

Issue 86

PS

1940 Series

THE
PREVENTIVE
MAINTENANCE
MONTHLY

Why would
you let a
helicopter
land on
the ground?

Why not
let it land
on the ground?



60
ESME

INTRODUCING



YOUR NEW



Give her the good eye and a big welcome. She's everybody's sweetheart and will be with us for awhile to come. Her full name's "Maintenance of Engine Equipment", but she's less better known as TM 5-505 (Aug 1959).



No, man, get with it.

This is TM's really rocked. She's the answer to your Engine Maintenance problems. Not only has she got a lot of the same stuff as the old "505", but she has some real important ideas of her own—all new, too.

TM 5-505



GIMME A FRINSTAGE

Like your new A-Q-L organizational PM services. It works out just about the same way as the system you use for your Ordnance equipment. As a matter of fact, you can use the same DA Form 460 for both your Engine and Ordnance equipment.

Don't be so
LETTER IT LOOKS
LIKE THIS:



- A**—DAILY SERVICES
- Q**—QUARTERLY SERVICES
- L**—LUBRICATION

No more weekly, bi-weekly, monthly or bi-monthly services. Forget them. The whole idea is to get away from over-maintaining your equipment by cutting down the number of times you have to do a scheduled PM service. It also cuts down the wear and tear on the equipment and gives a guy more time for other maintenance chores.

WOW! EVEN
MY MOUTH!



DATE	DESCRIPTION	INITIALS

A SERVICE

BEING HAPPY
AND FEELING GOOD
Following A-Q-L
PROCEDURES



Some units may pull your A service each time you operate the equipment or take over from another operator. This is an unscheduled maintenance service and includes your before- and after-operation services.

You follow the instructions in your guide—TM's, LO's, UP's or model-part manuals—for the services you're supposed to do. You use a DA Form 130 to record your A service on your self-propelled Engine equipment.

THE TRAINING
CONDUCTED, CLEANING
AND PAINT—



For your engine-driven rigs—that are mounted so can't move themselves from place to place—the compressors, generators, rock crushers, etc., you use a new form that's much better suited to this type of Engineer equipment. It's called an Engineer Mechanical Equipment Monthly Operational Record.



Equipment driven by electric motors, including Nilsa elevators, frequency converters, battery chargers, and such get a separate form. It's the United Inspection and Service Record, DA Form 5-54. In addition, a locally produced Form, 448B, as outlined in PS letter 81, is authorized for pulling inspections on Nilsa elevators. Remember: Form 448B is not an official DA Form. Its use was permitted for ALLADCOM units pending formal approval of a suitable check form. Until then, DA Form 5-54 or the 448B may be used for those elevators.

EQUIPMENT OPERATIONAL RECORD	
UNIT: _____	
DATE: _____	
OPERATOR: _____	
1. General description, including make, model, and serial number.	_____
2. Location, including street address, city, state, and zip code.	_____
3. Name of person (other than owner) who is to be notified in the event of an emergency.	_____
4. Name of person (other than owner) who is to be notified in the event of an emergency.	_____
5. Name of person (other than owner) who is to be notified in the event of an emergency.	_____
6. Name of person (other than owner) who is to be notified in the event of an emergency.	_____
7. Name of person (other than owner) who is to be notified in the event of an emergency.	_____
8. Name of person (other than owner) who is to be notified in the event of an emergency.	_____
9. Name of person (other than owner) who is to be notified in the event of an emergency.	_____
10. Name of person (other than owner) who is to be notified in the event of an emergency.	_____



Q SERVICE

The Q service is pulled every three calendar months or after 250 hours of operation—whichever comes first. It's done by your organizational maintenance people, with the operator standing by to lend a hand. The DA Form fill-it card is used to schedule the quarterly service and should be made out one full calendar quarter in advance. Your Q's include all those items that've listed in the weekly, monthly or bi-monthly columns in the TM or multi-part manuals for your equip-

Mileage		Time		Fuel		Oil		Lubricants		Tires		Wash/Wax		Other	
Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End
0	100	0	10	0	10	0	10	0	10	0	10	0	10	0	10
100	200	10	20	10	20	10	20	10	20	10	20	10	20	10	20
200	300	20	30	20	30	20	30	20	30	20	30	20	30	20	30
300	400	30	40	30	40	30	40	30	40	30	40	30	40	30	40
400	500	40	50	40	50	40	50	40	50	40	50	40	50	40	50
500	600	50	60	50	60	50	60	50	60	50	60	50	60	50	60
600	700	60	70	60	70	60	70	60	70	60	70	60	70	60	70
700	800	70	80	70	80	70	80	70	80	70	80	70	80	70	80
800	900	80	90	80	90	80	90	80	90	80	90	80	90	80	90
900	1000	90	100	90	100	90	100	90	100	90	100	90	100	90	100

ment. But, you will use the 4048 4048 to record these services. And, incidentally, like our the 4048 and 4048 shows in the example in TM 5-105, and make it Q. Specialized rigs like your 4048 plant and air conditioning will take their form as shown in their particular parts.

Record a Q on 4048



You change the symbols and the hourly equivalent in the TM's and TM's that don't fit with the Q service when you pull PM or input your rig. You don't change your 4048—your job intervals stay the same.

Course, operating your equipment under rough conditions like extreme heat and cold, or dust and mud means you'll have to pull your Q services more often. Your CO has the green light to cut-down the time between PM services.

I SERVICE

You follow the 4048 for your equipment for all the jobs service you don't usually do at your Q service. You record the major ones on your 4048 Form 4048. You try to make the Q service and your major jobs items come due at the same time. You'll be guided by the hours your machine has been in operation since the last service and the interval shown on your 4048. Like your Q service, you record your I service on your equipment operational record.



LONG TIME NO SERVICE, HOW?

Here, it's a long time between scheduled services, but your supervisor or section chief'll make regular informal inspections to check your first vehicle maintenance. This'll be him checking the work maintenance first hand and then him to the work areas. If deficiencies crop-up during these inspections, you or your crew will correct them right away. If you don't have the OK to do the job, then your unit mechanics or support people will take over from there.



This look-up isn't intended to be a formal inspection and your CO won't go by a specific check-list. It's just to check him to the maintenance job that the operators and equipment section are doing. It also helps him keep tabs on deficiencies that need a special follow-up.



OTHER SPECIAL SERVICES

You'll go by your TM or TR for other special PM services performed at intervals not covered in your A, L, or Q services. That'll include inspection and oil changes of safety frames.

HOW ABOUT SCHEDULING?

Like you're been doing right along, you schedule all mechanical items of Engine equipment over a 5-day week, Monday through Fridays, including holidays. If the service falls on a holiday, does your dealer do the day before or after the holiday?

If your Engine equipment reaches PM hours before the scheduled date for a "Q" service, you pull the service at the earliest opportunity. If you pull them within five work days of a scheduled Quarterly, just ink the scheduled "Q". The "Q" services following stand as you scheduled them.

(Note: The TM says to circle the scheduled "Q" when you pull a Quarterly within five days of a scheduled one, and to make a note of this in the Remarks column. The reason you were to circle the "Q" was to show that the service was not pulled on the next date scheduled. But the new 400 does not have a Remarks column so there is no real need to circle the "Q".)

If the services have to be pulled more than five days before a scheduled "Q", you go ahead and pull the services, then ink a "Q" on the form for the day you pulled them. You mean the next Quarterly date and so schedule from the date you pulled the services.

WHAT ABOUT ACCESSORIES AND ATTACHMENTS?

Ah, now, there's the rub. Here's why. Para 2) (c) tells you to list components of use as end items under the Manufacturer column, and to list the use to which the components belong under the Accessory column. Reading along, you'll find that para 3 (d) tells you to list installed equipment, attachments, etc., in the Accessory column. This works out OK for the old DA Form 400. But, here's where they got you a curve. The new DA Form 400 (1 Aug 84) doesn't have an Accessory column. So, forget about the use. List the major mechanical components in the manufacturer column as end items. As far as attachments are concerned, you

Item No.	Manufacturer	Description	Quantity	Unit Price	Total Price	Remarks
1	John Deere	Engine	1	1000.00	1000.00	
2	John Deere	Transmission	1	500.00	500.00	
3	John Deere	Front End Loader	1	200.00	200.00	
4	John Deere	Rear End Loader	1	200.00	200.00	
5	John Deere	PTO	1	100.00	100.00	
6	John Deere	Blade	1	50.00	50.00	
7	John Deere	Roller	1	50.00	50.00	
8	John Deere	Wheel	4	25.00	100.00	
9	John Deere	Oil Pan	1	25.00	25.00	
10	John Deere	Oil Filter	1	10.00	10.00	
11	John Deere	Oil Seal	1	10.00	10.00	
12	John Deere	Oil Dipstick	1	10.00	10.00	
13	John Deere	Oil Pan Gasket	1	10.00	10.00	
14	John Deere	Oil Filter Gasket	1	10.00	10.00	
15	John Deere	Oil Seal Gasket	1	10.00	10.00	
16	John Deere	Oil Dipstick Gasket	1	10.00	10.00	
17	John Deere	Oil Pan Gasket	1	10.00	10.00	
18	John Deere	Oil Filter Gasket	1	10.00	10.00	
19	John Deere	Oil Seal Gasket	1	10.00	10.00	
20	John Deere	Oil Dipstick Gasket	1	10.00	10.00	

may like them in order right below the real items with which they're used. This way you can be sure to pull your PM on them at the same time as the major item. This can also be real helpful in the case of seasonal attachments and accessories that may be in administrative storage, not requiring scheduled maintenance.

These items can be accounted for with a note as to their status, thus reducing the maintenance that has to be pulled out as items in storage.

Now, in part 23 (g) the TM does say that you can divide columns g, as in in the table the bottom of the last PM service and the hours or days of the last oil change. But, again, if you do divide the columns, you've made it hard to use the same scheduling form for Oshkosh equipment. Keeping track of oil changes is no longer a big problem when the operational log maintained on each piece of equipment has space for this info. So whether you change the columns will depend on your particular situation and your local SOP. The whole idea here is to maintain equipment . . . not form.

TRIP TICKET

OK, same as always, your ED forms I'll be your authority to operate your rig. Remember, you use it just for equipment that's self-propelled. Your trip ticket also gives you a rundown on your Daily A services. And, you check 'em off as you do your before-, during-, and after-operation services.

Enter the Total column, get the hour that your rig was dispatched to the Red Book and the hour that you reported back to the equipment pool in the White Book. The difference between the two White pages is the Total Book.

Change Book 1 Registration, the 1 is used Serial No.

Change the Miles heading toward Operating Miles or Hours.

When you finish your operation, the total number of hours at your rig at that time goes in the White Book.



In the Red Book under the Miles or Hours heading you enter in the hours of operation that your equipment has accumulated to date.

The difference between your In and Out White Books gives you the actual number of hours that your equipment was in operation.

You follow the TM for additional items for inspection or servicing. You don't fill in columns 4, 5, 6, or 8 on reverse side of form for engine equipment.

ABOUT THIS NEW MONTHLY OPERATIONAL RECORD

Now, this is a score as they come. You use this form for all fuel-consuming Engine-powered equipment—gasoline or diesel. It makes no sense, indeed. If you've got an old red tractor, it'll take an operational record, too.



You still need the DD 130, "Vehicle Equipment and Operational Record," when you operate all self-propelled vehicles like your tractors, graders, motor looms, and cranes. But, you don't use it for equipment like your stationary air compressors, rock crushers, or stacked logs. Your monthly operational record is your operational authority for them.

You maintain one copy of this form in the dispatch office for all Engine-powered equipment that you have. You make one duplicate monthly operational record for all non-vehicular mechanical equipment items that don't need a DD Form 130. You use one form for your operational authority and the other for the record.



With this operational log you can keep track of hours or miles operated, amount of fuel used, and lubrication or maintenance services and repairs. This info will come in handy for working out fuel consumption rates, and for checking off services due for hours or miles operated. It also gives you a response file for non-vehicular Engine items.

The operator of a non-vehicular item of equipment gets one copy of the record. He uses the maintenance service check list on the reverse side of the form as



a guide in pulling his daily PM. He checks 'em off and lists all services he can't complete. At the end of the day's operations, the operator sends his copy to the dispatcher who updates the operational info on the retained record.

When maintenance is needed, the operator's record is held in the response file until action is taken. The record goes with the equipment to and from the shop.

You make out new operational records before the first day of the operating month. You transfer all deferred or pending maintenance, service info and accumulated hours or mileage to the new records.



Your "Engineer Mechanical Equipment Monthly Operation Record" is a long-winded title—is an optional type form. This means your office makes it up to suit your own needs. So, if you want to add a column or two to the form shown in TM 1-105—go to it.

WANTS WITH ELECTRIC MOTOR DRIVEN STATIONARY EQUIPMENT?



These services should be quarterly instead of bi-weekly.

You use Std. Form 1-14, "Utilities Inspection and Service Record," to schedule and record services on all electric motor-driven equipment like your frequency converter, Niles elevators, shop air-compressors and battery chargers. Remember, 44B may also be used for Niles elevators.

You figure out the maintenance the equipment should get by using the manufacturer's instructions or technical data. If data aren't available, you go by the requirements for a similar item. You schedule your PM quarterly unless it conflicts with the manufacturer's instructions. The completed PM goes in the service record portion of the form. You can use the same form for one year.

In scheduling, you check the months that the work is to be done and list the day in the time column. The work to be done in any one fixed service is a continuation of the previous service. In other words, when you do a Q service, you'll also do a daily service.

You enter the dates that the service is due in pencil. When you pull the PM, you enter the scheduled date and write in the date that the service was actually performed if it's different from the scheduled date.



Just doing. There's plenty more. There's talk on inspections, operator selection and training, layout and organization of shops and equipment pools, spare parts supply, and technical assistance.

Add to this scope in the appendix in the back of the book and you've got yourself a real book.

Carnie Rodd's "DON'T BE FURTHER OFF"



Stop those shakes

If your MH-3500 5P Scorpion is one of the early models... discover how the primer pump fuel line which runs along the side of the cover compensates, here, linking the kinking lines from vibrations.

An L-shaped bracket, with a small clamp, will keep the two primer lines secure. The location for the bracket is on the hull floor at the corner of the primer lines. When you secure the bracket, use self-tapping screws at least 1/4 inch in diameter.



Wrench needed

Been wondering why you need to clean and pack your wheel fairlead assembly on the M1111 from that wheel-track-roller assembly when it's only got one use in a while?



If this one's got you up a stump, you can climb down a ways... locate the one-a-month servicing that was required by L3-9-2120-200-12 (24 Jul 54) can be extended to one-a-year. The new EO that comes out will say so. But before switching to an annual service on this assembly talk it over with your support unit.

The reason that assembly wants to be serviced is to keep rust and corrosion from working into parts that're neither wear nor dust proof. Once a year should do it, but if your conditions'll be more than once a year service them do it as often as needed... even if it's once a month.

Protect your gun lock

Damp weather can cause damage to a lot of your equipment. The dampness results in rust, water rot, mudding of guns, fogged up lenses, and other damage.

But there's one damp area you can keep from getting into by drilling some holes. That's right, drilling holes in your Gun Lock container, ITEM 1821-339-2308, will keep condensation from forming.

Just drill two 1/4-in holes in opposite corners of the bottom of the container about 1/2 inch from each end.

Remember, though, you're still supposed to use the gun lock cover, ITEM 1814-713-8006. Remember to use these holes when necessary for deep water loading.



Mysterious marks

Does that arrangement of large welds on the top forward corner area of the M18 medium tank and on the left corner of the M18 heavy tank's turret have you puzzled? Well, it's never mysterious as it seems—it's just something that's not at all very much.

These marks are storage lugs which are used to carry the JCO-10 machine gun mount when the tank has to be shipped by railroad. The full info on how it works was on page 804 of TM 9-7014 (Dec. 54), the old pub for the M18 heavy tank.



Lock before moving

Panic damage can be done to the traversing mechanism on your M36-M-100 Scorpion... if you move this vehicle without locking the gun traverse lock.

An unlocked gun on a rolling SPAT not only ruins the traversing mechanism, but also can break or bend the track on the top carriage gun-ring.

So don't take the ring out of your Scorpion. When moving—make sure the gun-traverse mechanism is locked.

As a reminder you ought to put a note in the upper right or lower left wind-shield frame corner saying:



"IMPORTANT—ENGINE TRVERSE LOCK BEFORE MOVING VEHICLE."

Slam cylinder... filling



Having trouble with run-in the threads slave cylinders of your M32, M44, M10 or M10 SP weapon?

That sneaky oil seal can do a lot of damage to the inside of the cylinder if you let it have its way. It leaks from underneath, which gets in down the breech clip P/N 2040-240-2139.

You can handle this nasty business one of two ways. If trouble's already started, take the cylinder back to support. They'll take 'em apart and clean up the rusted pieces.

Or not! Then you can just run right out in case to keep 'em in good working order. A well lubricated cylinder will prevent your piston from sticking and prevent scuffing of rubber cups.

The best way to be sure those parts are taken care of is to:



When the actuator's depressed, the piston gets pushed out, into the breech side of the cavity. When the pistol's released, the piston returns to the cylinder. This allows the fluid to drop down around the half-full mark in the cavity, which is a high enough level to take care of the transducer and other working parts of the cylinder.

Now the master will fill with fluid and most of the air space where water may condense, will be eliminated. The small air space, which'll be there during operation of the vehicle won't cause trouble.

Oh yes, never make a mistake to change the cylinder filling instructions on full from the half-full, shown on page 47 of P/N 14. The intent was to arrive at a half-full cavity.

Pump Protection

Been giving a chase over the water pump on that Jeep you're driving with the 100-amp charging system?

Those heat belts have to be adjusted tighter'n an asbestos blanket to get enough output from that generator. So... after a while the water pump bearing gets weary 'n' starts the heavy load and starts to wobble.

There's a way to lighten the load on the pump bearing, though. Just one of these belts is enough to run the water pump. So, replace three of the heat belts with shorter models. Connect the short ones direct from the crankshaft pulley to the generator pulley—bypassing the one around the water pump. Then all

just like it says in para. 10B(7) of both 100-amp system MWO's — MWO-Cad G750-W11 (1) Plus 504 for the M18 and MWO-Cad G750-W6 (1) Plus 504 for the M2041.



With this hookup you cut down on the drag on the water pump bearing and give it a new lease on life.

Until short belts become available in supply, you'll need to get 'em by local greasiers. The ones you need are 3714" x 16" x 38-degree, like Goodyear No. 4044, Goodrich No. 17W, Firestone No. 3-J-164, Arwood No. Y-104, Dupont No. Y-270, Gates Service No. 72-58, Arden No. 681, Day & Nite Co. No. G-95, Meital No. 115, and Gates Vexel HC-series No. 6285. (Complete short-belt sets are in the mill for the G750's and G140's.)

Ward notes

There are new bits of info you MWO and M18 self-propelled motor owners might want to find out more about.

MWO 9-1500-204-2012 (15 Apr 59) tells about relocating the portable fire extinguisher from the floor directly behind the driver's seat to the right fire-compartment forward panel on the M20. It's urgent.



TS 9-2500-204-111 (15 Apr 59) gives the pump-assembly mating the fuel pump injection assembly with a mating component to keep corrosion and fuel leaks in the new compartment.

This MWO (9-2500-204-2012) does not apply to the M20's design structure as air-ground radio set (ANTARC-27) mounted in it. Because they both can't go in the same spot, so the extinguisher has to give.

By the numbers



Notice any differences likely to be the way the engine performs in your GT40-series or GT40-series models?

Are they weakening on the upgrade or under load? Or doing any off-beat general? Might you yourself some grief by lifting up-the-hood underhanded for the carburetor number that's on the main plate or cast in the body.

Yes, the carburetors for the GT40's and GT40's look as much alike as twins. There's a switch from left to right in the head choke hook-up on some of the GT40 fuel mixers. Otherwise, the only way to tell which you're getting is by the numbers.

R-600-1A is your carburetor number for the GT40's . . . unless you've got early models with the R-742-A or the R-600-A. And R-600-A goes with your GT40's. But since all these carburetors look alike on the outside, somebody may have handed you one from the wrong bin.

No, why get mixed if they get switched? It's because, on the inside-out of sight, there's a whole lot of differences in size of valves, venturi and needles.

Take, for instance, the valves that open to add more gas to the fuel mixtures when intake manifold vacuum drops. So that it'll cut in at the right time with extra gas, it's made to be suited to a particular engine.



This, and the other inside-differences, mean it's best to keep that R-600-1A-FSN 2918-114-0641 — or the GT40's and the R-600-A-FSN 2918-114-1781 — on the GT40's.

If a switch has been made in an emergency, make sure the right one is put back on your engine as soon as you can get one. And to avoid any mix-up, check the number before installing it.

Don't forget the cylinders



WOW — HEY!

You say you just had your brakes refilled? You say your wheel cylinders are leaking like a pup on a cold day? You say you're going giddy trying to figure out why? Take heed, brother—there's a simple reason for your woes.

Whenever you refill hydraulic brakes you should always check the condition of the wheel cylinders to see if the boots are damaged or if cylinders show signs of leakage.



You know those old, worn-down brake things you just threw away? Well, while they were waiting, you were adjusting—and this adjusting released the cylinder piston toward more and more to the outer half of the cylinder.

This may have led this little section of the cylinder's bore to the gum-up, rust and pitting because of lack of use. So, what happens when you install new things without giving half a mind to the wheel cylinders? Simple—when the new things were installed, the cylinder's piston moved toward its original position. And, if there's a roughed-up area inside the wheel cylinder, the piston cup's

sealing surfaces get a good scuffing. Ruck—ruck!

No, play it safe. When you refill brakes, check for conditions inside the wheel cylinders for gum-up, rust and pitting. If you find this little trouble, correct it by cleaning, bocking, or cylinder replacement as necessary.



CHECK SPECS AND HEX



You don't want to play blind-man's-buff when you're working with small hardware items like cap screws, nuts and bolts, and washers that. It's easy for you to reach into a bin and figure that the screws you pick out might work because they look like the ones you need.

Sometimes you're lucky...and the ones you pick out work OK. Sometimes they



don't...with the result that something falls apart or gives way, causing much trouble all around.

There's more to making screws than just making size or thread. Take a gander at this page about before you wrap a handful of screws under the hood. It'll show you to what you need.

Let's take a number on one.

SCREW, CAP, Hexagon head: #4-1/2-pitch, 5

HEAD

#4 Hexagon

Head: The hex head can be drilled for a hexagon or hex-shoulder-type...has a wide base with chamfered ends...or has no special features at all. They feature sizes 7/16, 1/2 and larger with a flat in the head, you call a counter-sunk, not a recessed.

GRADE OR HEAD

5

Grade of Head: This is shown in the nomenclature of the cap screw and by a symbol stamped or marked into the head. This can be an important factor in selecting the screw you want to use. Using a lower grade screw than the one called for may just give a little extra holding. That's why you always cap screw screws and nuts with fasteners that is at least as good as the original. Your SA's give you the tips.

THREAD

#4 or #2-pitch

A steel cap screw may be cut-thread or fine-pitch... aluminum screws are fine-pitch... or may have a plain thread.

LENGTH

5 1/2"

Washer: Use standard thickness.

THREAD PER INCH

16

Threads: For full thread, number of cap-screw threads per inch of shaft.

THREAD SYMBOL

UNC

Thread Series Symbol: Unified National Coarse (UNC), Unified National Fine (UNF), Unified National Metric (UNM), Unified National Metric (UNM), and Unified National Metric (UNM).

THREAD CLASS

2B

Thread Class: Class 1-A and 1-B; Class 2-Standard; Class 3-Extra Fine.

The letter "B" following the class number means that it's conventional thread with the letter "F" after the class number doesn't is an special thread.

LENGTH

1 1/2"

Length: The dimension of the head is measured through except for counter-sunk features.



**HERE ARE THE GRADES
OF STEEL FOUND IN
AND AROUND THE
BOAT SUPPLY SYSTEM.**

A—This is the ordinary low-carbon or commercial steel you know.



Case No. 2—Low-carbon stainless steel.



Head Case 2—Medium-carbon steel.



May-2—The alloy grade is of better quality than the medium carbon.



Low-May-2—For choice alloy steel exposure is of higher quality yet.



For more information on boat supply systems, see the book "Boat Supply Systems" by Robert L. Williams, published by McGraw-Hill.

No—Stainless exposures—mostly used for special purpose jobs, like on marine equipment and in salt-water areas.

The head markings show you the grade of steel in your exposures.

If there's no markings at all on the head, then you know it's low-carbon or ordinary commercial steel.



Two lines on the head, like this, tell you it's medium carbon steel.



Three or four lines also tell you it's medium carbon steel, but let you know it's better quality.



Five and six lines speak for you know it's an alloy-steel.

Again, remember, when you replace exposures make sure you use ones with the same or better grade markings.

The abbreviations used in the description of the bolts are listed in the picture of each of the SM's.

Water, Water Everywhere



That was the whole trouble.

This tank outfit had some real eager-beaver guys. Just let 'em get their hands on a high pressure hose or a steam hose when it came time to clean up their bunkering messes. They'd open the hatches and blast away inside the turret with the hose.

And you'd better believe inside turret would be spooked inside. Then the guy'd blast away with the hose on the outside. And they'd hit around the openings for the range finder and perhaps—huh!—make them as good as dead.

LONG TUBE
SPRING

PERISCOPE
SPRING

TEAM OF HIGH PRESSURE HOSE
ARMING THIS SPRING BY
PERISCOPE



Come the day a few weeks later and the tanks were out on the range. Nothing worked right. Some of the crews had to fight their way around in circles. The jamming hatches wouldn't turn. It was tough to crank the compound hatches were all fugged up. Nothing failed! They resumed the day's "Operation Big Fire."

Nobody was wearing a crown when the eager-beaver got a royal chewing. But you can let your buttons back that now they were clear of tank electrical and the control equipment when they have mean-to-high pressure hoses in their hands.

And their tanks are a lot better off. No more run or corrosion or fugged hatches.

Then had they hadn't copied a copy of TB Ord 745 14 Jan 1954). They do know in black and white—that when you clean around fire control equipment, you need high pressure water and steam like the players.

THESE
GUY'S
WANT
TO
KEEP
THE
TANK
FROM
GETTING
FUGGED
UP
BY
THE
HOSE
TEAM

Keep it up on the Register



What's in enough, and what's in use? This is one question you don't want to ask yourself when you're stranded, stranded over the countryside in your M41 and M41A1 tanks, or your M42 and M42A1 Twin-60 motor carriers.

Before you pull out, you'd better know if you have enough gasoline or if you don't—save a lot of shoe leather later on. One way you can be sure is to make absolutely positive the gasoline gauges on these vehicles are *Number-1* right.

Both fuel tanks on your M41 and M41A1 after manufacturers' serial number 1589 and on your M42 and M42A1 after serial number 217 have swinging arm-type fuel gauge sending units, which are electrically connected with a fuel gauge on the instrument panel. The fuel gauges pick up only when the master relay switch and magnet-switch are in the ON position. If one of the three pointed brass pins held up the sending unit, the electrical wiring, the power supply or the fuel gauge—you're going to get a wrong reading.

There's one important thing to remember about these gauges and sending units. Because of the location of the sending units, the gauges may read *EMPTY* if there's less than 40 gallons of gas left in either of the tanks.

To check for your gauge for tightness, here's what to do:



Look down into your fuel tank filter sock. The lowest point at which you're able to see the fuel is where the fuel is right on level with the bottom of the filter screen. After it gets lower than this, you can't see it any more. So, get your gas to this level.



Now, at this level, you should have about 17 gallons in your left fuel tank and about 40 gallons in your right one. Each tank should be these points should read about the N level on your fuel gauges. If not, you have more checks to do. Go about it this way:

There are times when the fuel receiving unit on the instrument panel can develop a magnetic charge, which'll give you a high reading on your fuel gauge. You can get rid of this magnetic lock by doing this:



BUT, IF IT DOESN'T YOUR BETTER FOLLOW THROUGH ON THESE CHECKS.

1. Take the leads off your fuel tank sending unit, which you'll find on the rear of each fuel tank before the battery compartment.



3. If the unit still checks out OK, then the sending unit is OK, and you'd better get a new one.

If the sending unit checks out OK, then reassemble your leads and go through the procedure for getting a magnetic charge out of her.

There's a couple of more checks to make on your lines if the gage is still fouling. Here they are:

1. Check the vehicle wiring to make sure ground leads between the gage and sending unit.

If lead 20 or 21 is grounded, the gage would read empty.

If either is opened, the gage would read full.



Check lead No. 27 on the instrument panel to make sure they're connected with the master vehicle and engine switch ON.

If all this fails, then you'd better get yourself some new fuel gages pronto.

Carburetor Capers

Twins may look the same, but they have differences of their own. It's the same way with your make carburetors.

For example, the jets on your Continental engines all carry the model number NA-5902. But if you try and hook up any NA-5902 model carburetor with the engine you've got, you'll find that there's some differences in the way they're built and mounted. The wrong carb on an engine will let you in for a lot of fuel mixture troubles.



LOW OPERATING ALTITUDE 2000-3000 FT.

FOR SUPERCHARGED ENGINES



HIGH OPERATING ALTITUDE 5000 FT.

Basically, the trouble comes from the fact that some of these jets are designed for supercharged engines, while the others are built for the more usual stuff.

Although TB-523 (and later models) carry a complete list of their own model numbers on them and the engine TB go on ...



The latest setup is laid out in TB-Ord 2045 (17 June 58) for identifying which carburetor goes on your AOS-895-3, AO-895-4 and AV-1770-series engines. This TB supersedes old TB-Ord. 200 (23 Dec 54).

Here's the up-and-down model numbers for these carburetors and how they line up with the various engines:

Carburetor ID#	Engine Serial Nos.	Remarks
204-232-018	80-170 series - 1 Rev 498 80-891-4 ... 1 Rev 342	Mounted to air-bleed elbow with 1/2-in. studs
204-146-029	80-170 series ... 498 Rev 1700 80-891-4 ... 342 and after	Mounted to air-bleed elbow with 1/2-in. studs
204-141-000	80-170 series ... 1700 and after	Incompatible with carb tray 204-146-029 for 1700
204-114-038	80-891-3 ... 1 Rev 1700	Take 1/2-in. studs for mounting
204-111-037	80-891-3 ... 1700 and after	Take 1/2-in. studs for mounting

If it so happens you get the wrong size studs with the right carb assembly—keep the shop open, you've still in business. Ask your support people to give you studs to fit the holes—or have them drill holes to fit the studs.

One thing more...you might run across situations where the warranty is relating to the the warranty is voided out. So, like the TR tells you, check the inside diameter of the venturi tubes to be sure. You'll find a 1 1/8-in. ID for the jets that go with your AY-1700 series and AD-891-4 engines, while the AD-891-3 engine carb has a 1 1/2-in. tube ID.

Fuel Line Frazzles

Lots of things can go wrong with your newly installed fuel line and they'll still get you where you have to go, but if the fuel selector valve linkage binds with the cable that, you'll have no air right until you get it working. No fuel, and you'll go no place—fast.



With the push-pull fuel linkage, it's not as easy for condensation to sneak inside and freeze the cables on the point where they meet's wires, and if they meet's wires, you won't be getting any fuel to the engine.

As you know, that cable linkage fits inside a round housing, makes a couple sharp bends behind the driver's seat and then comes under the motor slip ring. The rubber coating on the linkage cracks up, moisture gets inside, and your fuel control lever won't move. Even if the cable coating isn't cracked, it's easy for condensation to form while the tank sits off after normal operation.

You can't eliminate the problem of condensation completely, but you can keep your linkage free with a little care. Working the lever back and forth from time to time will help. So will leaving the fuel selector valve open while your tank is parked for any length of time so water won't have a chance to accumulate in

the ball. Sometimes, though, you've got to give the linkage a little oil to keep it from binding. Here's how to lubricate the linkage:



1. Loosen the cap screw in the lever ball.

Remove the nut so it's opening in the lever sleeve. Use that cable linkage. It's right between the ball, and up the previous control line.



2. With a flat open-end wrench, remove the cap screw that holds the two ball control levers in the mounting bracket.



3. Remove the ball holding the two cables. Rotate clip in the bracket in the right or the bottom. Pull the two control cables out of the bracket.



4. Try the roller end on each cable first from the control lever nut. If neither fits, rotate the nut.



5. After a couple uses, give the cables a few drops of oil, and work 'em up and down by hand into the oil for maximum penetration. Any time you do the linkage, wipe off the excess oil and clip the roller end back over the linkage.

Put the control lever ball in place through the bracket and replace the cap screw.

Now then, to replace the ball holding the two remaining clips, it'll be easier if you loosen the battery from hold-down wing nut. Watch it, though, when you're using a wrench that you don't cause any swelling. With the battery wing nut loosened, you can insert a screwdriver under the battery so's the battery'll tilt slightly to give you enough room to tighten the cap screw.

If your linkage binds even after you've oiled it, you've got to get help from your support work. In this case, you'll have to free the linkage in the source of the bind—under the screw clip ring.

With an OE from Delco-Remy, remove the clip ring like it says on page 289 of TM 9-7012. The rear end of the control cables is inserted already beneath the rear of the clip ring mounting pad. After the pad has been removed, try to oil the cables to loosen the bind. If they still won't move, remove the cables entirely and give 'em a good soaking in oil over. FSN 6858-104-0810 will get you five gallons, FSN 6810-101-1085, one gallon. Clean the cables, oil 'em lightly, and you're back. Replace the clip ring and you're ready to go.

Consent, for all-round care, you'll want make sure you have the latest info order (DD 9-7012, 7 Aug 57) and tech manual CTR 9-7012, 30 Aug 56 on hand.

LET'S
COMMUNICATE

WHY GET "BARE" if it isn't necessary?

THE NAKED TRUTH

Naked. Nasty. Uncovered. Bare. Exposed.

No, not County, but maybe quite a few vehicles are floundering around the area without covers. The ANYTRAC-1 series, maybe an ANYTRAC-7 or ANYTRAC-10, and others.

They sit there on their vehicles exposed to the sun, sand, rain, snow, and so on, without any protection. "Course, they're rugged and can take quite a bit of bad weather.

But these vehicles come equipped with a canvas cover that's designed to help bear still more weather. Lots of times, though, these covers get separated from their cars or maybe never get put on in the first place.

And they are items of basic use, so need to be appropriate. SO F B P's. Like for example:

ANYTRAC-7

ANYTRAC-10

ANYTRAC-1, 2, 3, 4, 10, 11, 12

CPFR, 8400 ST. FR-101/C

CPFR, 8400 ST. FR-102/B

CPFR, 8400 ST. FR-103/C

FOR 800-222-6422

FOR 800-222-6424

FOR 800-271-8078

Now, these covers are listed only with the basic use and generally aren't available otherwise. Unless you want to consider 1 per 100 terms "available" in supply.

If your use's running around naked, see if your shop-or-supply people can shop up some cloth.

BEND IT BUT DON'T BREAK IT



Maybe it looks like a free hose, but that's where the similarity ends.

The control cable linking the controls with the Power Trailer of your AN/MPQ-4 or AN/MPQ-10 is the "hose" in question. It looks rugged ... and it looks like it's earned a lot of punishment. Well, it's all true.

Except for one thing.

It just can't stand one month of a bend or two. No more of a bend, in a matter of fact, than it gets when wound up on its reel. One of the reasons is that there're dozens of thin wires packed inside that cable.

Now, when you bend the cable too straight a bend, the wires on the outside of that bend are going to be stretched disproportionately close to the breaking point.

Something like a merry-go-round. You climb aboard one of the horses on the outer rim (so you can grab for the brass ring) and you'll actually be getting a bigger ride—covering a wider circle—than the mags on the inside rim.

Bend a control cable too far and the stretch on the outer rim are going to be stretched right up to—and maybe past—the breaking point.



So sort of make it HOP whenever the time comes to set up a mortar battery to keep the control cable as straight as possible. If the hat to go around a bend, make it a gentle bend.

Otherwise an expensive and badly-needed piece of electronic equipment will end up as a merry-go-round of repairs, delay and dead line—with the brass ring in a sling.



UP YOUR SLEEVE

Some plastic sleeving is all a steep radio operator needs to avoid a possible short circuit.

These shorts have been chewing sparks on the T-MOBILE Radio Transmitter—like the one found on your ANTEENOMU and others.

This is what happens: The braced metal chain that holds the flashlight cup to the panel sometimes brushes against the flashlight during a routine replacement of Fats F1 and F2. And that, of course, brings on a short circuit.

So, suggestion number One: Turn off the power any time and every time you go to change lamps. And then, to

Some Insulation Sleeving, Electrostatic



New T-Mob's coming down the line will solve the short-circuit problem by having a hot lead to replace the chain.



make sure that no sparks fly, slip some sleeving over that metal chain.

NEW T-MOB-100 (SIC), is the way that operator on each chain will elimi-

Just uncap the chain where it joins the panel, and slide the sleeving on. After it, two inches will cover both the chain and the metal coupling on the flashlight cup.

will solve the short-circuit problem by having a hot lead to replace the chain. But that plastic sleeving will handle the situation usually if your equipment has the chain attachment.

YOUR EARS BURNING?

Come close to reach the cup of an H-OMU handset against your lip and maybe you'll notice a very hot hot.

Because it sometimes happens that the cup gets heated up a bit from some short or close to the front panel of your H-OMU-10. However enough, contact of hot, or make the handset too hot to handle but a short time after being in use.

These animals you wait while your operator needs can sometimes mean a dangerous delay in communication.



These animals you wait while your operator needs can sometimes mean a dangerous delay in communication.

Insulation, foam, insulation, foam plywood, maybe. Perhaps some asbestos sheeting. Or tempered plywood. Almost anything that's about 1/2-in. thick and can be cut to fit between the panel and the handset holder.

Cut the material to about the same size as the receiver—maybe a couple inches. Place it in position between the panel and the handset holder . . . and then secure it with the same two screws that hold the holder in place.

Make her real cool and snug. No hot receiver, no hot ear, and no sweat when you want to make with the communication on your TRC 24.



STALL GUY



A long runner this truck with its radio antenna 'whopper' and its trucker standard and the dust holder' up all around. Twists. And then, all of a sudden—whump! She stalls.

In things like that happen. But hold in, please. Don't hit the steering spins yet. Cause here's a chance for the leader (who handles the radio set in the truck) to do everybody, especially himself, a big favor.

That's right, a simple thing like turning the radio OFF before the truck is restarted will keep that collection of tubes on the line. Also will keep your teeth in touch with the outside world.

Nobody needs to be an electronics whiz kid to know that the voltage surge from a crash engine that's been kicked into life might damage the radio. It doesn't usually happen—but it could just the same.

So SOF guys to play it safe all the way. The leader, of course, is the man to check the radio's MAIN SWITCH to OFF. And just as soon as the engine is re-started and power' again, check the switch ON.

Simple as throwing a switch, and it'll keep your Angry-1 happy.



JOE'S DOPE



WELL, THAT'S
ABOUT AS GOOD AS
IT GETS. YOU CAN
HAVE THE MONEY, A CHECK
FOR THE TICKETS, OR YOU
CAN HAVE THE TICKETS
AND THE MONEY.



OK, BROODER
GIVE ME ALL THAT
CASH OVER!

WELL,



LET'S GO, I'VE
GOT TO GO. I'VE
GOT TO GO. I'VE
GOT TO GO.



ARE YOU
GONNA
BUY TICKETS?

NO,
THANKS.



LET'S GO, I'VE
GOT TO GO. I'VE
GOT TO GO. I'VE
GOT TO GO.



ARE YOU
GONNA
BUY TICKETS?

NO, THANKS.
I'VE GOT TO GO.
I'VE GOT TO GO.
I'VE GOT TO GO.



WHAT YOU'RE DOING, JACK.
 I'VE BEEN STUCK FOR HOURS... YOU'RE
 JUST SUPPOSED TO HOLD AN AMBUSHING
 CHECK, THAT'S ALL IT IS!

...JACK... THE
 WEIRD CHANGING
 WEATHER... THE
 SOUND OF
 THOSE JAPS... HEAVEN
 THAT FEELS
 KNOW-HOW IS!



WANT THAT TO
 WORK TO HOLD IT AND
 IN THE 11... WELL... WHICH
 IS... YOU'VE
 IMPROVING
 MAINTENANCE!

I DON'T
 BELIEVE I
 COULD BE IN
 GREAT A...
 GREAT IT IS!



AWRIGHT, SADDLE UP!



THAT CASE IF THAT
 WOULD BE THE CASE, JACK!

THE JAPANESE,
 THE - JAP!



... AS THE SUN SETS BEHIND
 THE MOUNTAINS OF THE MOON ...

THE
 JAPANESE
 THE - JAP!

THE
 JAPANESE
 THE - JAP!

THE
 JAPANESE
 THE - JAP!



UP
POWNNING

ALL THE WAY!



UP-UP-UP-UP



BURRRRRP...



UP RING POWNNING

KEEP YOUR
EYES OPEN
EVERYWHERE!



Forward!

UP, JACK, I NEED
TO KNOW ABOUT
YOUR MIND.



...YOU KNOW WHAT THEY'RE TELLING
YOU ABOUT ORAL, AND ESPECIALLY
THEY WANT TO KNOW ABOUT YOUR
MIND. YOU'VE GOT TO BE WATCHING
YOURSELF ALL THE TIME. YOU'VE GOT TO
BE WATCHING YOURSELF ALL THE TIME.
YOU'VE GOT TO BE WATCHING YOURSELF
ALL THE TIME. YOU'VE GOT TO BE
WATCHING YOURSELF ALL THE TIME.

JOE'S Dope Sheet

This equipment of battle will rot,
But not from the lead it has caught.
The bullets have ripped it,
That wasn't what flipped it:
UNAUTHORIZED FIX called this shot!



WE HAVE THE WORLD'S BEST EQUIPMENT... *Take care of it*





NO WAY THE HIGH
LYTIC WOULD SEND
SOME BARBICOTT!

WOW... JAKE
REALLY WFL
HE SPOTTED
UP HERE
AND WAGGLE!



CRACK

GOOD-BYE!
IT'S ONLY BEHIND
THE ROCKING... I
CAN HEAR BUT I
CAN'T FIND YOU!

HE LEFT
BEHIND!



WHAT'S THE IDEA...
SAY... SA... BUT IT'S YOUR
DODGY... WAGGLE...
IN THE WAGGLE... I'VE
UP TO WING'S... DON'T
WAG... DON'T WAG!

WAG
UP TO WING'S



WAGGLE
YOU WING... JAKE
DO YOU GET
THROUGH ON
YOUR WAGGLE!

IF HE GOES
IT'S IN THE
BLACK!



HIT
THE
DUST!



THEY FOUND US!
THIS PLACE IS TOO
HOT NOW... LET'S
GET OUTTA HERE!

WAG
LET'S
GET OUTTA
HERE!



JACK... HIS DUCK
FROM... COME ON!

WAG
LET'S
GET OUTTA
HERE!



QUESTION AND ANSWER DEPARTMENT



HANDY FOR HOOK-UP

Dear Half-Man,

What's the reason for fixed inter-vehicle cables and air brake lines on the "A1" models of the cargo, chassis, and water tank trailers instead of the detachable kind that come with the M104 and M106 trailers?

Mr. F. S.

Dear Mr. F. S.,

Those detachable cables and hoses on the QTS4-series 110-ton two-wheel trailers had a habit of disappearing just when they were needed. So it seemed logical to tie 'em to the trailers, where they're going to be needed anyway.

And besides, it saves money on the M104E1, M104E1, M106A1, M106A1 and M107A1 trailers not to have couplings on both ends by having one end permanently attached.



WONDER WRENCH

Dear Half-Man,

We have a lot of trouble in our shop right now adjusting the low range or reverse bands in our CD-55 series transmissions.

You know that sometimes the gaps don't match the adjusting cones after making the adjustment and it seems when they tighten the drums. Then, they're right back where they started from and maybe worse because they think it's not



Now, we're into the pencil-mark system—use that arrow the top of the arrow and the other on the transmission case directly in line with the arrow—to make sure the cover doesn't turn when the dialnut is tightened. But that's no guarantee that we're going to get it right the first or even the 10th time. We've even tried to fabricate a new one. How do you see this?

SPC J. M. M.

Dear Benjamin J. M. M.,

No need to worry about this any more. Issue a new socket that just comes into the system that's going to take care of this problem. It goes under PSM 1128-026-1842 and can be used for all vehicles with the CD-850 series transaxle shaft. It's now part of your 2nd-edition special tool set B.



NEW SOCKET
WITH
ARROW

This socket will help target the adjusting screw (shown) to wheel-adjust problems. It's easy, at the same time, to avoid loading the adjusting screw from twisting with an open end or lost wrench.



PAINT IT PASTEL

Dear Mac-Mac,

We've received a rebuilt M41 ambulance that has the patient compartment walls painted light green and the floor painted gray.

It's the first ambulance I've seen with these colors. Should we repaint it in ODS? Or is there an M41's color code for green and gray?

Lo Co W. B. B.



Dear Lt. W. B. B.,

Change out the patient cell that re-branding jobs with one eye on Change 2 415 Nov 561 to 387 146-2580-1 419 Dec 55). Part 5a of that change says green

tracks with inside lighting—where men have to work—get light green paint on the walls and orange gray on the floor.

Para 16 of TM 9-8098 (2 May 55) calls the automobile body a "panel shop," and classification of a roughed light, like it says to para 12a of the same TM, means somebody may have to work there.

Put the two and two together and that painter's got a pretty good case for that two-tone panel paint job, don't ya think?

Half-Mast

DIFFERENTIAL DIFFERENCE

Dear Half-Mast,

Just how do I read the oil dipstick in the controlled differential for our 4000 APC? Para 6 in the LD for the vehicle seems to leave it open to a few interpretations.

SFC W. E. M.



Dear Sergeant W. E. M.,

That's the way Para 6 in LD 9-7881 (10 Jan 56) should be read. The differential oil level should be checked daily before operation. If the oil level at that time is lower than the one-inch mark on the dipstick, you add oil to bring it up to the one-inch mark. That means even if the vehicle has been sitting overnight or longer, the oil will be cold and its level should read at close to the one-inch mark as possible—but no lower.

After you've gotten your APC up to normal operating temperature the oil will foam slightly and expand, making your hot check read about a quarter inch below the FULL mark or slightly higher. This depends on how much the oil has expanded due to the oil temperature. But in any case, don't let the oil get above the FULL mark.

So the general rule is: The oil should not go above the FULL mark when hot and never below the one-inch mark at any time.



WOODEN STEPPINGSTONE

Dear Half Mast,

Since none of our Nike-djars were any giraffes, we decided to give ourselves a break—and a life-saver—we have to make adjustments or pull PM on our top systems.



Research our way of the contrigger and we'll slip our shoes like the platform is sitting on the way beneath it.

Needless to say, it's a lot easier and safer standing on a couple of feet of the wood than trying to keep from falling off a metal ring.

W.D.F.S.

Dear W.D.F.S.,

I know some of you guys are using that makeshift step, but it's not the safest one. First, if by chance you happened to make that step any larger, there's the chance you'd be putting too much stress and strain on the contriggers—they're not built for that.

Second, and more important, should a brisk wind come along and rotate the antenna real bad—dirt-like, you're apt to find yourself on the ground, waiting for big malfunction—yes.

There is a way out, though. You can build yourself a stair-type platform, high enough to let you do your job without the balancing act. The largest step is wide enough to let you step down quickly and safely in case of emergency.



10/10/50

MISSILE**BURSTS**

WARRIOR: "I'm Glad
I'm Not Taking Out
The Missile & Putting
The "Blast-Off" On."

WARRIOR: "I Support
Performance In Every
Block Of My
Philosophy."

CLEAN CARBON BLOCKS

Did you ever have this happen to you when you check the system-carbon block on your Nike Hercules track under examination? You find the magnetism current meter either fluctuates or reads real low. Or maybe the high voltage will read too high or the power supply current will show up low.

This kind of stuff can start you troubleshooting your way into a long session of trying to find out what's wrong. Find out and you'll find a real shortcut to troubleshooting. Part of the answer is performing a little maintenance once a week will save a lot of trouble hunting in the future.



The first is you've got the carbon block in these transmitters—the idea being to protect you and the equipment from high voltage.



Each block is actually two blocks . . .



and there needs to be an air space between them. Inside it, dust builds up, the air gets stuck up, you get sparking, you lose protection and your motor windings get fried up.



So . . . once a week remove these blocks and go over 'em lightly with a piece of lint-free cloth.

Cleaner block is rough on the blocks—so you want to stay clear of the stuff. Every time you use it, you rub away some of the carbon block. Next thing you know, you've got made a big gap, you lose the protection.

Your cleaning doesn't be over over these blocks are MWO'd out of the system by space gap assemblies.

EASY WAY TO ADJUST

Are you're looking for a simple way to adjust the down-lock limit switch on your Nike Hercules launcher. What could be easier than this way.

1.



Insert the limiter with the inside as it fits the limit switch cover off.

2.



Loosen the four lock washers mounting screws.

3.



Loosen the adjusting screw until it has moved about 1/4 of an inch.

4.



Push the beam down to where it locks.

5.



Turn the adjusting screw in the direction of tightening (clockwise) until the nutte stops.

6.



Then keep turning the adjusting screw clockwise (L.H.S. =) to beyond the point where the nutte turned off.

7.



Tighten down the four mounting screws and the adjusting screw.

8.



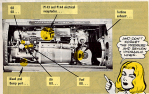
Put the limit switch cover back on. That's it.

KEEP 'EM COVERED

It's not pains, but some Hercules workers are shaking up their support units.

They're installing the minute economy parts supply unit back in Orlando with you taping or taping some important parts. And that's not good. You want keep 'em free of dirt, grime and unwanted junk.

Oh no. Next time you take an APH unit out of the minute isn't you can get it repaired, remember to tape or up those parts.



CEILING LIMITED

Motors—that old bagger—can cause you a parade of trouble if you let it get out of hand. That's why it's real important to inspect the limit switches on your Nike elevator for adjustment and operation.

Failure of the switches can prove to be a costly failure and leave your elevator at a standstill. Damage to the minute parts can add up to thousands of dollars with one quick job.

During your quarterly check, you want to take the covers off the limit switches and give them a real sharp eye for corrosion, moisture, defective wiring, movable contacts, and points.

It'll save you a lot.



NEW FILTER

Has your Nike missile team used the new metal filters for your acquisition antenna? You know the ones—they go in the modulator assembly, coupler assembly and panel group.

They come to you under the same stock number as the metal filter you've been getting—F59 1200-001-0401. The big difference comes in the job they do.

You can read this page right through the older metal filter. But you can't do it with the new ones. That means you keep the filter and dust where it belongs—outside the tube.

Speaking about keeping dirt and dust out, it's a smart modification that sets up its ray antenna with the filters facing away from the direction the wind blows most of the time.



FOR THE RECORD



So you're getting to the place where you're going to need some replacement pages for your Nike-Hercules Missile Log Book. And you're wondering how you'll look on to them 'cause the damn don't have DA Form numbers.

Until DA Form numbers are given these damn, there's a way to get the ones you want. **WHILE TO:**

Commander
4th Army Operations Missile Command
U.S. Army Missile and Guided Missile Agency
Redstone Arsenal, Alabama
ATTN: 4020-100

Tell the people at Redstone what damn you want by the title on top of the page. Remember, tho... the Three minute log book is an interim pub. So please keep your requests for replacement pages down to such a minimum until the log book becomes a regular DA pub or form.

DON'T LET 'EM FREEZE

Some Nite models have been running into trouble with water freezing in the elevator pit sump-discharge-pipe—the part that's above ground, that is.

Here's what happens: when the sump pump isn't operating, a check valve restricts the water in the pipe above the ground. With the pipe clogged with ice, the pump can't make any headway and runs continuously. Think about the life of the owner.

To keep down the chance of overworking your sump pump due to a freezeup, you tap the discharge pipe about 12 inches below the ceiling of the pit. Then you put in a 1/2-in. or a 3/4-in. drain pipe leading back to the sump.

The drain pipe will lower the water level in the discharge pipe and will cut down the possibility of water freezing in the line.

It'll be a good idea, too, to check the sump holes and get rid of the mud, silt, and gunk that's collected there. Lots of pumps fall down on the job because the sand is stiff clays and chokes 'em.



WIRE TRIPS SHINE ...

IT SHOULDN'T BE

What a difference a couple numbers can make.

As a Filsonite ... that the 1840 and 1842 tubes in the main pre-amps and IF make things in your Nite-A-Jax BC van.

Comes the morning after a bad night before and you have to replace the tubes, you'd better look long and hard to make sure you get the tubes in the right sockets. If you read the "1" as a "2" on the 1840 tube or see a "1" instead of a "2" on the 1842 tube, and you put 'em in the wrong sockets, look out.

The only kind of signal you'll get is a puff of blue and white smoke as resistors and capacitors go on the fritz.

In other words, know your tubes, down to the last number.



REST THOSE HORSES

It's a smart move that gets slow and easy in raising the Nike-Hercules launchers.

When it's done, you're playing it cool and doing a crew drill when you raise and lower the launchers at the beginning of the drill. Then simulate using the launchers the rest of the drill. That gives the launchers some a break.

Maybe, also, there're times when you've got to call on those 28 horses to do some extra work for you—like when you're checking out the hydraulics on an Ajax tank.

OK... just remember, it must run the motor no more'n 30 minutes and shut it off for 20 minutes. If you have the time, the six minutes running plus followed by a two-hour shutdown is even better.

It's also a good idea to take off the hydraulic power package cover before a drill so it'll be able to circulate around the motor.

You also want to listen for a change in the sound of the motor. If it changes, it could be one of the three phases has gone out. Turn it off then and then and call in your mechanic. He can run a check with a voltmeter.

Keep your support unit's number handy so's you can find them if your mechanic can't do anything for the motor.



LOOK OUT BELOW



Remember that
concrete has two
different textures and
that can be PT.

That Nike roller RP can see more strongly won't usually because it is coming down on you while you're raising it.

And one more is right in line with the mast as he lets out slack on the winch.

To try this, coil about 20 feet or so of slack wire in front of your winch. Then the 60-foot pole has taken up the 20 feet, you can take up your part on the winch. That way, if something gives, you can see the pole coming down so mean you in time for you to get away.

ZIPPITY DO-DAH



It only takes a couple extra words, so when you want to get inside the cabinet of your MicroStation track reader, you'll be done off the bat. Just give our readers what they get over the top. Then they will be happy to let you know as they look in. That's right—the user will love to hear what you have to say.

Another thing... out of the paper reader before you write. You can use the paper to write, or use it for an overhead being projected in the cabinet.

DUST 'EM



How about it? When I the last time you visited the hardware in the cabinet cabinet of your MicroStation track reader (please consider) if you're using them gather dust, you're getting it done for a long time. ...and the dust reader that you'll find in your cabinet will be the only one that you'll see every day and again—more often if you're in a dusty area. But—there are methods to prevent them from being collected in the cabinet.

MAKE IT SIX BITS

You have been looking for a way to get the most out of your MicroStation track reader (please consider) if you're using them gather dust, you're getting it done for a long time. ...and the dust reader that you'll find in your cabinet will be the only one that you'll see every day and again—more often if you're in a dusty area. But—there are methods to prevent them from being collected in the cabinet.

You can probably get the most out of the track reader—by using it in a dusty area. ...and you figure that with about the same pressure being applied to the cabinet of the track.



NEED SOLDER, SOLDIER?



Do you need a solder? There it isn't there up in 1987? Well, the Service of the State is the right answer that replaced the one that was put in April, 1987, for the State's continued stay.

Do you need a replacement in the Cabinet reader and tell you you need more? You'll need more, with about 5% of the 1987. The cabinet, the 1987-88, for 1987-88.

IN A LAUNDRY QUANDARY



'Wouldn't it be a pain to go around that bulky mechanical habit that does your wash's laundry. She just might up and mangle you 'stead of extracting the wash.

Could happen, y'know, if you try to handle her handle by pushing open the massive cover lid and dipping a grabby paw into the swirling mass of suds.

That lid's part of a safety interlock system on two-rotor units to protect guys who can't wait. (You'll find these interlocks on all the models-TLMW-11, PLMW-10A, TMA-1 and TLMW-15).

The interlock plate's there to keep the lid from being opened till the massive basket stops spinning. If that cover can be lifted enough to slide a hand under it, the safety lock's broken. Don't opening it till it's been fixed.

Forcing up the cover's stop off the rope pin in the interlock can and bend the armature that carries the cover to the interlock can flange shaft. That'll cripple the safety stop real bad. That pin, y'know, controls the action of the interlock flange, the gimmick that shuts off the massive motor when the interlock handle's pressed down.

The other half of the safety deal—the one that locks the cover down while the basket's spinning—is a handinger too. It's made up of a ball race with two big steel balls inside a cup attached to the interlock handle between the cover flange and the manual motor. When the motor's running, the balls wheel on the outer rim of the race where they line up with the rim of the ball cup. This keeps the interlock handle from being pushed down enough to open the cover.

But when the massive motor's shut off the balls begin to settle down on the inner rim. And when the basket stops spinning the cover can be lifted.



Of course, the bucket'll spin off downward if you don't use the footbrake steadily. But here, like everywhere else, it's just not it. You've gotta remember that bucket whips up to 1800 RPM at full speed. The heavy-lifted heavy-up guy who jank his way 1/4's down substandard's gonna do damage.

Now, like always, the best way to get this job to give what she's got—namely, your chain drive—is the safe way. A couple simple steps'll do it, like so:



1. Set the bucket handle lightly to shut off the motor motor.



2. Flip the foot brake like you would on your own playground set by coast-to-quit—til the bucket stops spinning.



3. Lift the nose and take out the coffee. Single and safe.

MHE & SPE MWO'S OK?



And how about on your Quarantaineer SPV's?

Godblimey, gosh! Heck no, just a friendly question you might ask yourself before their next inspection.

Unauthorized & unsafe changes made over all the Modification Work Orders called for by your DA Form 200-4 have been made on your equipment—and are covered on DA Form 430.

Here's why: TM 10-1-600 (1 July 58) and TM 10-1-600, Change 4 (21 May 54)—the "bibles" of special purpose vehicles and equipment and material handling equipment—both call the inspector to check that all current MWO's have been done and to hand out gips if they haven't.

See-see, it'd be smart to right quick do some sampling of your own. You MHE men, see how you stand under Item 100 in the TM, and on your DA Form 405, SPV and MPV men, look into Item 1 of DA Form 10-1-600 and/or your equipment's bible. And, all of you, make sure those MWO recording plates are attached to your equipment, like they're supposed to be.

ARMY AIRCRAFT

Dr. GIBBARD'S
MAN - NOT A
LAME

THEY'VE GOT A
MILITARY
LIFE LINE



How's Your Oil?

A famous man once said that if he wanted to predict how some character would act in a thing, he'd first find out what had happened on his last thing.

Exactly. And you can apply this simple and sensible reasoning to your aircraft—particularly when it comes to predicting their oil consumption.

By entering the oil usage from the DO form FBI-2 every day and comparing it with the hours flown, you have a running record of the actual gallons per hour your particular engine or engines are using right now. And of course, you know that as the hours on the engine increase, the oil consumption will rise, too.



This information should be kept handy by both the crew chief and the operator personnel so that they'll know just how many hours of safe non-stop flight any given aircraft is capable of at the time the oil consumption was computed.

Now, they won't be scheduling the ship to fly so long that she's in any danger of running out of oil.

Take the Mojave (B-11) for example. Because the present power settings are higher than the original spec-called for, the oil consumption is higher than was planned for. Which means those 17-gal tanks may not carry enough oil to reach the fuel load of four hours of non-stop flight. (The design and test boys are working on this problem now.)

Also, as some engines approach the end of their time, they can also get to using up their available oil before they run out of fuel. Which can lead you away unless you have a day-to-day knowledge of what your mill is using. Naturally, the operations people will be aware of the limits of all the aircraft in the unit, and will not schedule out on a mission beyond its capacity.

To keep your PW's accounts, and watch the trends they spell out for you. Just like the weather boys with their maps—when they read the last hour or two, they can make an informed guess as to what will happen on the next one.

Right Grade Of Gas



Just a brief reminder that when your aircraft, and particularly your rotary wing ships still for a certain grade of fuel, that is just exactly what they need.

As everybody knows, using too low a grade will result in corrosion and engine damage, especially under maximum power settings. But not everyone is so aware that using a higher grade than is called for can give you load shedding troubles, and if carried on extremes can even result in burned valves.

So look for something to the official specs.

And That's No Eyewash!

As you know, the Army's type A-28 solvent bromoacetone fire extinguisher is a little jewel—it has a fire-fighting capacity all out of proportion to its size and weight, judged by the other extinguishers.

But, one thing—that fluid is never good for your eyes. Cases have been reported where a man ran the extinguisher off by mistake and got the fluid in his eyes, causing severe chemical burns and serious injury.



OK, so first of all, always wear the belts around with respect—don't kick! Particularly in Bird Dogs and Chickarees, you've got to watch yourself.

And then, if you should not come off and get hit by the field, work as quick as you can to lose and lose of waste, stating your eyes good if they were hit. And then report to the dispensary as soon as you can. After all, O-B-M is kinder' kin to make sure you're, so treat it accordingly.

Save The Servos



Just to remind you that your TM 1-114-344-1-344, (Mar 58) changed the symbol on your primary servo from "Y" for savings to "R" for reasonable. So be sure you have parts in for replacement and rebuild, OK!

Beaver Pump Busted?

Now and then you may have to replace a fuel pump on one of your Beaver (L-20) aircraft. They have been known to wear out or fail.

So, play it smart when you change the fuel pump—also pull the carburetor fuel inlet finger screws and look for metal particles. If you find any, then take off the carburetor and send it over to Field Maintenance to be opened up and checked.

The point is, some of the fuel pumps which failed ground tests never, even and bearings in the process, and they have been known to fill the carburetor with metal particles—on which the engine does not run so good.

Also, if you find ground metal in the carburetor, then you'd better check the engine oil screws, particularly if the aircraft was flown in cold weather and the oil dilution system was used much just before the pump went out.



The Torque Is Touchy



Tightening bolts on spindled torque valves is, here or there, a doggone nuisance.

But follow it, fitted, on aircraft and particularly on rotary wing stuff, those torque values must be followed. Whirlbirds are tricky enough as best, and they have been stress analyzed from head to heel, with the margin based on properly torqued bolts.

Sometimes, happens you leave a bolt loose at one place, wear and strain can pop up either right there, or maybe somewhere else, where you'd least expect it. Likewise, if you over-tighten at one place, something else may bulge or run loose.

All of which means, maintain or not, that you can't neglect those torque values. You'll find more of 'em in your —'s, and any not covered there can be looked up in TM 1-3-1A-6 (if Doc's in).

Sioux Serves Spotless

Just they are, but now and then somebody gets careless and lets dirt accumulate in the crevices of the Sioux 34-121 servo, which in time causes the piston rod and bush on hydraulic linkage.

Until something is done to cover this area you'll want to be extra careful to wipe any dirt and dirt off your servo. Every pre-flight, for sure, and it isn't too much to wipe 'em every flight if you're operating under dirty conditions.

LOOK OUT! Don't try to wipe these servos while the engine cooling fan is running—the hamburger that used to be your hand makes such a mess on the cylinders.



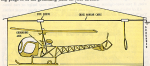
Static Grounds

It wasn't silly, but it happened. A mechanic is currently working a broken van, because he tripped over a static-ground wire (which was rigged) about a foot off the hangar floor.

Almost as slick a way of preventing this as has come along yet is to rig the static grounds overhead. Several hangars in Simons AAF, Ft Bragg, are set up like this, and are having no troubles at all.

You stretch a cable across the hangar above each of your parking lines, being sure that it is well grounded to the steel structure of the hangar. (If you should happen to have a wood framed hangar, connect the cable to a good ground, water pipe or driven ground rod.)

On this cable you set about one six or eight inch lengths of 1/2 inch pipe or tubing for each aircraft you have room to park under this cable, and perhaps a couple of extras. These pipes are installed deep cables long enough to reach the hangar floor, with perhaps just a little slack. Naturally these deep cables need its grounding plugs to fit the grounding jacks on your aircraft.



And for the odd ship or other equipment that may be located under these cables which does not have a grounding jack, a short adapter can be made, with a jack on one end and a heavy clip on the other. Also, of course, a few extra thin cables, jack on one end, plug on the other, will let you reach out to ships you can't conveniently hook directly under the overhead wire.

Such a system will take you a little time to rig, but then you won't have a bird's nest of grounding wires on the floor to slip you on your face.



Chock It, Jock!



The only disadvantage in having brakes on an airplane seems to be that they sweep people in and up the runway without using chocks. Sure, sure, the brakes will hold it—most times!

Only, now and then something else enters the picture. Figure how the guy felt when he was running up an L-10 and the moral about about five feet when he did his full power chock. The brakes were on, the wheels were not turning—and for a second, he ran off the oily spot before he hit anything—and without using area when the wheels hit the dry surface!

So, chock the surface of your run-up area and put the chocks under your wheels any time you're running up an engine, anywhere except immediately below take off. It only takes a minute and may save the aircraft, complete w/you, from a nasty wreck.

Kill The Acid

We thought everybody knew how important it is to neutralize any spilled battery acid immediately, particularly around aircraft.

But, and to say, a couple of ships had to go back to depot for extensive sheet metal work because of spilled battery acid.

OK, so you spill some acid, or some electrolyte, when checking a battery—What next?

Well, one of the best things you can do, if you have a hose handy, is to liberally douse the spill with plain water, gallons and gallons of it.

Or, if you have no water, or for any reason can't choose it around liberally, dry sodium bicarbonate (baking soda) or sodium carbonate (washing soda) will kill the acid before it can bite into the metal of your ship. Just pour the soda over the spilled acid, mix it around with a stick, until the foaming stops and then wash the area with water.



Sometimes you can't follow the trail uphill with dry socks, like when it dips down a creek or runs under the history. A solution of one pound of dry socks in one gallon of water will run right down the same creek and follow the trail. Of course, a diluted solution won't be as sticky as glue, but if you keep pouring it on until the foaming is all done, you'll be pretty tight. Then rinse, of course.

ITEM 6810-304-6018 will get you a pound of Sodium Bisulfate, technical, from the Chemical people. Or a dozen's worth of baking soda from the super-market is for same stuff. Pay you to keep some tight with your history (as you in case).

H-19 Hidden Fitting

Just a brief reminder to Chickadee people: Don't overlook that forward-facing grease fitting on the inboard coupling at your tail rotor gearbox input.

People have been known to forget this one, since it is a little out-of-the-way. But a grease-covered coupling won't make your bird fly any lower, not a bit.

As you can see, you need a flashlight or a eye grease gun to get to this one. And, like any other shaft's coupling, you don't want to pump it so full of grease that you lose the flexibility.



A Little Extra, Please



You know Chickadee (H-19), please to be a little bit extra, like when lubricating your skids, particularly when they are flying in very dirty conditions.

The manuals give you the minimums, of course, but a real sharp crew chief goes a little further—and his aircraft goes further for him.

This doesn't mean that you need them and pump as much grease into your tail-rotor-drive-shaft couplings that you grease back 'em, or anything really is that.

But it does mean that you go out and do a little extra greasing and a lot of extra wiping, so that you aren't using a mixture of sand and grease to grind the helices out of your moving parts.

Battery Capacity



It means that even those aircraft mechanics who are pretty good about checking the electrolyte level and the specific gravity of their batteries sometimes tend to get a little lax about the battery capacity checks.

OK, so you know it's a field maintenance test, and it can be a nuisance running your battery over to be tested.

But, the thing is, a battery that checks out fine on specific gravity—in fact it can be fully charged—will may not be able to do its job.

The only way you can find out is by way of the battery capacity test. This is sort of a physical fitness test for the battery and measures its actual capacity for work.

As you know, these tests are due every four months. I'll pay you to have one made say three years PE talk to the fourth month since the last one, because you can test spare the battery while the ship is down for inspection. (Like section 5 of your —d handbook tells you.)

Plus, in addition to that, have a special capacity check any time you are having problems or unexplained electrical trouble. Particularly if your ground checks out for proper setup but you still have wiring troubles or low battery.



And He Doesn't Live Here Anymore

Or anywhere else for that matter. Can you imagine how silly an instructor pilot must have felt when he rode into a recent fatal accident riding in the rear of a Bird Dog (L-19) with the instructor out in place?

There's never any reason for an IP, to ride the rear seat of a Bird Dog when performing IP duties without installing and checking the rear control stick. You may have the most competent pilot in the world flying in front of you—but



you never know when something may impinge like in the most unlikely manner.

To let simple life insurance be sure the rear stick fits in the slot, properly seated, with the spring loaded locking pin in place.

And as a handy safety check, take the rear stick out, point a red band one inch wide on the end, so that the lower edge of the band is one inch above right of the lock (from the bottom of the stick). Then when the stick is properly seated, the lower edge of the band will be flush with the top of the socket.

And at the same time check the locking pin for freedom of action and freedom from corrosion, distortion, etc. In short, make sure that it is fully ready and able to lock the stick into the socket.

Then when you put the stick back, make sure that it does properly function in the socket, and that the lock pin does in fact lock it right.



AIRCRAFT OIL



Dear Half-Bro,

Why don't we use high detergent oils in aircraft engines?

SFV J.F.B.

Dear SFV J.F.B.,

On account of the high cylinder-head temperatures and high oil consumption of air-cooled aircraft engines compared to vehicles. The detergent compounds in oils are unstable, and in an air-cooled engine they build up oil deposits in the combustion chamber.

Like carbon flakes, these deposits get hot and cause detonation and pre-ignition.

Half-Bro

Hot Box Storage

DO NOT OPEN OR REMOVE CONTENTS FROM THIS BOX UNLESS YOU ARE A TRAINED PERSONNEL MEMBER.

CAUTION
&
DANGER



You've probably been pretty well filled in on how to handle that Radioactive Source for MS, but what do you do when you're through with it?

As you know, the radioactive waste source gives off gamma rays which are dangerous. When you aren't there, they could do you harm. You've gotta treat it like a live porcupine all the time—even in storage.

Your MS can should be stored in a permanent-type building, such as brick or concrete, in an unoccupied and isolated area.

Here are some things to keep under your thinking cap when it comes to storage.

In the first place you can store up to 10 cur safely in one area if the area that are in the area for more than eight hours are at least eight feet deep.

When there are from 10 to 20 cur mixed in an area, keep at least eight feet from stored area and don't stay in the area for more than eight hours.

WARRING SIGNS! Warning signs have to be posted so you can see them no matter which way you enter the area. On both the storage area only if you're authorized to, and stay there for as short a time as possible.

When you do go into the storage area, make sure you're wearing that Signal Corps film badge.



CONTRIBUTIONS



BRAZING CLAMP

Dear Editor,

Here's a sketch of one of the brass wire clamps I have made up to hold small parts for sweat-soldering, silver-soldering or brazing in my working bench.

You can see that these are made more like a bunny clip, except that I like one ring jaw and one point. I've found that putting the larger of two points next to the ring, and holding the smaller part with the point leaves me plenty of room to get the torch and solder to around the job.



There are half a dozen odd clamps on my bench, made in different sizes so there's always one about right for the job at hand. My largest one was bent up out of 1/4-in. steel welding rod (Gas rod, naturally) and the smaller ones were wire coat hangers. These clamps make otherwise tricky soldering jobs real simple.

DEAN Harry B. Whitted
H Wayne, Michigan

NEW TWIST TO OLD STORY

Dear Editor,

I saw that tool in JS TP you had for pushing down the rod in the T-welds on the Nike-Ajax launcher can be used almost the same.

It certainly is better than using a screwdriver. But we've come up with a tool that even gets rid of the tail that has to be held down the rod. And it's a one-handed operation.



What we do is push down on the end and then twist the tool until the T-wrench goes into the socket. To make sure we don't forget the tool's being used, we attach a tag and tag through the hole in the handle.



Make sure the dimensions that I list in this article correspond exactly with the tool for each function in my firm.



CWO Control Hardware
 8 Hwy. 3d Mail Box, 65th Army

SENDING UNIT PROTECTION SHIELD

Dear Editor,

The sending units on the CD-658 series transmission are in an excellent spot. During training periods on the tank's power pack, it's possible for a student to accidentally expose the sending unit and break it off.

We've come up with this protection shield. As you can see all you need is a small piece of scrap metal and a little bit of welding work. The beauty of this protection plate too is that it doesn't require a modification to the transmission. It can be taken off and used only while training green mechanics.

Thought I'd pass this idea on to the use of the troops. It may not have saving our units a lot of sending units.



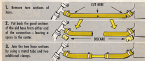
Carl Fred Steel
 Ft Knox, Ky.

(Ed Note—Dave looks like a cheap way to keep an expensive item from being stomped to death.)

STRETCHING THE HOSE

Dear Editor,

Here's an idea for a quick fix for a cut wastebasket or fuel hose. To remove a piece of equipment from circulation when a special size hose is not in stock, here's what I suggest:



Of course, when the right replacement comes in, it should be installed.

**CHV One R, Tim
APO Me.**

(Ed: Mowbray's a good stopgap measure. One thing you want to be careful of when using this method: Make sure that the metal tube does not come loose in any unforced abnormal connection.)

DUSTY POTS

Dear Editor,

You know the computer virus key in the Nike-Hercules BC unit? Well there are some holes on the backside of the parallel pots which I've sold wires for light bulbs for the BEE-PCS, but wasn't used for Nike.



We had a lot of trouble with dust getting into the parallel pots and making them hard to read. We figured the dust was getting in through the holes so we covered each one with a small piece of tape. No dust has got in the pots since.

We use small pieces of masking tape, but any kind of tape will do.

Anton Sarge

(Ed Note—Sounds good. A Nike-Hercules gap needs the same thing.) **—R. Miles, Tex**

Conrad Rodd's BRIEFS



Flash suppressor flash

When either gun of your M16 rifle or M16A1 has been fired for 1000 rounds, replace its flash suppressor. Make the change even before the 1000 flash rounds around the hole of a flash suppressor or the restraining ring. Be cautious, though, each gun tube is good for about 12,000 rounds.

Two for one

Did the new-type clutch and flywheel in the M16 or M16A1 rifle (model 1) fail? If the improved clutch kit has been installed, there'll be two extra—no. 104-104-0100—the clutch control linkage. If you find lost one side, ask your Ordnance support or depot for improved clutch, P/N 104-104-0111, described in AFM 7-21.20 or 7-21.214 for 1977.

Shocking answer

M16C-1E (2-76) is for you if you work around the M16-type competition rifle high voltage power supply. The original M16C does not bring in change the starting bars, release the start/stop wiring and tells about getting a protective cover on the competition high voltage power supply. This makes maintenance easier 'cause you can work without wondering when you're going to get shocked on your backside. Your support unit'll apply the M16C.

Deliver

You have all leading M16-type R & B sections of your M16-type rifle? Looks like your support unit hasn't been around to apply M16C 10-1003 (1 Apr 76). It's a normal M16C unit and is applied only when your R & B sections removed for maintenance and repair. Be please not to knock down your support's shoe to get 'em to apply the M16C.

Strip case

Is you're having trouble with the bolt that comes in the flexible magazine in the rifle magazine on the M16-type competition rifle? The bolt are shipping 'cause they don't get it good enough like some they're designed right?

The answer is a light with more strength between the head and the threaded end—the kind your support unit can get for you in the P1 108-140-100-2. It's under P/N 108-140-100-2 (1977).

7E is M16C 7E

Don't let M16C 1004 and 7E Out 1000 slip by you if you're in a M16-type or Competition rifle. Both 7E's give you the low-down on the field-change maintenance mentioned in Department of the Army M16C's for each system. The 7E's are dated 13 Nov 1977.

**Would You Stake Your Life on
the Condition of Your Equipment?**

**EQUIPMENT
DEADLINED
TODAY**

BN REPAIR SHOP

REPAIR SHOP

COULD MEAN

**YOUR DEADLINE
TOMORROW...**

REPAIR SHOP
DEADLINE
TOMORROW

BN REPAIR SHOP