

1987 Series

PS

June 82

THE
PREVENT
MAINTENANCE
MONTH

MARY...WANT'LL
YOU GIVE ME
THE MEAT
BUTTER PORK?

SPECIAL ARTICLE
How to Save Your Money
This Year

COLO comes to the supply room with the double-duty 1244... combination house or farm-to-clip

THE "NEW LOOK" IN FORMS (Specially, that is)

Among the smart features to come out this season is a snappy 7-part number with national headlines... or... headlines.

Well, anyway... we're talking about the DA Form 1244 (1 Apr 57) just released by Department of the Army blank form designers. The name of this new headliner is blank form styling is... "Organic for form or function" (as you know, all original creations by the DA form house have their own names). The name means just what it says. You can now ask for forms or materials on the same form.

Goodbye 446 and 447



What about DA Forms 446 and 447—the old form and form-to-clip—you ask. The answer is just what you've already guessed... they're gone. After all, nobody wants to be caught using last year's styles—even if they're only blank forms.

Not only does the 1244 look different from anything that's ever come down the pipe before—it's also used in new ways...

Single Line Item

Stacking up the 1244 against the old longtail 446 and 447 forms, it's nowhere near as thin.



Bully Goes It

It's finally come! No more waiting for the daily Tuesday in the month of the blue moon to put in a request or requisition. With the 1244, you order items when you need them—and even when in an area as they're worn out or scarce. Quicker service with less work is the whole idea behind this big change.



See Who?

Department of the Army is the whole works off with a TWX that could carry: body should start getting friendly with 1244 as of 1 July 1957. Making yourself acquainted with this new form, of course, means understanding what goes with all this color business and who puts what in which blocks.



JUST A MINUTE!

Before running off at the mouth about our latest style house and form, let's pause for a minute and clear the air.

Some critics could get confused as to what is what, because there was a 7-part DA Form 1244 15 Aug 56 which was being tested in certain places.



The critics that have heard of this earlier form will figure out if with they're all used up—their day? In playing around with the 7-part form, too.

There are more points to the new form.



The size of 7 1/2" x 10" form and the way the blocks are laid out don't mean up they're about 446 in the form block and the old 447.

By The Colors ...

This 7-part form has carbonated paper that pops out from a binder on the left hand side. The carbon is so when you write on Copy No. 1, all the writing goes there so the first copy.

At least every one of the copies is a different color ... for a reason. Just to make sure everything comes forward, the colors were added. Why? Because they can tell the man who understands them a quick story on the form he's interested in—basically being another way of pointing out which copy goes where. Also, knowing the color code cuts down the chances of repeated confusion writing in. Just watch.

The Code:

1. ... means copy made

So this carbon copy is really the carbon copy, except when the left carbon copy is the first.



2. ... means copy made

This copy is the carbon copy, except when the left carbon copy is the first.



3. ... means copy made

This copy is the carbon copy, except when the left carbon copy is the first.



4. ... means copy made

This copy is the carbon copy, except when the left carbon copy is the first.

5. ... means copy made

This is the copy you keep for your records. It is the carbon copy, except when the left carbon copy is the first.

6. ... means copy made

This is the carbon copy of the form it also goes with. It is the carbon copy, except when the left carbon copy is the first.

To Each Its Own



All blocks after Block 14 are filled in by the carbonated service supplying the form, except for Block 15 and the bottom line, where the property book office or his authorized representative writes the date of approval and his name.

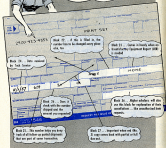
Every copy has its own position. The same goes for blank forms. Remember, this ... this is the 4-page 1957 edition of the 24th and all seven copies have the same blocks in the same position.



1. ... means copy made
2. ... means copy made
3. ... means copy made
4. ... means copy made
5. ... means copy made
6. ... means copy made
7. ... means copy made
8. ... means copy made
9. ... means copy made
10. ... means copy made
11. ... means copy made
12. ... means copy made
13. ... means copy made
14. ... means copy made
15. ... means copy made

**AND REMEMBER
BEAR DOWN SO THE
7th COPY IS AS CLEAR
AS THE FIRST**

WHEN YOU HAVE COMPLETED ALL THE PREVIOUS DAYS' WORK, YOU WILL FIND THE 1546'S WORKSHEET FOR THE PREVIOUS DAY'S WORK. YOU WILL FIND THE 1546'S WORKSHEET FOR THE PREVIOUS DAY'S WORK.



Using the 1546's Not Hard

Once you decide what items you need for any particular day, just fill in the blocks you are supposed to put writing in and give all the 1546's for that day to your Unit Supply Office, so they can approve each request. As for making many of us items as orders, keeping track of the previous day's requests can be a handy guide.

For instance, if you received 10 requests for an item yesterday, then collecting 10 more this morning will keep your stock at the proper level. If this item happens to be off your shelf when somebody asks for it, then you may want to get an order started off the next day. Remember . . . daily requisitions are the rule with the new 1946.



Pre-prints Make It Easier

The cash service supply people are being extra good these days by giving you something back with your shipments.



The action copy (blue or red) of the 1946 you made out will be returned on each of these items. But besides this first action copy, there's a complete new 1946 made in the same package . . . part of it is already filled in for you by the cash service supply people.



What this actually means to you is that this pre-printed form is the authority for the next order you make out on the same item. This is cash service supply's way of helping you to make sure that the next time this item is ordered it has the right info on it. All you do is fill in the rest of the blocks you have on your working list.

Since the cash service has filled in Blocks 7, 8 and 9, there's no need to go back to the supply catalog or manual every time you want to re-order . . . because the correct data is already on the form. As far as the rest of the blocks go, the cash service supply people are mostly helping themselves out by pre-printing in any other blocks. Even so, the info in these blocks can come in handy when you make out a statement of charges or report of survey.

With the pre-printed information on it, a 1146 made-out for replacement forms can go off with Block 6 left blank. It's only on the replacement form's pre-printed that you have to give the name, date and page number of the existing manual, TDR, TA or other material that lists the item (see Chd 7, for example).

Shipments are Blue... Due-Outs are Red



Each service supply follows two simple rules in processing copies of the 1146 to the using units:

Depending on the type of action taken, it looks like this to you:

1. any form being shipped is a **complete** record, **complete** or **partial** - comes with a **blue** shipping tag (Bk. 7)



A completely filled order has the blue copy only

2. all **due-out** actions - full or **partial** - come in as a **red** due-out tag (Bk. 10)



A full due-out has the red copy only

When the first shipment arrives, the blue copy of your 1146 will have the numbers in Blocks 26 and 27 boxed out - and replaced by the number shipped and the number still due-out.

With partial shipments, the blue comes back to cover quantity shipped and the red tags along to cover the portion still due-out.



If more than one partial shipment is needed to finish off a single transaction, then the tech service makes-out new 1146's each time... because the blue copy on the original 1146 made out by you has already been used up.

When it takes a couple of partials to make up a single transaction, new blue and red copies come along, too, so you will have an up-to-date report on how many were shipped and how many are still due-out.

Watch the Carbon

A good way to keep the carbon links on each loose copy from rubbing up against the front of the next 1546 copy is to stick a piece of paper or thin cardboard between.



Checking Up

When a shipment comes in from our service, you check the quantity shipped against the quantity shown on the blue shipping copy (No. 1). Also check up on:



Of course, the brown-bordered copy (No. 4) can be used to double-check on the original order by comparing it with the returned shipping or due-out copy before you dump the brown one in the junk file.

It's useful not to lose the pre-print that comes back with the original shipping copy. The safest way is to stick it right into your response file according to stock number.

YOU CAN REPRODUCE THE
FEDERAL BUREAU OF INVESTIGATION
NUMBER LINE 770.

FOR 10-10-10-10-10



When possible, handlers should have the items returned in their original packaging. That way you don't have to worry about processing those parts until they're actually ready to be used.

And when you're passing those items on the shelf for a spell, it's not a bad idea to tag every gizmo with the item's Federal Stock Number, if it's got one — or at least to one them up for it.

Keep the End-Item Copies

The ALLURE
FOR THE
FUTURE...
RESEARCH...
AND...
COMPLETION ACTION
FILE.

Save Space!
Act On It!

[illegible]

Keep the End-Item Copies

The ALLURE
FOR THE
FUTURE...
RESEARCH...
AND...
COMPLETION ACTION
FILE.

[illegible]

Keep the End-Item Copies

THE ALL-NEW
17000™
 RECORDS SYSTEM
 FOR THE
 COMPLETE ACTION
 FILE.



Suppose the Item's Unauthorized

Any USAF asking for an item that's not authorized for loan is like asking where it's returned by such service supply marked not authorized for loan is Block 36 (Remarks)



When to Chuck Pre-prints

Holding on to pre-prints with old stock numbers is dangerous. It may take months before such service supply even finds out what you were after. So, every time a copy of your USAF comes back, check Block 36. Eventually the stock number changes for that item.



When Block 36 has a number in it, just look at it—that's all. Nothing else is necessary for a SUBSTITUTE item.

A Turn-In's Just As Simple



Only one more old error—instead of using up a pre-print on a turn-in, just copy the filled in Block off the pre-print for that item onto a fresh USAF.

HOT VS COLD

SPARK PLUGS



This question of hot and cold spark plugs has been caused and discussed until the clouds of confusion have completely hidden the issue. Let's us attempt to get the question out in the sunlight and look at it.

The first step, really, is to decide what a "hot" plug and a "cold" plug are.

The heat range of a spark plug is determined largely by the length of the insulator from the firing tip to the point where it joins the spark-plug shell. You, the heat of combustion



points up the insulator to the steel shell, down through the shell to the cylinder head, and so finally to the water jacket and the radiator. So, the further this heat has to travel in the insulator before it gets to metal, the hotter the tip will stay.

But here's what's confusing: You use a hotter plug in a cold engine's engine and a colder plug in a hot engine's engine.

Like this — if you have a mild hot plug in the hot engine (one that's

worked real hard), it will likely cause pre-ignition. That is, it will get so hot that it'll let the charge light off the hot insulator tip of the plug before the distributor sends along the spark. Naturally, this spoils your ignition timing and causes detonation, loss of power, and destructive hammering on the pistons, wrist-pins and connecting rod bearings. (Of course, wrong timing, lean fuel, sticky valves or lack of water can make even a cold plug pre-ignite.)

On the other hand, if you have a cold plug in a cold engine (one that likes a hot), it'll not get hot enough to burn off the lubricating oil, and also will pick up some soft carbon from the incomplete burning of the fuel charge. This means that your spark-plugs will be constantly fouling, and eventually misfiring.

OK, so you need the cold plug for the hot, hard-working engine, the hot plug for the cold engine, understood?

Now, the next question for the day is: What plug of the two million-kind types does he need, and how does he decide on it?

Obviously, all the engines on any one model of military vehicle are the same as to design, so the only difference will be in the case in which they are put. But these men can make a big difference.

Furthermore, the driver and a half that is traveling 30 miles each way on the highway, at highway speeds 45 to 55-MPH, supports a sustained unit is going to a lot faster running truck than one that just sits around. From the time half to the Quartermaster team

point and back under a 20-MPH post speed limit, that the Jeep that are used for heading only are going out faster than the CPT's Jeep that stands with its engine idling to keep the command radio going.



Cold Plug - 120°
OPERATOR Cold
START (COLD)
OLD (COLD)



Hot Plug - 120°
OPERATOR Hot
START (COLD) - 120°
COLD (COLD)

Hot Plug - 120°
OPERATOR Hot
START (COLD) - 120°
COLD (COLD)



Hot Plug - 120°
OPERATOR Hot
START (COLD) - 120°
COLD (COLD)

Hot Plug - 120°
OPERATOR Hot
START (COLD) - 120°
COLD (COLD)

Hot Plug - 120°
OPERATOR Hot
START (COLD) - 120°
COLD (COLD)

As, if you know what use a vehicle is going to be put to most of the time, you've got a good start on deciding which spark plug is needed. Also, if you get a vehicle that comes into the shop with badly fouled plugs, best you ask about the job it is on, or go check the dispatch records.

But there's another thing that affects the picture. As an engine wears out, its oil consumption increases, much. So it sometimes happens that even though your compression tests show that the engine is serviceable, you'll find it is fouling plugs pretty badly.

So you see, you can use either plug in any selected vehicle except the M16A1.

But, the word "Optional" in the JPNL's chart will mean you can use either

PLUG AND WHEN REPLACE IT IS			
Vehicle Series	Hot Plug	Cold Plug	Notes Gap
M-154	Yes	No	120°
M-160	Yes	Yes	120°
M-161	Yes	Yes	120°-140°
M-162	Yes	Yes	120°
M-164	Yes	Yes	120°
M-166	Yes	Yes	120°-140°
M-168	Yes	Yes	120°
M-170	Yes	Yes	120°

Hot Plug, PN 2900-235-7711

Cold Plug, PN 2900-235-4708

APPROX. 120°-140° IN 120°-140°



plug you like, or that you can use if the other's not in stock, or that you flip a coin to see which one you'll use.

You've gotta select your plugs to match the job your vehicle will be doing.

In short runs, when you select the hot or the cold plug, that your supply man gives you the kind you want.

Now, about going from the hotter plug to the colder. Sometimes this may be necessary. Like if a truck is transferred from short on-pipe duty to over-the-road. This decide is likable: If the

truck's timing is right on the mark, and you get any vibration when pulling hard with a normally hot engine, the chance are you should move it over to the colder plug. FORD 2830-711, 4268.

Now if you have the truck on hand but can't find out what use it's getting, the plugs themselves can tell you what's needed.

THEY SPEAK FOR THEMSELVES



Wet, sticky deposits indicate oil leaking. Go to the hotter plug when your engine is to be changed.



Yes, thick fatty deposits indicate oil leaking. Adjust valve timing into motion. If you still have gas leaking, change valve timing. No more there are not overhauling!



White, brown or bluish insulator area and badly eroded electrodes mean the plug's too hot. Go to colder plug.



Heavy brown, purple tan or white powdery deposits, electrodes only slightly eroded, indicate everything's fine. Compare with the plug you have.

Remember, these plugs are to be changed only in sets. That is, you don't mix your pistons by putting both hot and cold plugs into the same engine.

You can tell by checking the numbers you'll find on either end of the plug.

Hot plugs usually are longer, but length of plug and heat rate of the number will vary with different manufacturers.



If you're replacing one or two, hot, hot or colder plug, be sure they are the same as the rest of the set that's already in the engine.

THE 9-6038 (Nov 1968) is a good book to have—it's full of tips about spark plugs. Get one for your work if you don't have one.

Connie Radd's

"DON'T 'N' FEAR NOT"



The whole story

Have you got your maps and laws for the Model 414? You make and plan how tracks you? If not, there's probably a manufacturer in your area who can supply these local purchase items under the provisions of SR 715-118-50 (3 Jan 1975).

Normally, the manufacturer of the track doesn't make the maps and laws to go along with the vehicle. This being the case, tell your Ordnance support unit you need the laws, and they'll take the problem to your local purchasing office to pass it on to the depot supporting them. These people will contact the area and come up with the manufacturer who does make these maps and laws.

The map package like they'll get you should run anywhere from \$125 to \$150, depending on how many they have to order.

When ordering, don't forget to tell your Ordnance support what kind of track you have and its body dimensions. It's a good idea to request the depot on how to put these maps on, too.

The sneaky vibration

Been wondering what's stuck into the hydraulic system on your Model 414 and 415 tracks to make that sneaky set up like it does sometimes?



That sneaky may just be making its way into the system because your burner's kept its head up so much (H. 14.14).

That's what happens if the reservoir is low. The pump'll draw air as well as oil, causing bubbles to get into the system. When these same bubbles hit the valve, they cause it to become, sort of, vibration in motion. The faster the pressure can be felt clear up to the wheel.

Air also can cause the system if there's a leak in the input shaft seal where it meets the power steering pump. If this is the case, you'll have take it back to Delmar and have them put in a good seal.

Keeping it to the proper level like it tells you in your LCP'll go a long way to giving you the smooth more desired drive, you might be losing oil from loose connections or damaged lines. So, get out and get under and see.



Washer and gun?

When the cap hits the fan it can cause all sorts of pain under that hood. For one, it can knock a hole in your radiator big enough to drive your fat through.

We're talking about that radiator filler cap, of course. Some guys, when they go to fill their radiators with water, have been taking that cap off and putting it on top of the radiator—while the engine's running. One slip and that cap falls into the fan and is off like the 19th Century Limited—right through the radiator.



You've got a couple of ways to stop this. One is to clip that cap to your fender. Some guys have been attaching a short piece of chain to the top of the cap and have wired the chain to a bolt or brace. That way you can leave the cap dangling without chance of it hitting the fan. Good way to keep from losing it, too.

But, whatever way you do it, just make sure the cap goes on where near that revolving fan. The wall can really fly.

Wedge type head

Don't get tied up in knots when you don't have to. Some men got the idea that unless a dozen or more rubber bands are used when tying down those tarps that the knot ropes won't stay put.

This may be true with some of the tarp heads in the system, but if your vehicle has the "wedge" (pignon) type head P/N 2540-705-4246-107490, you won't have to do it this way.

It's a simple trick and much faster if you hold 'em in place (instead of tying 'em down). Just as you won't step off the beaten path too far, take a spike and see how the lashing job is done. After you try it, maybe you'll never go back to the old way again.



When you've made that complete turn around the hook and led the rope up into the wedge between the base and the pigtail, give the rope a good yank up and in (to seat it tight in the wedge). This'll hold in good'n solid so it won't slip. Tuck away the extra rope so it won't snag the body of the truck.

Now, all you do to remove the rope is give it a good yank downward—not the other way.

Pipe Bender' ? ? ?

Is your 514 Ford-propelled bus driver's hydraulic power-pack, rigger's drain pipe dripping oil and making a lousy mess? Might be a good idea to check your vehicle right now and see if this is happening.



The make, repair, these pipes are broken' because some strong-arm giant is bending the pipe when he tries to take out the plug with only one wrench. You see, removing that plug is a job for two wrenches.



The reason both wrenches are needed is because the pipe is left suspended in mid-air after it has been inserted into the reservoir. So, if you don't use one wrench to hold the pipe from rotating while you're taking' out the plug, the pipe's bent it—and gets heated.

Now the only thing left to do should your pipe spring a leak, is to order your old some more 14-in galvanized pipe FPM 4701.002.000 (EN001) and get yourself a new pipe. If you'll just specify that you want the pipe cut to 11-in length, it should come to you already cut and threaded.

THE STORY ON THE RELIEF VALVE OF YOUR 5-TON TRUCK'S POWER STEERING



A careful look at some of your GM's older 5-ton trucks may lead you to the idea that some of the pressure relief valves have been left off the power steering unit. But, before you go ahead and get visions of that steering reservoir being blown clear out of that truck, take a longer, more careful look.

What you'll find is that there are two series of pumps for that reason.



Basically, these relief valves release any build-up of pressure inside your steering unit.

There're a few ways you can tell whether you have the external relief valve pumps or the internal valve pumps on your truck. First, if you spot that relief valve sticking on your steering gear unit, you'll know you should have the older external relief valve pumps. Can't miss it if it's there—it's squaring them as big as 1 1/2".

Another check—the system with the external relief valve pump is called the three-pipe (line) system. Find your pump. If you can trace a line from the pump to the relief valve, another line from the relief valve back to the oil reservoir, and still another line from the oil reservoir up the hydraulic control valve—that's the three-pipe or external relief valve system.



Now, if you don't spot a relief valve, you may have the pump with the internal valve in it—the new pump. To make sure, you check your lines again. This system, by the way, is called the two-pipe (line) system. You'll have one line coming from the pump to the hydraulic control valve, and another line going from the hydraulic control valve back to the oil reservoir.



Here's another way of telling the external relief valve pump from the internal valve pump. If it has a big-headed screw-type looking thing in the middle of it, it's a screw pump with the internal relief valve. If it doesn't have this thing, it's one of the older pumps.

If, after these checks, you find that you have the older pump, just make sure you had a relief valve on the steering gear case. If you don't have one—know that vehicle alone and call your mother's mechanic. Drive it and you may find your steering system blowing up right in your face.

On the other hand, if you know you have the new pump—the one with the internal relief valve—you don't need any valve on the steering gear case.

Don't have those pumps, break down:

PUMP	RELIEF VALVE	NOTE
Pump P2M 1508-040-1274, Super valve Pump P2M 1200-040-1200, but is interchangeable with it.	Has external relief valve P2M 4820-104-0412 mounted on steering gear case. Check this valve relief valve P2M 4820-740-0294.	If you share this pump, you must make sure you get either external relief valve P2M 4820-104-0412 or internal relief valve P2M 4820-740-0294 with it.
Pump P2M 1100-040-1006 Super valve Pump P2M 1808-040-1200, but is interchangeable with it. There are all sorts of them around, so you might get lost.	Has external relief valve P2M 4820-740-0294 mounted on steering gear case. Check this valve relief valve P2M 4820-104-0412.	If you share this pump, you must make sure you get either external relief valve P2M 4820-740-0294 or internal relief valve P2M 4820-104-0412 with it.
Pump P2M 1508-110-0001, the original one, and is 1847 interchangeable with the other two.	Has an internal relief valve—you can't see it.	If this pump goes bad, you gotta get a new one but the 1847s (interchangeable and don't write for any of the others. Get breaking if you sit.

WEAPONS



BEFORE YOU TAKE OFF...

There are five points to check to make sure your M44-MC machine rifle stays mounted upright on your M3A4-MC utility truck when traveling over rough terrain.

See that:

1. The front lock is holding the barrel right.



2. The quick dismount clamping screw is tight.



3. The mount locking leg lock is locked.



4. The mount side leg stops are locked.



5. The bracket is fully closed and locked.



And make it easy on locked, curved and rough roads and while making sharp turns.

ROD TO ROD TALK



No one is thinking the new in supply can't read stock numbers just because he reads you an aluminum rod number. Speed up for your 81-mm master M11-A1 number.

But ... your requisitioner says
 (SN 101-440-0004, which
 is the number for a steel rod.



But you got
 the aluminum (SN 101-440-0004
 listed).



Control, powder's what the aluminum rods 'cause they haven't been standing up as well as the steel ones.



Trouble is ... Ordnance is loaded with aluminum rods, and it'd be like throwing money down the mouse hole to give 'em the heavy-duty. So, keep using the aluminum rods until they're used up. Then you'll get the steel ones.

UPRIGHT & DOWNRIGHT



DEPRESSING NEWS

Upright is downright wrong when it comes to the holder assembly for the M97 CTM49 telescope in the MRA1 tank. You know the assembly ... it's part of the T178-B1 rifle experiments.

What's happening is that some guys have the holder assembly clamp in the upright position after removing the telescope. Then the gun is depressed and—O-B-I-N-O-C-H ... as the clamp jams against the turret cylinder, onto top support-bar. Check up on damaged holder assembly.

Another trouble ... it's a rifle guy who locks the clamp after removing the telescope.





SOLAIP FOR CLEANING RUBBER

0204

Rubber pads and cylinders of track lighting and fire control equipment are washed by grease and oil.

It's tough for a hard-working worker to keep them shiny and clean. So the next thing to worry about is cleaning the rubber properly. Wrong cleaning methods cause damage, too.

This is the SOLAIP on cleaning that rubber:

1. Soak the area of damaged PPS PCS (PPS-004) in a pail of warm water.



2. Wash rubber surface thoroughly, using a soft cloth or mild sponge PPS 7000-001-0000.



3. Rinse clean with warm water, and let dry. When the rubber surface is thoroughly dry, apply technical talc PPS 0000-001-0000.



Even though the latest surfaces may not need cleaning every week, just 1000 talcums on 'em once a week.

REEL SNARLED CABLES

Reminds a guy of a piece of spaghetti —the way the loose cable on the suspension system drags for the REEL PCS gets hooked up at times. You know...hooked, jammed and tangled.

The cable gets so hooked this way when you let the end of it get closer than five feet from them bars. What happens is that the cable is connected and then the cable drum goes into reverse winding. What is you.

The answer is easy enough—keep the end of the cable at least five feet from the ground.



GROOVEY

What is a nutrunner? What is a nut?
 That's your EX-1000! How is it?
 There's a torque limit tool that may need inspection.
 Take a look at your engineering
 — Mechanisms, L.



The main purpose of that cool EX-1000
 NUTRUNNER is to cut so it's super for showing
 dirt and other junk off the scene as it passes.
 It will cut out of the scene smoothly.

If the tool is too fast, it will be very
 well controlled, instead of wiping dirt and getting
 away, it'll pick it up and carry it into the
 mechanism.



The growing market that demands that
 large dirt and glass can't be left
 that someone can get out the road
 without that growing water type
 out.

Ex of your own a growth
 with dirt
 Left in place, know
 the mechanism.

Growth is natural
 and nature
 lots of power
 But there is no
 hope and on
 the house.



THE CASE OF THE MISSING BOTTLES



It's a fact, rare-enough. There are just so many high-pressure nitrogen cylinders in the Ordnance supply system. And when you have a heap of these non-expendable bottles sitting around different outfits, it means other guys have to come out getting their cylinders.

Support units need the cylinders to refill hydrocarbon-mechanisms in aerial and self-propelled field artillery outfits. And AAA units themselves use the bottles to refill the mechanisms in their antiaircraft guns. These bottles have got to keep moving—just like a continuous moving chain. And a stoppage or kink in the ring-around-the-rose supply chain may mean you to get a “blue-out” near time you requisition a cylinder of nitrogen.

A number of things can put that supply chain out of whack—even the Federal Stock Numbers could cause a jam-up of cylinders. “Numbers” is right ‘cause when you handle nitrogen cylinders, you use two stock numbers.

When the high-pressure bottles are refilled, they get 3,100 worth of P&H and are assigned this stock number: PSN 6854-104-0866. The number is the one for

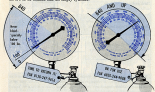


nitrogen gas only ... and is the same one used to replenish the cylinder of gas that, when your supply tank needs the boost back for refilling, you tag 'em ESN 8128-107-9016. That's the tank number for an "empty" cylinder.

It makes sense to use in one case you're getting gas ... and in the other you're sending back an empty bottle.

The word "empty" in the tank number could be the name of a nitrogen cylinder for bookwork. You see ... when it comes to those high pressure bottles, empty doesn't mean empty.

Here's the deal. The cylinders are used until the pressure drops to 140. Once the pressure drops that low, there aren't enough PSI left in the bottle to jack up the nitrogen pressure in a weapon. So the bottle is called empty and from then on it's to be treated like an empty cylinder.



Just because that pressure goes down to 140 PSI is no reason to open the valve and let the rest out. Keep what pressure you've got because those bottles should always have at least 140 PSI in them. That's to keep the bottle's inside in top shape by keeping out all moisture.

Your Ordnance support team will return empty bottles to one of two places—whichever is closer:

**Boston Arsenal, Watertown, N. J., or
MC, Fairchild Depot, Tuscom, Wash**

Most of those gas cylinders belong to the Engineers, but you want to remember that those nitrogen bottles are the property of Ordnance. And Ordnance wants 'em back soon's they're empty—down to 140 PSI, that is—so they can refill 'em and get 'em back to you.

It's easy enough to spot a high-pressure nitrogen gas cylinder. Here are the clues:

Clue 1. The letters and numbers "HNP" are stamped on top of the cylinder.

Clue 2. Three black bands are painted around the cylinder. At least the bands appear to be on the cylinder.

Clue 3. The cylinder is about 12 inches in diameter and 57 inches from top to bottom.

Clue 4. The cylinder is painted gray. Don't forget, tho, other nitrogen bottles are painted the same color.



When the clues add up to a high-pressure nitrogen bottle . . . give it the pressure gauge treatment. If the reading shows 1800 PSI or less, the cylinder goes out back for refilling as soon as possible. Other workers might be caught with their nitrogen demand the bottle just 1 second or so later as they're at the "empty" stage.



BE CAREFUL! Don't put it in the shop.

"High-pressure nitrogen cylinders will be issued on an exchange basis only. A quantity of empty nitrogen cylinders must be returned for the empty point in order to obtain an equal quantity of filled cylinders."



The Big things to remember are:

1. Keep your transmission in as high a gear as possible—control, not with safety.

2. Avoid jerky shifts and sudden changes of direction... that to keep your forces under control.



There are three natural FORCES working on your truck... stick to it to get them working for you... under your control, sure!

GRAVITY

WIND



THESE ARE THE
"FORCES" IN ACTION

GRAVITY, WEIGHT, OR GWP



GRAVITY AND SURFACE DEPENDING UPON THE ANGLE OF ROAD,
GWP FORMS THE "FORCES" AGAINST IT.





Good idea to lay back
and let the truck
ahead make it first to
avoid getting
into a tailgating
spot.



Watch that shift... particularly the
downshift. It can break your grip on the
road. Make each shift as smooth as
possible.



WELL, ABOUT THE THING
THAT YOU HAVE TO DO
TO HOLD THE CAR ON
A SLOPE, THERE'S A LOT
TO YOUR OWN DISCRETION
ABOUT HOW MUCH YOU WANT

Downhill... The same idea applies
only uphill... here you must stay
out heavily leaning... picking up
speed G-T-A-D-A-L-L-Y.

When you're on a dip road you can shift down to as low a gear as you like,
going down in that gear using your engine as a brake... But an ICE re-
minds that this engine 'holding back' your wheels is applying force to 'turn
just as brakes do. If this holding force weakens your road grip, you'll slide...
If you feel your truck start to slide—speed up your engine until your wheels
are not sliding... I see, if you have
steering control, even if you can't
stop, you can at least pick your spot
to leave the road or stop far in a
'safe' or unpopulated. If you're go-
ing to take you best shot must use
your brakes to slow up... give
your brake pedal a series of light,
easy taps.

You should hit bottom as fast
as you safely can... so you'll
have maximum bar the road
kill.

REMEMBER IF
THE DOWNHILL
FORCE IS GREATER
THAN THE UPRIGHT



WHEELS
IF THE
UPRIGHT
FORCE IS
GREATER
THAN THE
DOWNHILL
FORCE

...THE CAR...

Downhill, too,
you best give the
truck ahead plenty
of distance... to avoid
piling into him in case
he's going slower than you.
Timing your brakes now might make you slide.



Get going—don't let your speed let you get around a curve... then let it go, you'll pick up speed on a straightaway.

Watch your speed when you approach a stop—bring on your throttle, and use the holding power of your engine to slow you down. This gives you steady "road grip."

TAKE-OFFS



Transmissions are made to give you **smooth** shifts. A jolt up or down shift may break your grip on the road.



SWAP REGULATORS?

Dear Half-Mast:

Are the generator regulators interchangeable on the A-series vehicles?

M. R. H.

Dear M. R. H.,

Yes, for all practical purposes, they are. You'll encounter slight differences in the mountings, but they'll give you no trouble.

To replace your Delco-Remy regulator with an Auto-Lite, you install the four mounting cushions for the Auto-Lite regulator, P/N 2526-157-4921 and the four ground straps, P/N 4156-157-4963 directly on the firewall using the original mounting holes. Then set on your regulator.



The other way around, to mount a Delco-Remy where an Auto-Lite came off, you remove the mounting cushions and ground straps from the bracket, and then put on the Delco regulator with its grounding straps, P/N 2526-157-4966 attached.

You see how it is, the Auto-Lite has water-soluble cushions under it, while the Delco-Remy has its shock absorption built into it. But electrically, they'll give you the same results.

Very truly yours, *Raymond M. Smith*

Raymond M. Smith

Dear Hal/Alast,

What am I gonna do? I've been getting my head off, telling these guys not to paint the valve cover tanks, rocker arm covers and cylinder blocks of their engines. They say—water is leaks proof—and they've gonna do it. And, with authority, am I gonna shut 'em up 'cos?

Give me a hand. I know that with paint on 'em, that engine temperature will rise.



REGS A. K. S.

Dear Migs A. K. S.,

You're right — 100 per cent. Only trouble is that the authority you're looking for is in a dated reference manual, that you can find it to paint around valve tops.

Round up a copy of THE B-1051 (Doc 42)—within your Ordnance map

post will lead you there. Turn to page 147—and there it right under the eyes of the guys doing the painting. This paragraph says:

"Engines received in an unpainted condition must remain in that condition. Paint will frequently impair the heat conductivity of metal and should not be applied to engine unless it is the manufacturer's policy to do so."

If that isn't enough, you can continue:

"In-line and radial engines should ordinarily be painted or repainted only when removed from vehicles for rebuild, and not when in the vehicle. Paint in-line engines with one coat of heat resisting enamel with approximately 3 per cent synthetic thinner."

This should be enough to squelch any painting of those engines and associated parts.

Hal/Alast

RELAY THAT RELAY

Dear Hal/Alast,

I keep seeing water in the starter and master relays on my B-1051 tanks. Could you tell me whether they freeze up on me. What do I do about it?

Sp 7 M. S. T.

Dear Specialist M. S. T.,

First, go look at the number plate on the rear hull plate of your tank. About 18 inches above the right-handing eye 1. See if the number "41" has been stamped

unit. Now, remember that the original Bendix relay, PSM 1940-702-0718 or GE relay, Delc. No. 6114-1251961, has been replaced by a Capier-Hammer relay, PSM 1940-708-1403. If yours hasn't been stamped, look inside. The Capier-Hammer is in a black box. Happens your relay hasn't been changed, change 'em. Remove Bendix and GE relays to stock for use as master relays.

Now, to prevent leakage into a Bendix relay (your master relay), you need tighten the cable gland nut, and then take some sealing compound, rubber, GE, PSM 1940-154-01 14, and build up a flad between the cable and the nut. This prevents water collecting in the depression there and seeping down into the relay.

GE 1940-154-01 14
RUBBER

GE
1940-154-01 14



In the Capier-Hammer relay, the problem is tougher. See difference, and they'll either give you new gaskets, bushes, rollers, 4/16 size, larger and lower bush relay lead PSM 1940-030-40 14, to put into your frame, or they'll put 'em in for you. If I was doing it, I'd use non-hardening putty around PSM 1940-140-7001 to seal 'em. Then grade up the cable fitting wires as for the Bendix master relay.

PSM 1940-030-40 14
4/16" AND NEW
GASKETS



Then, when your relay isn't as waterproof as you can make 'em, get after the bugs as keep water out of the engine compartment as much as possible. Be cleaning with a pressure hose.

Half-Mast

CHEMICAL



How To Live With your
ACID Lead-Acid Battery...

When The Mercury Drops



The weather's special needs are few and simple, but there are some things you've got to keep in mind.

Without proper cold-weather care, she'll never warm up for you.

Magneto-Air Pump

When you're operating in a heavy class, your first concern is your magneto-air pump.



The leather plunger in the pump comes out and is replaced with the rubber plunger when you start around in the open parts bin.

But, watch yourself here.



When you stop plugging remember the plunger support has to make an about face. If one finger is too it around, it can't support the rubber plunger—and the pump'll be real to make.

Combustion Chamber Warm-Up

One shift job you need the pistons turned in the open parts bin. And you have to pull out the engine head assembly.



Tip the pistons's side to position. Push a screw in the side and push the piston pistons into the combustion chamber.



If you're short out of petroleum, or if you're looking a hard shot, wait a heartbeat—start up a gasoline well pump. It looks like the deal, but first and complete heating enough the way here—this... don't need it, but handle that you could say might come fully.



Put the cap close to the engine head opening and light a match to it. But keep your face away from that opening.

When the cap burns out, replace the engine head assembly.



Jump-Starting 1001 Help



When you have to check the engine—here's how you go about it.

Make sure that all fuel valves are open.



Close off the water section of the engine head with a cloth, or your gloved hand.



Operate the starting air pump until the engine starts, then remove the control.

Break 40-Accurate System



A 40-Accurate system has inside the pressure system. If it's allowed to become up to, means trouble for your smaller system. The starting operation is extremely cold temperatures, the pressure system must be drained every 10 minutes like this:

Open the pressure valve directly off the cap. When it's done, turn, close the pressure light.



Overpass the water side of the structure to the pipe, use to remove moisture to the air valve. If the test begins, you'll know to take it off and get it warmed up until it's completely thawed.

Next remove the drain plug in the automatic shut-off valve and put the plug back right after draining.



In case ice forms inside the pressure hose, you'll have to tie the pressure gauge reading if it goes up with the outside float, you'll have to mark the hose with a leading number to break up the ice block and force it into the drain.

The Right Mixture Counts



In theory, always use radiator water and fog oil with a valve.

Temperature	COOLANT	IF 3 or 4
0 to -15°F	80%	80%
-15 to -40°F	40%	60%

JP 3—FSA 91 30-375-3100 650 gal

JP 4—FSA 91 30-375-3100 650 gal

JP 1 & JP 2 aren't available!



For the hole in a 15-gallon drum, push a wooden paddle into the top bung hole, and air goes up and good.

Joan Pressurizing

At below 12°F even a full drum of fog oil needs to be pressurized by hand before you can get the weather started. Here's how you go about it.



Remove the end of the air pump hose from the fogger assembly and make it into the manual pressurizing hose.



Remove the cap from the air valve in the rear of the oil pressurizing valve. . .



...and attach the other end of the manual pressurizing hose to the air valve.



Then operate the air pump until the pressure gauge shows there's a pressure of at least three pounds per square inch in the fog oil drum.



Next, you disconnect the manual pressurizing hose from the rear of the oil pressurizing valve.



Put the valve cog back on. Increase the manual generating flow from the air pump hose and secure the air pump hose back onto the regulator assembly.

Now you can store the manual generating flow in the tank box.



Last, but not least, when the temperature gets below 32°F, use only winter-grade gasoline (PGV #155-126-0088) for 11 gals. if at all possible.

Carrier — Hot Carrier

You may consider your protective mask as so much extra baggage, but it's not such a good idea to treat it that way.

In the first place, it has to be in working condition at all times. That means you should treat it like your life depended upon it. Same time it might.

And you've got a carrier—a carrier for the protective mask and not for radios, books, cigarettes, or what have you. When you load these things on top of your mask you're asking for trouble. It's these things that are the sleepers. They can smother or crush the lens, dent the regulator, or leave



particles that would keep your mask from fitting tight. And junk stuffed in the carrier can keep you from getting to your mask in a hurry in an emergency.

Carry only the things authorized to go in the carrier—the anti-ditch set, water-proofing bag, protection and treatment set, and the protective mask.

When It Comes To "Cherrypickers" ...



IT'S THE **PM** THAT COUNTS

"What gives, boys?"

A guy pulls all his checks ... follows the LO to the last drop ... and tells me his DO 110 like his life depends on it.

Like most guys, though, that MC 10 Federal Crane (Cherrypicker) still wants more. It wants checks on cables, boom, sheaves, chains, hydraulic hoses and even power steering.

So what?

There's no sweat, guys, when you make this checklist part of the DO 110. Clip it, glue it or nail it to the "trip ticket." It'll help you make sure that the MC 10 takes its load anywhere, any time.

	BEFORE OPERATION	DURING OPERATION	AFTER OPERATION
Hoisting System—			
Boom and Extension—			
Chains—			
Lifting Hook—			
Sheaves—			
Cables—			
Cylinders—			
Leads—			
Control System—			

Before Operations

HYDRAU SYSTEM

Test for leaks and be sure the hydraulic pressure is holding steady to the rated level for hydraulic oil leaks at lines, pump and cylinder.



BOOM AND BOOM EXTENSION



Be sure the boom extension lock pins are in place and held tight by nuts and safety locks.

CHAINS

Check that chain drive chains for lifting have 100%.



and test the chain driving chain for movement.



Keep them open for links in the chain and in line.



LIFTING HOOK



Be sure it's not jammed against the boom, and its release is working freely.

HYDRAULICS

The load-cable counter-rotates shafts for drum and landing freely.

Turns for the lower- and upper drums.

The tower's shaft split liberates much, or takes slack, only to permit free travel of the drums.

CABLE

Should always be well-lubed (DOT), kept in straight line from hoist to drums, and avoiding kinks on the spot.

CYLINDERS

Look, look, look! Look for leaks and hope you don't find any. Tell for help when you do.



TANKS

Check hydraulic tanks for proper level. Look over supplies in store and check for leaks at the hydraulic pumps. Check on those at them: load lines, steering and swing cylinders, and steering "booms." Also look at the drive belt on the pumps to make sure they're adjusted correctly.





CONTROL UPERS

All boost and holding control levers should respond easily. Control levers should return to neutral position by themselves.

One rule that's always been and always will remain, is: whenever you're got tubing on the brain, keep one eye on the EO and the other on the hour-meter.

Might have an eyeball on one or two color Before-Operations checks that will make life safer and easier on operator and crane:

1. Look over the tires for wear and sharp objects. They carry the full weight of the load and have to be in top form. When checking tire pressure, pump in 100 to 120 pounds in the big drive wheels and 80 to 90 pounds in the steering wheels.
2. Check the standard hoses needed to slide load in the crane. Ought to be at least three feet:

- ✓ SF 51 "Operator Report of Vehicle Accident"
- ✓ EO 130 "Vehicle and Equipment Operation Record"
- ✓ SF 45 "Place Vehicle Operator's Identification Card"
- ✓ DA 401 "Work Sheet for Materials Handling Equipment"

During Operations

While the crane is operating, listen for rumbles, knocks, squeals, hums and other noises that add up to one thing...TROUBLE.

Keep the engine "watched" overtime to pick up the signs of worn-out parts, like pistons, valves or clutch. Also, keep those red-labeled eyes peeled for fuel vapor rising from any leak in the fuel system.

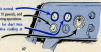
Take a glance at the instruments on the panel from all the topography told to watch over:

TEMPERATURE GAGE—50 degrees is normal.

OIL PRESSURE—should read at least 10 pounds, and 4 to 11 pounds normal pressure during operation.

WATER—a high positive charge but don't lose the meter. Has a slight positive reading at all times.

WATER—to see if it's working.



Whenever you're wheeling that litter, of course, the brakes have to be ready to make with the quick stop. The brake pedal should have no less than 1/2-in. play. The hand brake should hold the load on a maximum grade with one-third meter travel in reserve.

Operation Tips For Snowy Conditions

Machine's wheels take life more the moving wheels faster than hitting a curb or roll or an angle. Better, they move on-poly boards for the litter and mud piles.

So next time you're lugging a machine around the branches or assembly area or a Mike die for anything, anywhere, avoid curbs, rolls or any other obstacles.

Your picker'll be smaller than a TV car whose last show dropped if you ride around a site that's cluttered with gopher holes, ditches, mud flats or sandy soil.

Those two steering wheels tend to give you a bad start on rough, unimproved ground. If you get stuck, call for a tow. Try to get out under your own power and the oil in the fluid coupling'll wear out and have not the work.

So try to keep the MC 18 on paved or well-packed surfaces. Otherwise, moving is going to be mighty rough if not impossible.

MWD 18-1894-A2 (17 July 84) leaves the steering steel, but machine's preserves the gear better than proper use. Spade's about 1894's, your Chippewas should also be getting MWD 18-1894-A2, which backs up the wheel. Your support shop's level's road is needed to apply these.

When traveling, keep the boom low and out to range with others, wires, trees and other lines. Lower the boom every time. And when it comes time to go down a ramp or hill, you'll end up making it the start if you try to back down. Head down a hill for break-up operation.

Keep an eye on that hour-meter on the instrument panel. It's the best guide to follow for pulling maintenance service. Since the Picker has no speedometer, the hour-meter is the only guide there is for time and distance.



The red lights really flash when power PM isn't pulled in the down-slopeable path. 1894's not just back in to help any but the little other.

If it does not in, one will get you a hundred that the device can't crawl from side to side as the cable is cracked in. So what happens? You ground it! The cable winds up on only one part of the spool and before you can pull "stop" the cable piles up and puts you out of operation.

A little grease on that pin will save the day.

Lookin' at things the other way, some operations are entirely MC... bad... dangerous... slow... etc., etc.

Primer:

Unravel the cable when the hook and block already have reached the ground or load. When that happens, the cable bows out or gets stretched and you end up with a level of steel squealoid. Or...

Ramming the head of the boom into the boom itself. This ruins all kinds of buckles on the cable and leads to an early deadline.

Further Primer:

Did you ever see one of those pitman machines like an over-age dog to lift a load that should be easy but isn't because the Joe at the wheel is cheater? Boy power!

What happens—and shouldn't—is that the operator tries to use the boom elevating cylinder to lift the load to the right height. This happens when the hook is up as high as it'll go, and the load has to go higher still.

Only a Joe with 20 years experience can control the load with the elevating cylinder. And he wouldn't do it anyway, because he knows the stroke is put on the elevating cylinder hydraulic pump. This little cylinder is belt-driven, and no Joe is gonna take that punishment for long.

When the Joe gives up the hook, there comes the boom, cradle, body and all. Kibboon! So keep the boom at a 45-degree angle every time. That gives you enough height and lifting power to lift and swing a minute, boy long, or what have you.

After Operations

Come time to shut down for the day, fill out DED 110 including the check points on the boom, controls, doors, etc. Fill up the gas tank—no percent contamination of molecules. And check with the right people when you find anything wrong during the operation of the crane.



The list of operators will keep you on the ball when the time comes to check tanks, reserves and systems.

Air Cleaner	1 qt
Breaker Monitor Cylinder	1 qt
Greasebox	5 qt
Differential, drive axle	
housing	10 qt
Fluid coupling reservoir	12 qt
Hydraulic tank	30 gal
Hydraulic systems	40 gal
Oil Filter	1 qt
Steering gear	1 qt
Keep 'em on the ball is the last kind of PM.	





EVERYONE KNOWS THE STORY ABOUT THE BLIND AND THE THREE BEARS. BUT IT'S AMAZING HOW MANY GOVERNMENT LEADS THIS ONE ABOUT THE THREE HANDS—THE **LITTLE** HAND—THE **MIDDLE**—THE **BIG** HAND—AND THE **800** HAND ON THE **8000** HOUR METER.

Good maintenance of Engineer equipment calls for doing the job right and doing it at the right time. On most of us, the hour meter tells you the right time for maintenance.

Naturally, if you read an hour meter wrong, you won't be doing PM at the right time. Operators and maintenance records show that goods were made because somebody read an hour meter wrong—the clock's hour meter so read it in the first place.

Take an extra look when you read the readings. And be sure everyone in the work knows the way about the little hand, the middle-size hand, and the big hand.

Reading an hour meter is easy to tell, lay close on your watch.

The read little hand in the upper left revolves once around and tells you how many times the hour meter is working; and all pressure is up. (500 pressure starts the hour meter on and off.) So if the read little hand has its working when the engine's running, something needs to be fixed.

When you read the 8000 (little) and 100 (middle-size) hands, use the number the hand is on or the number directly behind it. Naturally, if the hands are right inside on No. 2, your reading is 8000 on the little hand and 200 on the middle-size hand. If the hands are between 2 and 3, your reading is still 8000 and 200. Between 3 and 4, your reading is 8000 and 300, etc.



Remember that the little hand is the 8000 hand.

The little hand gives you a 100-hour reading on the 8000, each 100.

The middle-size hand is the 100-hour indicator and read with the little.

TAKE A LOOK AT THIS ONE, WE SAY.



The little hand is between 1 and 2, so the reading is 8,000

The middle-size hand is between 2 and 3, so the reading is 200

The big hand is pointing at the eighth mark past No. 4, so the hour reading is 4

Adding all the figures together gives us an hour meter reading of 8,204

Be sure you have the story of the three hands down pat. And take an extra look on every hour meter reading to double-check.

THE ONE AND ONLY OIL



Dear Sgt. Dwyer,

Our LG 1-2100 and TM 2-1000 are the *file compressor*, *vacuum and balance (VB)*, *Cooper's Vacuum DTE 1-01*, or equivalent. I tried equalizing these with and couldn't get them. Can you tell me how to get them—or their equivalents?

Sgt F. G.

Fort Dix, N. J.

Dear Specialist F. G.,

These Solenoid and Cooper's Vacuum Oil aren't in the supply system. But here's the equivalent. It's the only type of oil you should use in the file compressor, vacuum and force-feed lubricance.

Lubricating Oil, special purpose

12" to 18" (18-oz)
100" to 21" (18-oz)

CA 115A-211-410
CA 115A-211-410
CA 115A-211-410
CA 115A-211-410

1-gal drum
55-gal drum
1-gal drum
11-gal drum

Search "Oil's Oil Right", PG 45, page 45. Things have changed since then.

Sgt Dwyer

THIS COVER WILL HELP

Dear Sgt. Dwyer,

Our outfit has the *Aluma Guarded* crane, which is equipped with outriggers. When it's not being used the outriggers are taken off and stored. Even though the outrigger is removed, the crane jacks are left without any cover or protection. There's no way of keeping them from working down, either.

Now's a fix we've dreamed up. We took an old piece of scrap pipe and cut it into lengths so it would cover the threads of the crane jacks when they are removed all the way up—till there isn't any thread showing at the bottom of the outrigger. Then we welded a cover on the top of the pipe. Next we drilled a hole about 1/2 inch from the top to make a 1/4-inch hole. We also drilled a small hole in the hole to make a safety pin.



All we have to do is slip the cover over the top of the jack. Line up the hole in the cover with the hole in the jack, and push the bolt through. It's kept in place with the safety pin.

This keeps the cover jacks clean and is a big help in keeping them from rusting and getting hung-up.

Sgt. Dennis M. Gault
Hickory, Ga.



WELD COVER JACK ...

Dear Specialized Co.,

Good day. You can just buy and take it off in a couple seconds and it'll do the job.

Sgt. Dwyer

Cleaning rusty crane clutches and drums...



GRAPHITE'S NOT RIGHT

Dear Sgt. Dwyer,

Is it OK to use graphite to clean crane clutches and drums of rust? I've used it and seen many other crane operators do the same. It really gives the drum a beautiful shining finish, but does it do any harm to the clutch?

Sgt. E. J. N., Jr.

Dear Sgt. E. J. N.,

Buy a big bag of graphite for crane clutches and drums. As you say, it does give the drum a shiny finish. But graphite is a dry lubricant, and it sticks with the clutch and makes it slip, even when the clutch is adjusted right. The ordinary guy will tighten a clutch when it slips. You can see what happens. The tightening and slipping and tightening again routine will get you a burn-up clutch.

So don't use graphite—or any cleaner that has an oil base.

When the rust isn't too bad, knock it up by running the crane a little. Then blow the rust out with compressed air.

If that doesn't get it off, take the thing out and use a fine emery cloth on it.

Sgt. Dwyer

YOU, TOO, CAN BE A...

WIZARD OF OZ



When it comes to getting good reproduction from an ammoniac-printer machine, there's only one way to do the job right. With a little touch here and some know-how there, you can really be Wizard of the Oz.

Take the Oiled Servant-Inner, which is the machine most often here. It needs to be clean and properly adjusted to run out good work.

CLEANING

Every day, clean the inside of the printing cylinder. Use any commercial window-cleaning solution that might be handy. Or, to make your own, mix one part ammonia with ten parts water. That cylinder has no sparkle like the ordinary room windows.

A dirty cylinder doesn't pass the right amount of light from the lamp. Then you guess make up for lack of exposure with slower printing belt speed. That's no good.

That also goes for the inside of the cylinder. Usually, you clean it once a week. But clean it as often as it gets dirty—every day, if necessary. The lamp-holder assembly and cooling duct have no cover so you can clean the inside of the cylinder properly. Disassemble her this way:



Turn the lamp-holder assembly inside out at each end. It's easier than either way.



...and pull her out.



Hold the mounting sheet ring out of the way and pull the lamp-holder assembly out either side of the machine.



Caution: Don't touch deeply until it's easy to break, and make like a cat's paw when you handle the lamp. Fingernails are equipped for it.



On each end of the mounting sheet, take out the three screws that hold the sheet to the ceiling, but allow. Roll the sheet up either end of the machine.



Wipe yourself a cleaning solution of one part ammonia to 10 parts water. Wash out the inside of the cylinder with that long-handled scrub that comes with the machine. After giving it a good scrubbing, wrap some clean, dry cloth around the scrub and wipe the cylinder dry. Also wipe the lamp and reflector with a clean, dry cloth.



Part of the everyday cleaning job is emptying the waste container. Forget to empty it, and your prints will lack enough water to float in bath.



And remember to fill the automatic supply bottle every day. If the machine runs out of prints, the run is damaged by continuing in the development tank.



SWIRLING PRINTS



Every five days, sprinkle a little powder on the swirling plates. Keep it from getting gritty.

Wash the swirling plates with soap and water every week. Adjust it so it's not too loose or too tight.



PAPER

The chemically treated paper used in the brominium is the photographic paper and film—it won't work right if it's too old. Every package of paper has an expiration date on it so you can tell when the chemicals have passed use like a flat tire.

Use the oldest paper you have first—providing it's still good, usable. When new paper comes in, put it on the bottom of the stack. Keep using the current stuff

firm, and you'll wind up with old paper that has to be tossed in the ash can.

Each package of paper is labeled to tell you what color the paper is and whether the speed is microrapid, rapid, or standard. The three-digit numbers on the label are coded to tell you about the same thing, only they give more information.

The first number of the three digits tells you the color of one side of the standard paper. Here's the color code:

1. BLACK	4. WHITE
2. BLUE	1. YELLOW OR ORANGE
3. RED	2. GREEN



The second (middle) number tells you if the other side of the paper is standard. If it is, the first number is repeated. If it isn't, the second number is zero.

The third number gives you a general idea of how fast the belt speed should be. The numbers run from one to 10. (The zero stands for 10, or maximum speed). The other numbers are graduated down, so that five would mean half as fast as zero. For the Streamliner a third digit of zero on the paper means you'd run it at full speed, or about 10 feet per minute.

Again, these numbers are only a general guide. How fast you run the belt depends on how new and how good your printing lamp is, how translucent or transparent your original is, etc.

With every new original, you've gotta experiment a little to get just the right speed. Make a test run before going into mass production. From it, you can get a good idea of what the belt speed should be. Once you've got it figured out for a certain numbered paper on a machine, other paper speeds can be figured easier and quicker for the same machine.

MACHINE PLACEMENT

The 3000 was printing lamp is the Streamliner works best in normal room temperatures. Too much cold is tough on it. So put your Streamliner in place where it's away from cold walls, out of drafts, etc. Keep her off power supply lines that service heavy machines like welders, grinders, lathes, etc.

Also place her where you have good exhaust. There shouldn't be more than 10 feet of exhaust pipe. Use elbows, and you need a hood. And remember ... each elbow in the pipe equals 10 feet of straight pipe. If your eyes are watering like a porter in an auto factory, count your elbows and give the exhaust system a good check. Also check the venting thru the automatic leak.



on both sides of the paper—frontwards on the oppositely side and backwards on the carbon side. That makes for better developing on the chemically-treated paper, and gives a better reproduction.

Simultaneous reproduction's not like making pictures or printing them when it comes to developing. With the Simultaneous, there is no such thing as over-developing. So make sure you're getting full development and don't worry about overdoing it.

Here's an easy way to see if you're getting full development.

1. Run a piece of unexposed paper through the developing stage.



2. Now, turn it in half and run half of it through the developing stage again. If the disc you run through later comes out darker—meaning more developed—then the piece you ran through once, you're getting under-developing.



That's caused by one or several of these things: not little amounts (not enough fumes) . . . too much ammonia (makes the way longer and need runs down on them) . . . low temperature . . . dirty tray longer and (rub with sandpaper or steel wool).

If all those things check out OK, the cylinder's dirty (not enough exposure), or the lamp's shot—or really needs you.

SHUTDOWN

Come time to break off, turn the shutdown switch around to a full 90 minutes on the disk. That'll let the lamp cool off slow and easy, and shut the machine off automatically. Keep the belt moving during cool-off. Never shut off the ammonia completely any time the machine's running—even if it's only for warm-up or cool-off.

It doesn't take much to run some good reproductions on your Oxy-Bel Simultaneous. Keep her adjusted, keep her clean, operate her right, and she'll do a good job for you.



CALL THE RIGHT PLAY



No matter how good a quarterback is, he's gotta have a little room in the backfield to play around in. And when things get too crowded back there, anything can happen.

Same thing applies to the clutch of your Cat D6's cable-control unit. It's sorta the quarterback for the operation, and it's gotta have some free-play to keep things going in the right direction. Crowded is too much and there can be some violent collisions, with maybe a bent universal joint and gear teeth scattered all over the place.

Look what happens when you operate the No. 12 Cat cable-control unit on a D6. You've got about 5000 pounds of clutch blade going down... and a 1,800-RPM engine with horse's 150 horses pulling up.

When they meet and there's not enough play in that cable-control clutch, the sound you'll hear could mean toothless gears and a real gear universal coupling—or a horrendous clunk or a broken rattle.

This can happen because the same cable-control lever operates the brake and the clutch. They're supposed to work as a team... but wrong adjust.ments make them work against each other.

The brakes on these units help themselves, too. They're self-adjusting type... that means the brake's always on when the cable-control lever is in neutral.

When you engage the clutch, the drive blade is always raised. When the blade's as high as you want it, you put the control lever in neutral. The brake takes over and holds the blade where you want it.

To lower the blade, you move the control lever to the brake release position, then back to neutral when the blade's where you want it.



With the blade and the clutch being operated by the same control lever, you need at least four inches of free movement between the neutral and engaged positions. When you don't have that much play and you put the unit in neutral, you also engage the clutch at the wrong time. That's when the rattle starts. The brake and the clutch work against each other.

Trouble is that any wear on the brake throws the cable-control lever even

which by moving down the free play. Then, when you release the cable lever, your rig's gears take a loading.

Checking the clutch and brake is part of the starting-operation preventive maintenance by the operator. He's the guy who can creep on the trailer before it starts. You can tell by the feel how much play you have in the control levers. If you don't have enough, then the clutch and the brake need adjustment. The operator or the mechanic—or both—can do the job.

First—before you grab a wrench: Don't try to make any adjustments with the motor running or the blade raised. It could turn out to be a real operation ... for you and your equipment.

To adjust the brake,



and allows the clutch lever spring to pull the clutch lever up to proper position.



Then you transfer the adjusting nut until the "H" or "V" mark on the brake lever is lined up with the edge of the brake lever above the roller. Tighten the lock nut and, as far as the brake's concern, your job's done.

Now, if the brake doesn't hold when

you make the adjustment, tighten the adjusting nut on the brake spring. You turn 'er just tight enough to hold the brake ... otherwise you'll have to see some extra work when you're pushing the controls.



It's no secret to adjust the clutch. You loosen the clamp bolt and the lock plate, and swing the plate to one side. You turn the drum down until you have 1 1/2 inches of play between the neutral and engaged positions. That will come to at least four inches at the top of the operator's control lever.



You can have more than four inches of play ... but you shouldn't have less.

For the No. 24 unit, the direction you turn the drum down depends on the serial number. To tighten the clutch on control units numbered 8D1744 and above ... you turn the drum counter-clockwise. If it's numbered before 8D1744, then the drum should's gotta be turned clockwise.

When you've got that free play just right, all you gotta do is position and tighten the lock plate and clamp bolt. And you're in business again.

This five-page story goes to any sub-compact or pre-compact unit you're operating. Check your adjustment against the TR or operator's manual to make sure it's right.

CONTRIBUTIONS



Dear Editor,

You ever notice the way water collects on top of truck and trailer tarps after a rain? You can see why—the tarps have a sag in 'em because the horns are placed wide apart.

We've come up with an idea for keeping rain water from collecting on these tarps by giving the tarps more of a framework. This way, when the tarp is placed over the horns it won't sag, and water won't collect in puddles.

All we do is get ourselves a few slats of lumber and set 'em lengthwise in the vehicle's bed, right on top of the horns—space 'em about a foot apart. To the slats is the horns to stop 'em from moving—there's no need, then, to drill any holes for screws or nail anything down.

Any scrap wood, like from salvage boxes, will do the trick. The wood should be about 1½ inch thick and 4½ inches wide. Its length, of course, depends on which vehicle you're putting it on.



One more thing—before putting the wood on top of your horns and putting the tarp over 'em, plane the edges and ends of the wood so the tarps won't be scraping on any rough edges.

What do you think?

The Gang
Abandon Paving Ground, Md.

(Ed Note—Many a new tarp has been pulled and tied tight because of its sag. Then they'd stretch tight and either split or rip. Your old method of keeping it tight will give these tarps a new lease on life.)

HANDY HOEN GUARD

Dear Editor,

Here are some pictures of a horn guard we are putting on all our M48 tanks. Too many big boys were hitting the horns off when the crew climbed around the tank. As you can see, this is just a length of 1/4 x 1/4-in. strap iron welded



to the headlight guard and to an anchoring plate that bolts to the bracket. Real simple, and we haven't lost a horn since.

Sgt Harold E. Rostrow
42nd Tank Bn.

(Ed Note—Those lights and horns were never meant to be used as a jinx, but if you can't knock the boys in deep from placing their dice (D's) on that spot, then maybe you can get permission of your Ordnance officer for the extra guard.)

SLAVE NOTE

Dear Editor,

Here's a note we are mounting close to the slave receptacle in our tank's id vehicles—all except the M42 self-propelled twin slams.



We have found that the crew occasionally forgets the current during pre-charge and we've had some electrical system failures as a result of attempting to start a tank with the master switch turned on. Since these tanks have been installed we've had no further troubles in that particular respect.

DCMT T. Wiener
Camp Drum, New York

(Ed Note—Sure should help. And on any starting operation another thing that has to be checked as carefully is to make sure the slave cable wasn't made with its polarity reversed. Now ones should always be checked out before they're used for starting.)

FORM 461 OVERPRINT

Dear Sirs,

The 95th Infantry Battalion at Fort Rucker has made use of DA Form 461 real simple.

We cut a micrograph stencil which fits the form for each side of it. Counting the forms through the machine automatically fills in all those blanks which



are the same for all wheeled vehicles. It also fits the non-applicable blocks, adds the necessary instructions about current TV's, and provides typed signature space for the mechanic and owner/lessee.

This is real handy, saves time, and makes for neater forms with nothing forgotten or lost.

CWO Gilbert W. Roberts
Fort Rucker, Alabama

Connie Radd's BRIEFS



M59 ramp seats

You men maintaining the M59 YAG's can now get the ramp seats when you need a replacement. You'll find them in Ord 7 346, 0080 (see ST) under FSN 2510-003-0424 (Ord Stock No. 0080-004800).

Who's buying?

10% of them not available in the supply system are authorized for local purchase. But that doesn't mean the wing unit does the buying. Instead look! The right way to get these items is by making your request with us in your shopping. (A Form 210-1 [Index of Administrative Publications] lists each tech journal's procurement regulations in the 00715-series.

Plastic in the rain

Keep an operator or driver warm like earlier by using plastic bags to protect manuals and other small items. Heat them you get something in a plastic bag, hang on to the bag. It's strong, transparent, easy to handle... just the thing for keeping TMs, UFs, accident forms, etc. clean and dry.

Can it

Put a No. 10 can over the exhaust stacks on your M50 self-propelled howitzer when you're washing it, and you'll keep water out of the engine and machining systems. You can get a can like that from the kitchen any time.

Valve...at 1 o'clock

Just a reminder that when you mount your Jeep's spare tire, the right position for that valve stem is about 1 o'clock, pointing downward. This keeps water and dirt from collecting either in the valve stem or around the inside of the rim where the valve comes through. That's right... valve at 1 o'clock.

Marker light mixes

Ever drive the blackest marker light (SA 4128-774-2414 for your Jeep and then run up a spot because you got the tag light for the 2 1/2-ton's? Try FSN 4000-773-0099 (01244). Before it or not, that's the time you.



*DISCONNECT BATTERY GROUND STRAPS BEFORE WORKING ON OR AROUND VEHICLE ELECTRICAL SYSTEMS