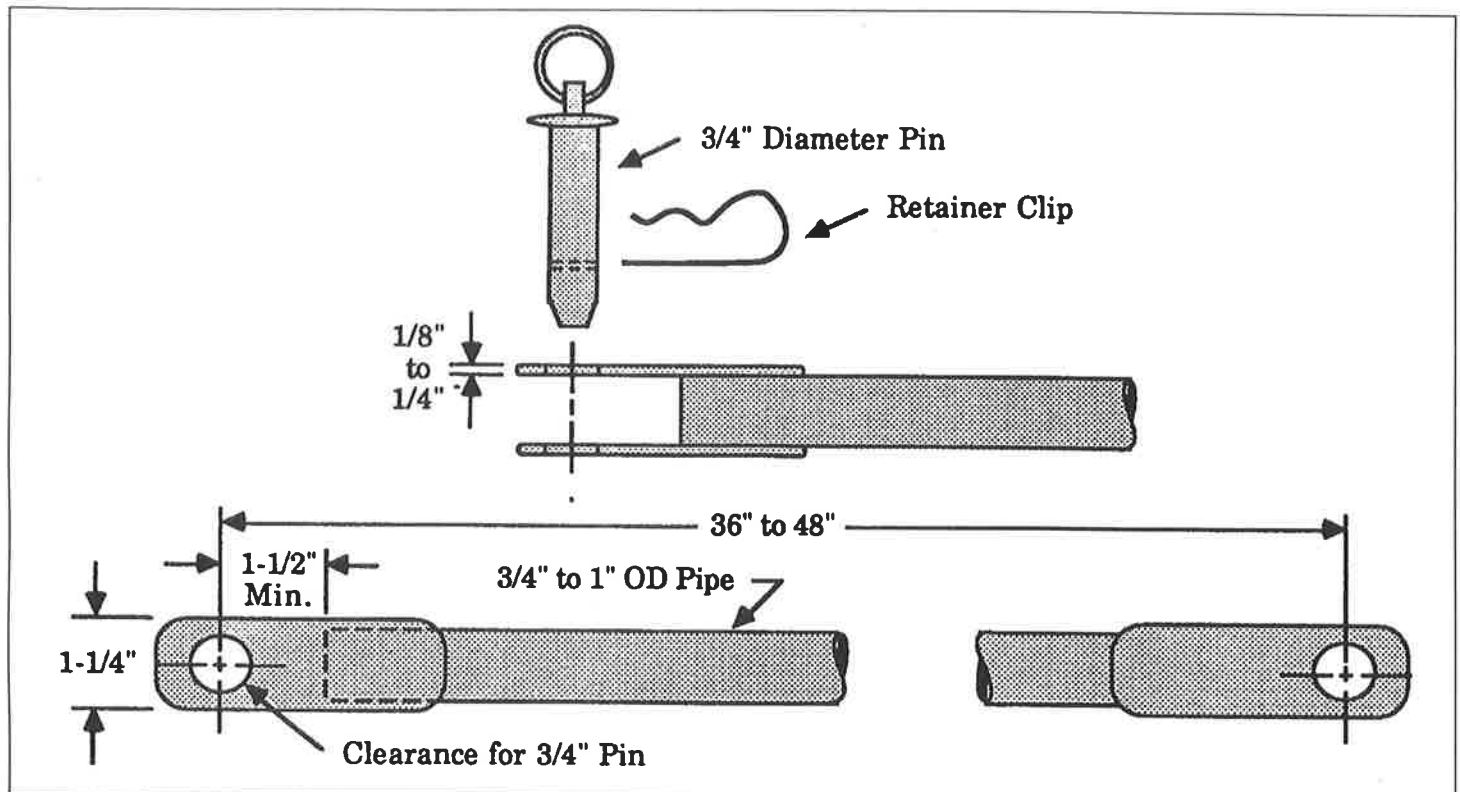


Figure 1

Figure 2



Make a Simple Tow Bar for Your Track Car

By Dick Ray

(This article first appeared in the Fall 1989 issue of *THE SETOFF*.)

Sometimes, in spite of all the care and maintenance that we expend on our track cars, they will periodically break down on a run, and we will need to be towed home. This article will show you how to make a simple tow bar that will be useful for a "rescue" or perhaps for towing a small trailer.

The accompanying drawing shows a piece of pipe with two plates welded to each end. A 3/4" diameter pin slips through holes in these plates, which in turn straddles the hitch plates on the car and the trailer (or towed track car). When the tow bar is not in use, the pins hold it to two small angle brackets on the rear of the track car.

This assembly is lighter than the typical 1" diameter solid tow bars that are commonly supplied by railroads, but it is strong enough for our small inspection cars. The length is also a bit longer, to allow for lift handle clearance, and for extended cab fronts.

It is advisable to fit towing brackets to both the front and the rear of the track car, so that the

powered car pulls, instead of pushes, the "dead" car or trailer. It also avoids having to turn the car for a tow home or to the next setoff point, so repairs can be accomplished.

F7614 Crankshaft Seal for RO-Cs, etc.

By Doug Heinmuller

F7614 O.E.M. Oil Seal: Currently supplied by National as #450268, although equivalents are also available.

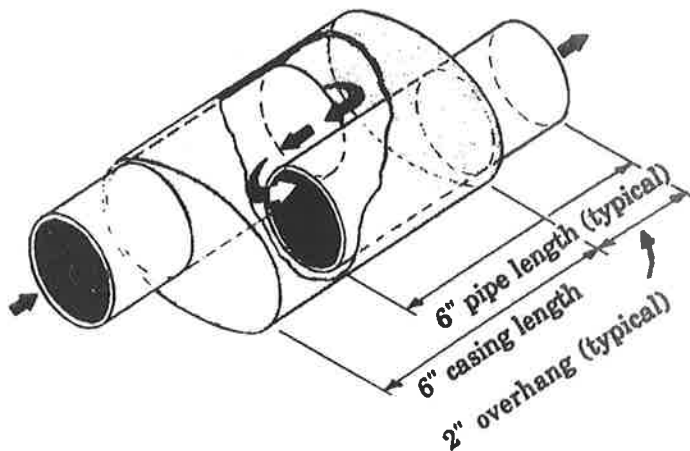
The O.E.M. seal must be 1/2" wide to allow for a heavier and wider (3/16" wide) sealing surface. Most replacement seals interchanging with the above National numbers are narrower—usually 5/16" wide—and should NOT be used in Fairmont engines because the sealing surface is only 1/8" or 1/16" wide. This will "blow out" under crankcase pressure, especially rapid slow-down of engine speed, or quick engine reversing. The 1/2" wide seal must be used.

Make A Muffler for Your Motorcar

By David Rose

(This article first appeared in the Spring 1988 issue of THE SETOFF.)

At the end of an enjoyable day on your motorcar you are usually tired, dirty, hungry . . . and your ears ring! If you're like me, though, you



love that distinctive “putt, putt, putt” sound of the Fairmont (or Sheffield, or whatever other 2-cycle engine your car has). Nevertheless, I set out to find a way to reduce the noise, without “killing” the pleasant sound of the engine.

Obviously, a muffler is the answer. If you have a “regular” M19, you can use the one available from Fairmont. But my car is equipped with the RK twin-cylinder engine, and Fairmont doesn't have a muffler available for that one. The answer was to design my own. The car doesn't have a whole lot of room under it for such an add-on so the muffler design had to be fairly small.

As you can see by the accompanying

sketch, the design works like most other mufflers, breaking up the “waves” of sound as the exhaust changes direction. The only difference is that my design doesn't use any baffles to kill the sound entirely, and doesn't cut horsepower (which is sometimes very much appreciated on those occasional stiff grades).

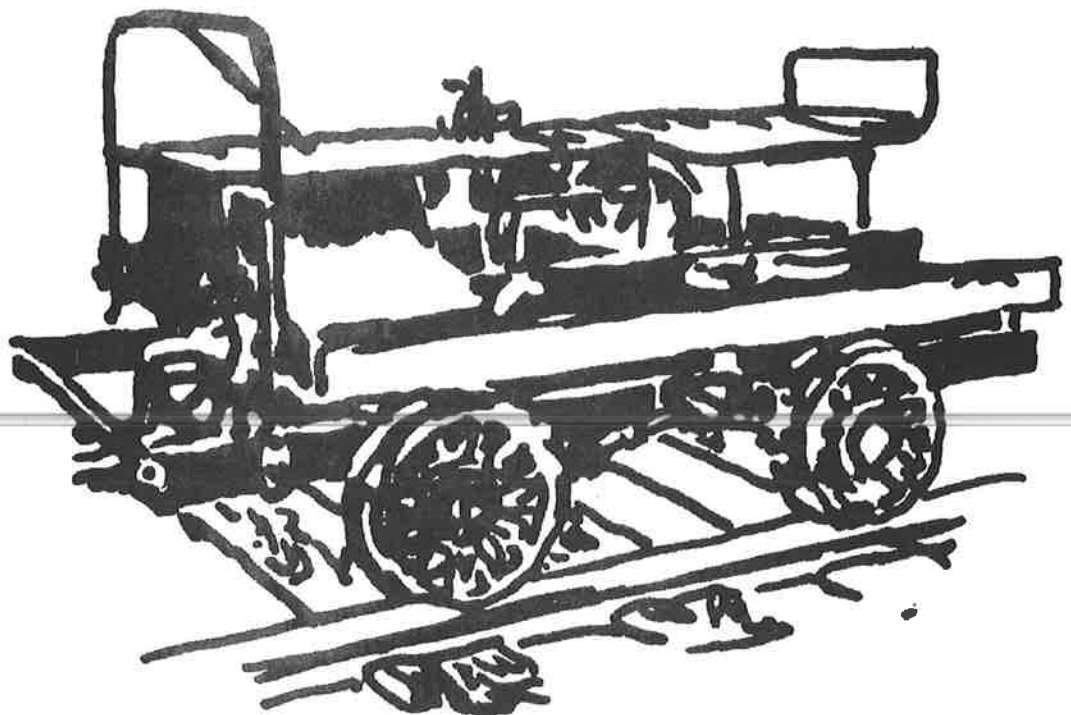
My “twin” has two exhaust manifolds with the pipes running out both sides of my car, thereby necessitating two of the home-made mufflers.

Both mufflers are identical and are made with 3 1/2" O.D. pipe for the body (which was “squished” slightly in a vise to make it oval), 2" O.D. pipe for the inlet, and 2 1/8" O.D. pipe for the outlet pipe.

Both the inlet and outlet pipes were welded into 18-gauge sheet metal template pieces that I had installed into the ends of the body. I used cotter pins to hold the flex pipe onto the mufflers, and U-clamps to hold the mufflers in the exhaust outlets.

After the mufflers were installed on the car, I drilled 3/16" holes at the lowest point to let any excess oil drain out.

All in all, I am pleased with the results of the muffler design . . . they take the sharpness out without making the car too quiet. For your particular application you may have to design your mufflers with slightly different sized pipes.



Build a Motorcar Lube/Work Rack

By E. Lloyd James

(This article first appeared in the Winter 1992 issue of THE SETOFF.)

How many times have you wished there was an easier way to work underneath your motorcar?

Well, there is a way, very simple and inexpensive. Most all of us will service our cars either before, or right after a motorcar meet.

Fairmont's instruction and parts manuals say that for excellent maintenance, motorcars should be lubricated, and any needed adjustments made, each 100 miles.

The Motorcar Lubrication and Work Rack works well with either open frame or closed deck trailers. You simply use your trailer ramps against the ends of the racks' wooden rails, or just lay them atop the ends of the racks' wooden rails. Either way, it will be a fairly smooth roll-over joint.

To build this rack, go to your favorite building supply yard. Purchase eight concrete blocks, 8"X 8"X 16". These blocks will be your corner piers, in four corners. They are placed two blocks high, no mortar is needed. These blocks must be leveled in the corners. They are placed so the gauge of 56 1/2" can be attained between the racks' wooden running rails.

Also purchase at the yard one piece of pressure treated PREMIUM GRADE 14-foot long

2 by 4, making sure there are no large knots in it. This is why I specified premium-grade material. This piece is cut in half to give you two pieces each 7 feet long. (Note: These 2x4x7 pieces are for cars weighing no more than 1,400 lbs. Cars of greater weight require two pieces 4x4x7.)

These wooden pieces rest on the flat surface on top of the concrete block piers. Making sure the ends of them come even with the end of the piers, use your measuring tape to make sure you have 56 1/2" between the inside edges of these running rails. Make sure they are parallel. It is also suggested that these wooden pieces rest in the middle of the piers as the piers are parallel to the wooden rails.

There is no need to place any kind of gauge bar between these running rails, since the objective is to make all four sides an easy entry underneath your car. If you have levelled the blocks properly, there is no need for any gauge bar.

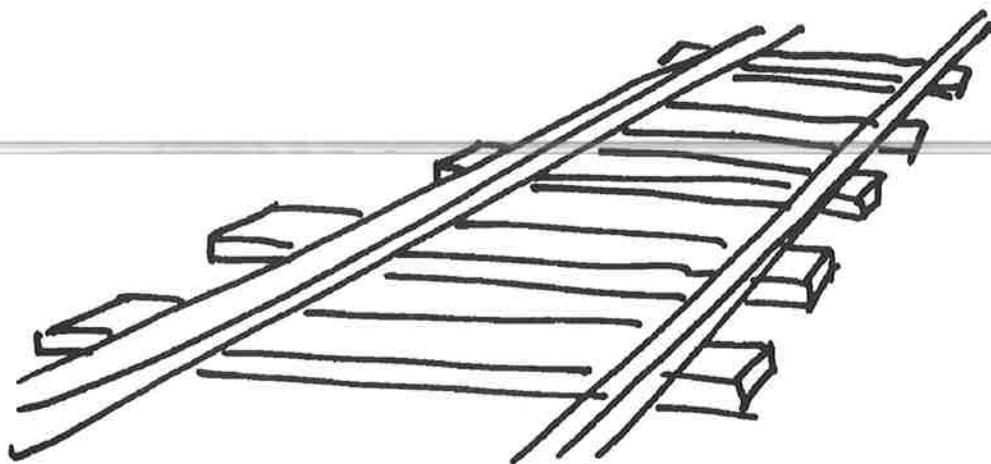
When you use the methods outlined here, an underneath working clearance is obtained equal to two feet. This rack can be built on a blacktop or other smooth surface. It is easy to crawl under or roll under with a mechanic's creeper.

Once you have your motorcar rolled onto this rack, be sure to set the handbrake, and chock the wheels both front and back. You will have to release the brake if you are going to adjust the brakeshoes or replace them.

Complete lubrication jobs, brake adjustments, cleaning under the car body, and other service operations can be performed totally unobstructed.

For \$15 or less you can buy the materials for this rack depending on your location in the country. If you elect, your car can be left up on

the rack, with brakes set and wheels chocked, until the next meet comes up. This prevents weakening your trailer's springs, as your trailer is empty and not under a constant load. The trailer can be painted and serviced, too. Then simply back the trailer to the rack, load up and off you go.



Helpful Tips About Painting a Motorcar

By Charlie Hulsizer

(This article first appeared in the Winter 1993 issue of THE SETOFF.)

Thought I'd throw my two cents in on the subject of paint and painting motorcars. I've worked with many different kinds of paint and maybe this will help some of the guys.

The variety of paints and painting systems out there today is amazing. I remember when we used to use straight enamel to paint autos. We used a hot plate to heat up the paint gun as hot as we could get it and shoot the paint on hot. This practice used to do a fair job and it also burned down many body shops when the gun got too hot!

If you use a spray gun, you could use acrylic enamel which is moderately expensive but will give you great results. You could go big bucks and use a two-step system with a color coat and then a clear coat system with urethane hardener, but not only will this send you to the poor house, it will make you sicker than a dog if you breathe the paint dust; it contains isocyanate, which is a

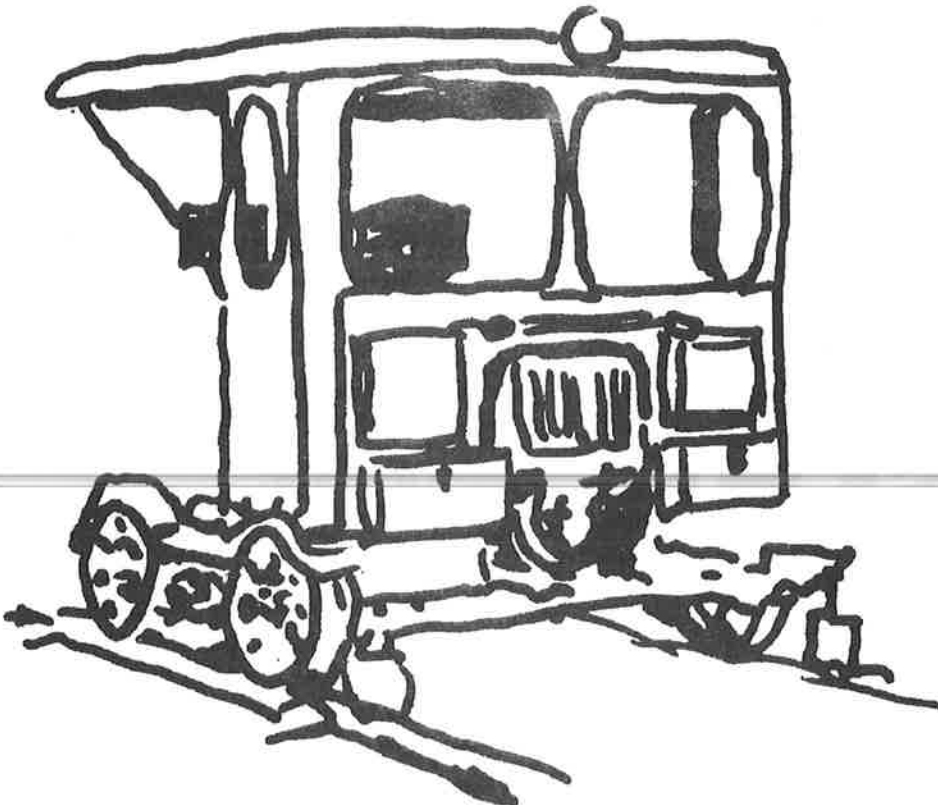
poison. Self-contained breathing apparatus is recommended if you use this stuff in a confined area. The two-step system will give you show quality results even if you are not an experienced painter.

I restored an ex-BAR M14 a few years ago. I used an equipment enamel from an auto parts store. This stuff is around \$30 for a gallon of paint and one gallon of reducer. The guy who sold it to me told me that it's designed for painting rusty tractors, so it sounded good. I used zinc chromate primer which, I understand, isn't long for the world. I got good results with this paint but still got a little peeling off the aluminum. It was easy to apply and dried very quickly. Later, I painted an ex-D&H M19 using John Deere Yellow with no primer—just blew it on. It came out better than the flat car! By the way, if you want to you could apply it with a brush. I did find the yellow a little more pale a yellow than I liked, but the customer was happy.

When I restored my 40-B seven years ago, I used an enamel from True Value called X-0 Rust. I used acrylic enamel reducer and not only is it durable and dried fast, but it had a filling characteristic that was super.

If you don't have any spraying equipment, I found some super paint at good old K-Mart. It's Dutch Boy acrylic enamel in a spray can. Not only is it great to put on, but it dries in minutes in any weather or temperature and is tough as nails. Believe me, I sprayed the hood on my truck with it and had a heck of a time sanding it back off. This paint is about \$2.30 a can and K-Mart puts it on sale quite often. It's a good sized can and goes a long way.

Hope this helps out.



How To Hook Up an Air Supply for Air Horns for Onan Motorcars

By Jack Whitt

(This article first appeared in the Fall 1993 issue of *THE SETOFF*.)

You will need a compressor, a collecting cylinder, and air tanks to build an air supply for an air horn.

The Compressor:

Sanyko automobile air conditioner. All air conditioners are a closed lubricating system. Therefore, in using the compressor for air, a cylinder must be made to collect the 20 S.A.E. oil and return the oil to the compressor on the intake side.

The Collecting Cylinder:

First, use a 4" pipe coupling, cut in half. Weld the cut end to a 6" x 6" x 1/4" angle iron for the base of the cylinder. The down angle will later be bolted to the frame of the motorcar.

Second, use a 4" piece of pipe, including threads on one end, 6" long. This screws into the coupling that was cut in half and welded to the angle iron in the first step above. Close the top open end with 1/4" flat iron welded. On this welded end (top) bore a hole in the center and

weld a 3/8" pipe for connecting to the air tank. Also, on this welded end (top) weld four short pieces of 1/8" pipe, flat forming an "X" so a screw driver can be inserted to tighten the 4" x 6" pipe cylinder.

Next, the bottom cylinder. Weld a 3/8" pipe that extends through the center of the bottom 1" to 1 1/4" so that a Fram Oil filter can be screwed onto it. Perforate this filter from the bottom with an ice pick to release back pressure. Also, weld a 1/4" pipe through but flush with the bottom of the cylinder for returning the collected oil to the compressor. Place 1/4" copper tubing valve for regulating the flow of air and oil back to the compressor.

Fourth, between the 3/8" pipe on top of the cylinder and the half-inch, one-way pipe valve, use copper tubing. After the one-way valve, use half-inch pipe to the air tank, pressure switch, pressure gauge, and horns. The copper tubing crosses the motorcar from right to left.

Fifth, air tanks off dump trucks are usually smaller in diameter than those used on semis.

Next, pressure control. Ones used on private water systems are good. Control switch that cuts the 12 volts to the compressor clutch on and off. Place a master push-pull switch on the motorcar control panel. Set the switch to 55-100 lbs.

Lastly, the valve for horns. Half-inch pipe quick cutoff valve and load the off side of the handle with a spring that cuts off when you release the lanyard.

Location of Compressor:

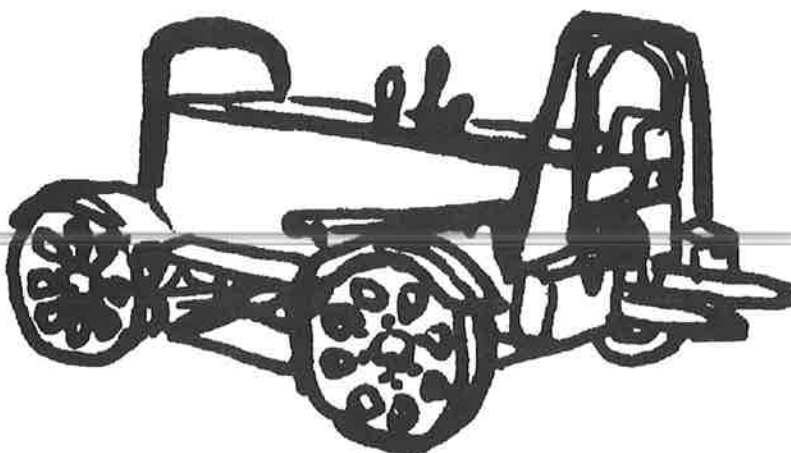
The alternator is to the port side of the engine. The compressor should fit on the starboard side. Bolt the compressor on the inside of 6" x 6" x 1/4" angle iron for a base and the vertical angle is bolted to the inside wall of the engine compartment. The same belt for the alternator is now used for the compressor. You probably will need to make a new engine hood.

Location of Cylinder:

Outside of the engine compartment on starboard side front inside cab.

Location of Air Tanks:

Two tanks fit under seat on port side on floor, 7" diameter by 18" long. Air supply for one good long road crossing signal. Pressure back up in 60 seconds.



Check the Drawbar on Your Motorcar Trailer

By Mike Paul

In the Fall 1988 issue of *THE SETOFF*, an article written by myself on motorcar trailers was published. In that article, I recommended that a tilt-bed trailer manufactured by Chilton Mfg. Co. would be perfect for transporting a motorcar. I subsequently purchased the model UT6020S-1 trailer in June 1990 and had used it without incident until July 24, 1994.

On that date, while traveling down the highway at 55 m.p.h. with my M19 aboard the trailer, the drawbar collapsed at one of the formed bends, and the bent drawbar scraped along the highway until I was able to slow down and bring my rig to a stop on the shoulder. After appraising the damage, I then attempted to drive the disabled trailer off the highway shoulder into a roadside business, and in so doing, the drawbar completely broke in half, leaving a three-foot-long section of the drawbar attached to my tow vehicle and the rest of the trailer sitting forlornly, nose down in the gravel yard of the roadside business.

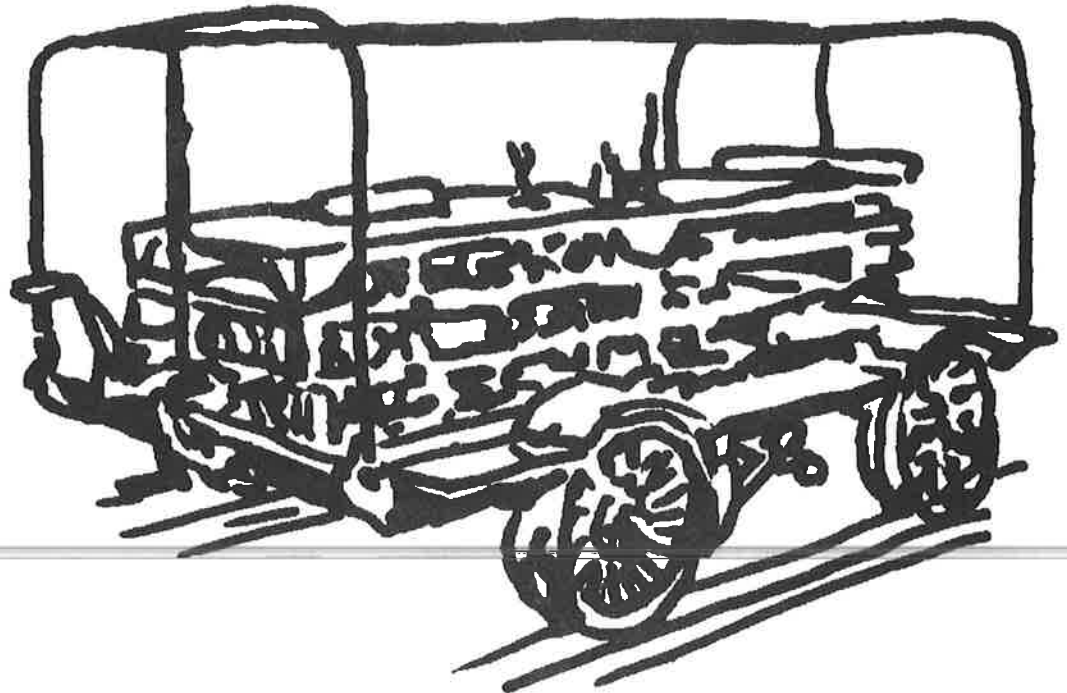
The reason for bringing this incident to the attention of *THE SETOFF* readership is that I am aware that a number of my motorcar brethren have purchased the Chilton model UT6020S-1 trailer. The manufacturer admitted to me that there had been a couple of incidents of cracked drawbars with this particular model trailer prior to my episode, and he immediately replaced my drawbar with a new one at no cost to myself.

I am therefore advising all owners of the Chilton model UT6020S-1 tilt-bed trailer to carefully check their trailer drawbars at the two formed bends for evidence of cracking, particularly on the undersides of those bends. If cracks are noted, the drawbar should be replaced immediately to avoid the situation I encountered. If you doubt

your ability to determine if the drawbar is cracked, your professional weld shop should be willing to appraise this situation for you. I asked Chilton to gusset the two bend areas on the new drawbar and they graciously complied.

If you are concerned about the integrity of your drawbar, even though cracks are not evident, you might ask an experienced, professional welder to put gussets on both sides of the formed bend areas to increase the drawbar strength. If you elect to have this done, be sure that your welder is competent. The drawbar is a thin-wall tube and if welding is not done properly, the drawbar may be weakened rather than strengthened if gusseted improperly.

Since I have been unable to find any engineering standards that apply to trailers other than the coupler and safety chains, I suspect that this is a "Buyers Beware" situation not requiring the trailer manufacturer to issue a recall. Therefore, it is up to the trailer owner to ensure that his trailer is roadworthy.



Troubleshooting: Some Case Histories

By Dick Ray

This article describes some interesting breakdown case histories and is intended to show how to apply some of the troubleshooting techniques described in the earlier articles.

At a recent meet, one M19 would not start. Since I regard this as mechanical insubordination and a personal challenge I went over to help.

We checked all the usual things and found nothing wrong. I knew this car had run reliably before and that it had enough compression to start. However, no amount of choking would get the plug wet. This is an unusual symptom. We had already disconnected the fuel line and watched fuel run out. We dripped some raw fuel into the plug hole, put in a new plug, and it fired right up—but then died again. A repeat of this procedure convinced me that no fuel was being drawn into the cylinder.

Next we pulled the plug on the bottom of the carb and watched fuel flow onto the ground. But wait! It didn't look right. Instead of splashing, it puddled, indicating that it was oil, not fuel. Somehow the owner had gotten straight oil into the fuel lines, possibly by pouring oil into the tank and then adding gas. Fuel could not get into the carb because the oil was in the way.

Once we saw fuel coming out of the carb we tightened the plug tight and it started right up. Another problem solved!

Later, being at the back of a 40-car pack I was not surprised to find an M14 set off at a grade crossing about 30 miles out, with the engine cover off. It had a military vibrator coil which was buzzing several times per revolution, and the car would not run unless the headlight was on. We simply bypassed that coil and attached my spare 6V coil with clip leads. The car ran fine the rest of the day.

Although I still don't know what was wrong, the lesson here is that a spare coil at the back of the pack, two six-foot clip leads, and a six foot plug wire with a plug connector at one end will often get a stalled car to the end of the run. In addition the trouble area has been isolated so the owner can fix it.

On the second day, another car was operating erratically and the owner asked me to take a look. Upon seeing a new coil in the ignition box I

immediately assumed that it was the source of the problem. We have learned the hard way that new coils come assembled but not adjusted. It is necessary to take the points apart and adjust them according to the instructions on the replacement point package. (These were reprinted in the Fall 1990 issue of *THE SETOFF* and also on page 9 of this insert.)

However, this was not the problem with this car. Instead we found a poor ground at the timer. The self-ground on a Weathersealed timer often isn't. There is a Fahnstock clip for a ground wire on the timer and I suggest that it be used. While adding that wire, it is a good time to ty-wrap the two wires together and to the timer control linkage so that they don't rub on the flywheel or stress the connections.

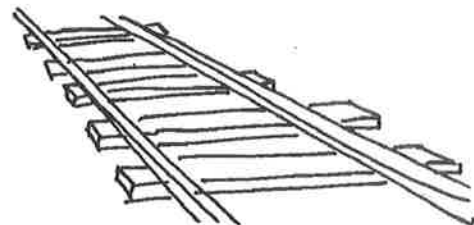
The final case concerns an MT14 that started running badly part way into a trip. After a stop, the Onan engine would start but then die. Clearly a carburetor problem, right?

The car was taken in tow and at each of the later stops the carb removal and disassembly process continued. Unfortunately the engine still would not continue to run after starting, and the car finished the trip on the end of a towbar. Later the owner told me that it was the coil.

Of course! The old axiom is still true. IGNITION TROUBLES OFTEN SEEM TO BE CARB TROUBLES. With a weak ignition the engine becomes sensitive to mixture.

If we had enough time to do proper troubleshooting, and if we had isolated the weak ignition, we could have gotten it going with an old trick. Change the plug gap to half of the normal value to reduce the stress on the ignition and it will probably run. Of course, this is an extremely temporary solution and the faulty part must be replaced as soon as possible.

The lesson here is to not be too hasty to blame the fuel system. It may be the ignition.



Meets

(Continued from page 7)

August 26 & 27: Indiana Southern RR, Mooresville to Spencer, IN. Set on at Spencer. Contact Phil Childress (812) 339-8542.

September 16: Whitewater Valler RR, Connersville to Metamora, IN, 32 miles round trip. Contact Brian Banta (812) 526-6677.

October 7: Madison RR, North Vernon, IN, 34 mile trip. NARCOA insurance required. Contact Stan Conyer (812) 342-0565.

October 21: Great Miami & Scioto RR, Richmondale to Jackson, OH, 108 miles, round trip. NARCOA insurance required. Contact Stan Conyer, (812) 342-0565.

The ILLINOIS DIVISION sponsors the following event. For Division information, contact Carl Anderson, 1330 Rosedale Lane, Hoffman Estates, IL 60195.

October 22: Commonwealth Edison, Byron Branch Fall Run. Twelve miles round trip, with large bridge over the Rock River. NARCOA insurance required. Contact Mike Mitzel (815) 264-7979.

The FIRST IOWA DIVISION sponsors the following events. For more information, send SASE to Dave Pratt, Colfax Northern RR, 410 South Walnut Street, Colfax, IA 50054.

September 3: NEBKOTA (NEbraska - DaKOTA) Railroad from Gordon, NE, to Chadron and return, 146 miles round trip on former C&NW "Cowboy Line". NEBKOTA motive power consists of vintage F units. First time ever! Cost is \$30.00 per car. NARCOA insurance required.

September 17: Appanoose County RR, entire line to Albia on former Norfolk Southern ribbon rail. Fast running! \$25.00 per car. NARCOA insurance required. Contact Dave Pratt at (515) 674-3803.

October 28: Boone & Scenic Valley RR. Not a long run, but great pumpkin displays, bonfire (with refreshments) in the evening, and an evening run at least twice, hopefully all the way to the end of the line. Cost is \$35.00 per car (non-B&SV members) and \$15.00 per car (B&SV members). Price includes refreshments. NARCOA insurance required.

OHIO RAILCARS sponsors the following events:

September 4: Wheeling and Lake Erie Ry. main-line, Brewster, OH, to Terminal Junction, OH, 152 miles round trip. 35 car limit. Still a few spots left!. Send SASE to: Ohio Railcars, 10059 Aldridge Drive, Columbia Station, OH 44028, or phone Dave Verzi, (216) 236-3374, or Robert Hixenbaugh (216) 923-0298. NARCOA insurance required.

September 16 & 17: Cuyahoga Valley Scenic Railroad. Join the C.V.S.R. and do light work on the line on Saturday. Begin set on both days at 7 a.m., departure at 9 a.m., \$10.00 per car. NARCOA insurance required. Send SASE for info to: Robert Hixenbaugh, P. O. Box 141, Cuyahoga Falls, OH 44221-0141.

WILDERNESS TOURS sponsors the following events, open to all NARCOA members. For information, contact Hank Brown, Wilderness Tours, Box 25, Cottage Grove, WI 53527. Phone (608) 839-4939, or FAX (608) 839-5595.

September 17: Algoma Central Ry, under new ownership, Sault Ste. Marie to Aqawa Canyon. March 1996: Wilderness Tours has gained tentative approval to organize a railcar tour of the Chihuahua Pacific RR. We will ride our railcars the whole 497 miles through the scenic Cooper Canyon, with its 87 tunnels and steep cliffs from Chihuahua to Los Mochis. For those who are interested in going on this adventure, please obtain your passports and coll Wilderness Tours.

The WALKERSVILLE SOUTHERN RR in north central Maryland opens the following event to all NARCOA members:

September 9: Walkersville Southern RR Society Members' Day, open to motorcars, steamcars and handcars. 15 - 20 miles of running. Contact Mrs. Leslie O'Dell, Administrator, Walkersville Southern RR, P.O. Box 651, Walkersville, MD 21793. Phone: (301) 898-0899 (M-F, 9-11 a.m.)

MOTORCAR OWNERS WEST (MOW) sponsors the following runs. NOTE: NARCOA insurance, spark arrestors and MOW licensing procedures required for all runs.

September 2 - 4: Labor Day Weekend (tentative) Nevada Northern Ry., East Ely, NV. Send SASE to Greg Brahms, 3350 Jaylee Drive, Santa Rosa, CA 95404.

October 1: (tentative) Collins Pine RR, Chester, CA. Send SASE to Vic Neves, P. O. Box 23721, Oakland, CA 94623-0721.

Want Ads

EDITOR'S NOTE: THE SETOFF is happy to print all ads received from the membership. If you want your ad to run for more than one issue, please indicate how many issues. Please send ads directly to: Gene Tucker, SETOFF Editor, 1004 North Kentucky Street, Arlington, VA 22205-2310. Thank you!

FOR SALE: Large flatcar frame with Kalamazoo wheels and axles; Canadian National Fairmont M9 with an aluminum cab; Detroit & Mackinac Fairmont M14 with a railroad built roof and windshield; Canadian Pacific Fairmont A3 open car with some spare parts; Fairmont PN (4 HP) engine; Fairmont QB engine complete; Woolery railroad equipment engine. Some parts and other goodies. All as is and will price to sell. Contact Dallas McDowell, 2706 Imlay City Road, Lapeer, MI 48446-3222. Phone: (810) 667-3788 after 7 p.m. (CDT).

WANTED: Crank for Fairmont QB engine with hook for footboard for an S2 car. Contact Chuck Pearson, 26463 Monticello, Inkster, MI 48141. Phone: (313) 563-2433

FOR SALE: All Parts NEW. One OD waterhopper A1179/1039A \$50.00; one QB water hopper A1198/69524 \$50.00; one QB cylinder head A1057 \$20.00; two QB engine blocks A1185 \$75.00; two S2/M14 control panels 70323 \$20.00. Contact Dave Rose, 202 Center Street, Elmer, NJ 08318.

FOR SALE: Sheffield velocipede, ex-Monon, excellent unrestored condition. \$3,500.00. Contact Dave Rose (see ad above).

FOR SALE: Fairbanks Morse 40-B, ex-Reading car. \$400.00. Contact Dave Rose (see ad above)

FOR SALE: Sheffield #2 Handcar. Needs to be rebuilt. Have all original hardware and some wood parts for patterns. Rough cut maple for frame included. \$2,500.00. Contact Dave Rose (see ad above).

FOR SALE: Two new belts #4255, \$25.00 each; ten rubber Hi-Rail tires, used, \$40.00 each or \$250.00 for all; one Hi-Rail gear, not complete, \$100.00. Contact Eric Schwandt, 5472 Far Road, Dundee, MI 48131. Phone: (517) 451-2175.

WANTED: Flange brake liners for M9 #M32743, rubber tires for M9, Contact Eric Schwandt (see ad above).

FOR SALE: Fairmont M19, ex-Central of Georgia, RO-A engine, metal front and roof, fair condition, \$975.00; Fairmont CR7, ex-CP Rail, RO-C engine, fiberglass cab, good condition, \$1,150.00; used RO-C engine, very good condition, \$250.00; new starting cranks for M9/M19 motorcars, \$75.00; new lift handle ends, repair broken ends with these replacements, \$24.00 each. Contact Mike Billet, 1010 Felton Road, Red Lion, PA 17356.

WANTED: Inner and outer brakes shoes for Portec, RMC Division, Model F. Contact Carey Boney, 1605 Powers Road, Wallace, NC 28466.

FOR SALE: Fairmont M14, Canadian car with yellow fiberglass cab, very good condition, Fairmont engine, spare wheel, \$700.00; Fairmont M14, Canadian car, no cab, good condition, Fairmont engine, \$450.00; rulebooks, send SASE for list. Contact Joe Shaffer, 35166 Jason Drive, North Ridgeville, OH, 44039. Phone: (216) 353-0764.

FOR SALE: Fairmont M9 completely restored, rebuilt engine, 12V lights, air horns, bell and alternator. Wide front, top, two seats, Ex-MoPo. Now painted Pacific Electric. Very dependable car, \$2500.00/OBO. Contact George Templin, 1424 Cartegena, Long Beach, CA 90807. Phone: (310) 427-8050.

FOR SALE: Fairmont trackcars, several models from \$600.00 to \$1,150.00. Contact Tom & Debi Kowalski, 689 Podunk Road, East Brookfield, MA 01515-0135. Phone: (508) 867-2188.

FOR SALE: New—not used—Fairmont seats with top and bottom cushion for MT19 cars. Quantities limited, \$197.17 each (almost \$150.00 less than Fairmont), plus UPS shipping. Seats are brown color. Contact Dave Rangel, P.O. Box 432, Elk Grove, CA 95624.

FOR SALE: Parts for Fairmont A4 and A5 motorcars: radiator, transmission, drive shaft, some engine parts and misc. chassis parts. Parts in very good condition. REASONABLE PRICES. Contact Howard Hansen, 106 Westgate Circle, Santa Rosa, CA 95401. Phone: (707) 527-5416.

FOR SALE: Pumpcar plans to build replica Sheffield two- to four-man pumpcars are again available. \$60.00 postpaid. Is there any interest in velocipede plans? Contact Bruce Carpenter, Carpenter Rail Design, 10241 Co. Rd. 25A, Wapakoneta, OH 45895. Phone: (419) 738-5384.

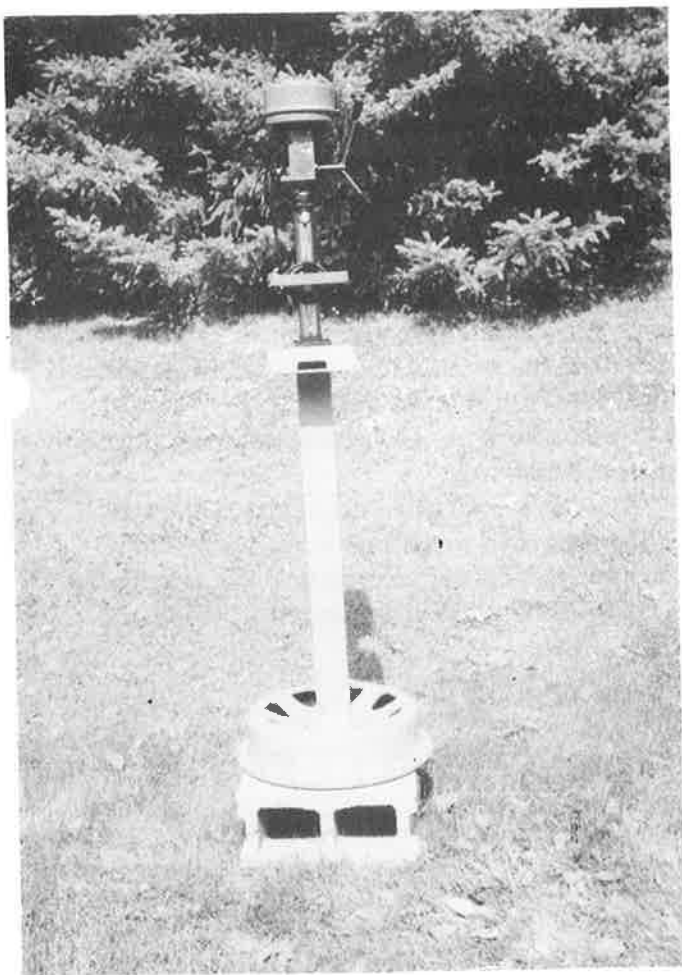
FOR SALE: Fairmont CR7 (M14), serviceable, 89% complete. Engine is free, wheels good, belt fair, fiberglass cab, \$1,050.00/OBO. Located in PA. Phone

**PLEASE SUBMIT ALL MATERIALS
FOR PUBLICATION IN THE
SEPTEMBER/OCTOBER ISSUE
OF THE SETOFF
BY SEPTEMBER 15TH!**

Ric Tritsch at (904) 454-5377 in Florida, or Fred Sheffler at (412) 924-9136 in Pennsylvania.

WANTED: Older motorcar and rail related vehicles in serviceable to restored condition. Contact Ric Tritsch, c/o High Springs Station Museum, P.O. Box 2008, 20 NW Railroad Avenue, High Springs, FL 32643-2008. Phone: (904) I LIKE RR (454-5377).

FOR SALE: Early Fairmont M9, pointed steel cab, RO-B engine, 12V, extras, runs good, body is fair, new wheels, \$1,700.00; Fairmont RQ-C engine, \$225.00; RQ-D timer, \$40.00; components to make railroad crossing signal, \$250.00. Contact Dave Verzi, 10059 Aldridge, Columbia Station, OH 44028. Phone: (216) 236-3374 (evenings).



Old motorcar wheels never die, they just turn into tool stands! This picture, submitted by E. Lloyd James of Poughkeepsie, NY, shows a sturdy stand on which to mount drill presses, bench grinders or other small machine tools. And if it needs moving, just tip it over and roll it out of your way.

MEET ETIQUETTE:

PART THREE OF A THREE-PART SERIES

DEPARTURE

By Dick Ray

The end of the day reloading can be the most traumatic period of the entire day. It seems that everyone wants to load up immediately, including the locals. Add light rain, darkness, and a one-lane dirt road approach to a small gravel grade crossing and tempers can get short. Just why the courtesy breaks down is a mystery.

Courtesy is catching. Be considerate of others when loading up. If the loading area is congested, let the loaded trailers out so that others can get into the area. Don't park in the driveway, blocking it until your motorcar is ready to load.

Once you are on the trailer, pull away from the area to complete the tie-down process so others can get their turn.

If you are the organizer, plan to help direct the traffic and load up last. Part of the organizer's job is to see that everyone has a good time and this includes a hassle-free loading operation.

If you have a small car, it can often be rolled across the parking lot to your trailer at one side. Those waiting behind you are usually quite willing to help push. Very large cars require trailers to be jockeyed around to be parallel to the rails. We have been fortunate that those owners are extremely courteous and invariably load up last.

Finally, if you think the organizers have done a good job, thank them for their efforts. And don't forget to thank the railroad officials for their hospitality.

SOUTHERN MICHIGAN RR HOSTED TENTH ANNIVERSARY OF MOTORCAR CONVENTIONS ON MAY 27 AND 28, 1995

By Eric Schwandt

I would like to start this report on NARCOA's tenth anniversary of motorcar conventions, which was held at the Southern Michigan Railroad on May 27 and 28, 1995, by thanking Dallas McDowell, Dean Matznick and Ernie

Jeschke for their excellent flagging of the crossings during the meet. It really made for safe, smooth, uninterrupted running. Stan Conyers oversaw the Hoosier Railcars new system of car inspections. Beth Schwandt and Joy White put on a hot dog roast trackside in Tecumseh on Saturday. Thanks a lot to all who helped out.

Motorcar operators from Michigan, Ohio, Indiana, Illinois and Canada attended the two-day meet for a total of 18 cars. Dave Verzi and Jeff Levensgood ran the first run solo while the rest of us had breakfast. By 11 a.m., the sun was coming out so we hit the rails. At the lunch stop, several motorcar parts and a trailer changed hands. A total of four runs were made the next day, on Sunday.

Sunday afternoon several early NARCOA members stopped by in Clinton and Raisin Center. Phil and Rusty Hines, Jeff Dobek, Ed Hodges and Bruce Haddow and sons were part of this group. Motorcar operators from the early conventions included Bob Hixenbaugh, Mike Mitzel, Stan Conyers and Mike Woodburn.

Except for some inclement weather, a good time was had by all.

Anyone wanting to run at the Southern Michigan or do a work-run weekend (NARCOA insurance not needed), contact Ernie Jeschke at (517) 263-1322 or Eric Schwandt at (517) 451-2175.

The Track Inspector Sez:



The high point in the life of the owner of a two-cycle engined motorcar is when he gets

that cantankerous beast coaxed up to a speed where a bug actually splatters on the windshield.

Submitted by Dick Ray

YOU'RE INVITED TO COME TO THE SEPTEMBER 8-10 NARCOA BOARD MEETING

By Hank Brown

The NARCOA Board of Directors will meet September 8-10 at the Days Inn, 3801 South Mannheim, Schiller Park, Chicago. All NARCOA members are cordially invited to attend. Agenda items will include discussions of NARCOA insurance, the rulebook, charter territories and affiliations, and liability concerns, among others.

Reservations for the Days Inn may be made by calling (708) 678-0670.

Members desiring to attend the board meeting should call me in advance of the meeting at (608) 839-4939 or FAX (608) 839-5595 to register. See you in Chicago!

LOOK FOR ELECTION RESULTS ENCLOSED WITH THIS ISSUE OF THE SETOFF

By Gene Tucker

In order not to delay printing and preparation of this issue of *THE SETOFF* prior to the end of the election of board members (the election ended July 31st), especially since we wanted to give the membership time to read and consider the proposed changes to the rulebook in advance of the September NARCOA board meeting, we decided to print the election results on a separate insert to this issue. Look for it as an insert enclosed with this issue.