

Issue 119

PS

1952 Series

THE
PREVENTIVE
MAINTENANCE
MONTHLY





TUBES

If all the vacuum tubes in the world were laid end to end ... well, chances are somebody would step on one, so forget it. Anyway, there's a lot of tubes around, made up of different things.

Some number of jobs that involving the like the. It's what's inside that that counts ... and it's what's to take them that that you see how they're to be handled and disposed of.



Some tubes contain radioactive material, and this involves an element of danger right off the bat. Just how much danger is one of those things the experts figure it's better to over-estimate than under-estimate.



There's a number of things that have to be done and careful-like when you're dealing with radioactive tubes. **TR 68-D-548** (27 July 68) with Change 1 (26 May 68) gives you a list of radioactive tubes used in the current and obsolete systems. It also gives you the cautions and procedures to use in handling and disposing of these tubes.

TR 68-221 (5 Apr 68) also gives you a list of radioactive tubes and some tips on identifying them.

EXHAUSTION PIPE TIPS

If your exhaust pipe isn't built according to factory specs, it could mean a big headache for you. Make the most of your engine's power by following a few tips on how to build an exhaust system that's built to last.



They contain mercury gas, which is very dangerous if you inhale it or get it into your system.

The fluorescent power (Fluorides) used in some of the alloy tubes has chemicals which can cause a serious infection if you inhale it, get it into a cut, or swallow it. It'll keep you from healing if it gets into it.

No, it just makes good sense to handle broken and defective fluorescent tubes just about the same way you do radioactive tubes. You don't have to buy 'em in a decontaminated or anything like that, but you do want to make sure they're positively unpoisoned and hot all.

You might look at it this way: The radioactive and fluorescent tubes are the radioactive and dangerous of the exhaust family. When broken, they can not only hurt you, they can poison you. Be sure 'em with respect and caution.

EXHAUST TIPS

The other type of tube that requires some very special handling is the high vacuum tube. But it's not what's in these tubes that makes 'em dangerous—it's what's not in them.

They contain a whole lot of working compressed air in a small space. They're under the same great strain all the time that you're under when you're making your stomach into your barbecue or ATTENTION. But acts in the system.



When their glass envelope fails for some reason . . . **POOF!** There's an explosion — what everything tries to get in to where there's nothing.

That, you must admit, is better'n an explosion, where everything's trying to get out to where there's everything and everybody—including you.

But even with an explosion, you can get a handful of flying glass and stuff, which means you're got to be prepared wherever you handle these tubes. Use gloves and wrap a cloth around the tube to help catch the stuff in case of an explosion.

Cathode-ray tubes are vacuum tubes . . . and they sometimes come in the glass, kinked, concave side. Which means they have more room to hold much more nothing—and there's more of them to fly at you when they collapse.

The main here is simple:

NEVER HANDLE A CATHODE-RAY TUBE WITHOUT PROTECTIVE GLOVES, A PROTECTIVE FACE SHIELD OR MASK.

WITH MESSING,



**FACE
SHIELD
GLOVES**

**KEEP
ON
FACE**



The weakest point on a CRT is the neck . . . so never pick 'em up or handle 'em by the neck.

The stuff that's used for coating CRT's is generally harmless, but some people may be sensitive to it. So when you're cleaning up a broken CRT, wear gloves and be careful not to get any out or breathe. And wash up real good after you finish the job.

Getting rid of broken vacuum tubes—including CRT's—is no mean feat since they're broken and gathered up there's no real danger. You want to wrap up the pieces in something to keep



anybody from getting one and get rid of 'em according to your local OCP for glass, etc.

But to pull the wings from an unbroken vacuum tube, you want to crush it before you dispose of it.

One way to crush 'em from your 'em is a wooden box with a lid designed to crush the tubes when it's clamped down. You can also seal 'em in corrugated cardboard then drop a heavy weight on 'em while you're standing behind a protective screen.



Oh... Now's That Apple!

In a nutshell, it sums up like this:

1. Radioactive tubes (like TB OGD 648 and TB HG 1114) are dangerous long, now and forever and have to be disposed of in such a way that nobody or anything will ever come into contact with them again. Their radioactivity doesn't amount to much as far as radiation is concerned, but you must not let any of it get into your organs through a cut, or in your hands or food, or by breathing it.

Radioactive tubes are dangerous since they're broken or you NEVER intentionally break one.

2. Fluorocent tubes are dangerous because they contain an irritating gas and some chemicals that can cause damage if you breathe it, swallow it, or get it into a cut or open sore. Since the gas and chemicals contain the glass, you need to wear gloves when you're cleaning up broken tubes. And for the same reason, you want to make sure nobody can accidentally get one by the neck when you dispose of it. Never breathe one of these tubes intentionally.



3. High-vacuum type tubes—like CRT's—are dangerous because they can implode and cut you up with flying glass. Whereas the radioactive and fluorescent tubes are dangerous only when they're broken, the high-vacuum tube is dangerous only while it's not broken. Once it has collapsed, it has made them... or crushed... its seal. You pull the neck on these tubes by crushing them before you dispose of them.

Because of the way CR tubes are made they give you a headache when they break. The neck assembly can travel forward thru the screen and penetrate plenty thick steel for most, including you. So never stand in front of this "gun" when you're handling CRT's.

The exact manner in which you dispose of any of these tubes depends upon your local NCP. Some NCP's are going to be on the state-wide list... others may not be so specific.

Some people figure it's easier all around to treat every broken tube as if it were radioactive. This sure simplifies

things all right, but there's just too little things.

When you start handling some rather hazardous tubes as if they were dangerous, how long will it be before you start handling dangerous tubes as if they were harmless?

Crowley Road's

10000 N. 10th St.

TM for Tools



No matter what they are or what they've used for, your tools will do a better job if you take care of them.

You now can have a ready reference on the "Use and Care of Handtools and Measuring Tools" if you get hold of TM 7-241 (Cops 50).

It covers info on maintaining tools such as rippers, squares, calipers, scales, etc.

You'll also find pictures and descriptions of such tools as hammers, nailfiles, screwdrivers, wrenches, chisels, files, knives, etc.

The TM will purchase by use 'em now. And if you're not on the initial distribution list, get an OK from your CO and use AR 110-1 (Max 83), para 79 or your authority to regulation in.

Good garden



Are you M18 and M1941 mechanics still hunting high and low for that Gasket, weatherstripe/spring cover, that's in the lower right corner of Fig 15 in TM 9-1228-208-209 (Cops 50)? It means P09 1809-648-7927, but it's listed only by SAs. No. WFO 840209 is most gains for G740 and G758-series

vehicles. It's a screw-on item, and your supply depot should come across with one when your requisition goes thru.

GO GET YOUR
GASKET!
OK FOR FOR 100-
141,792



M113 PC cold weather starting



Having trouble firing up your M113 PC in cold weather? Here's the latest cold weather starting method worked out by the experts...

First you make your regular "Before Operations Check". Then you make things sure there is nothing in the fuel system and that the engine, cooling fan, oil filter, transmission and transfer...

Before you get the power compartment lock lever lock, push in at the disconnect lever to discharge your engine from the power train.



Now you start the regular "maintenance"... fuel shut-off valve ON, lockers applied and locked, shift lever in 2 forward, lights and wipers motor switch OFF, master switch ON.



Make your checks for hydraulic fluid and ignition ON, then flip the ignition ON.



If your battery-powered indicator needs a buffer and a yellow wire, your indicator should be exchanged or replaced before you continue. If the instrument panel readings are normal, go ahead with your conditions.



Put hand throttle on ONE HIGH position.



Put choke ON ONE HIGH OFF - use in cold weather way.



Go to the bus line like the starting method for normal operation outlined in the L-1134. 22-18 then 17. Waiter's when it starts to get different.



KEEP ENGINE ON IN A DELAYED POSITION. From the center position DON'T GO TO THE 17 POSITION.

If the engine won't start in that time for your master cool off for no more 30 seconds before you try again. If you can't make it in the 11-second trial, call for a company mechanic.



After you get the engine started, slowly begin to push in the choke (about halfway). If the engine won't like it is going on the way you, pull out the choke again until the engine RPM picks up. NEVER FLURF THE ACCELERATOR.

Keep playing around like this until you get the choke pushed in about half way and the engine RPM steady.

Now set your hand throttle so the engine runs at 1200-1300 RPM and let her run that way for 5 or 6 minutes or until the temperature gage goes above the 100° mark. As the engine warms up, push the choke in, little-by-little, until it's all the way in.

Now - stop the engine. Take off your master cover and get the disconnect handle OFF so the engine will be connected in the power train. If you have trouble connecting it, jig the nut with the ignition ON/stop/stop again.



Start your engine again. Put your hand throttle to run the engine at 1200-1300 RPM and let it run for five minutes.



Now let the engine stop back to idle at 600-700 RPM.



Check again to be sure your lockers are all set and locked and then move your shift lever to the 24 range.



As soon you run the engine at 1,000 RPM for 5 or 6 minutes to warm up the transmission before you move out.

Get more on 2015 FJ Cruiser

YOU HAVE BEEN TALKING ABOUT IT?

Here's the basic steps on the power window feature in your 2015 FJ. Some of the words you see below may vary about the way the feature indicates light works.

It is not supposed to light up as soon as you turn the three-way switch to ON-LO. It shouldn't light up until the three detector switches flip from the resting to the resting position and the feature is working OK in ON-LO.

If the feature indicates light goes on as soon as you turn the switch to ON-LO, it's a sign your three detector switch is broken or not adjusted right.

When this switch is working the way it should, the lights won't go on until the switch has shut off the lights and the feature is in the resting position and working OK.

Once this happens the lights will go on. Then you can either switch to ON-HI or leave it at ON-LO. Just don't switch to ON-HI before the light comes on.

Always make your feature in the ON-LO position. That'll keep it from back-lining or heating severely.



Lighting
window

IT SHOULD HAPPEN IN THIS ORDER:





THROTTLE LEVER



It's easy to bang your knuckles when you push the power-lever lever forward in your Quietway M100 track-tractor and crane-down. There's just one straightforward way to wrap his fat around the lever, push it forward, and



close the door handle on the right-hand side.

To get rid of this knuckle-banging trap, have and bend the handle of the lever, like so.

This'll give you the rest you need as there's track and teeth without being any skin.

THE RIGHT SPEED



A smart operator knows when to take it nice and easy ... and when to pick up or slow down the cadence.

When you skip a warmup period and go too fast too soon—the results are not always what you expect.

Sometimes, you're in for a headache.

And, one thing could lead to another.

Like when you're warming up your 1 kW Holzer G55 AC/1000 gas engine. It gets the shock when you warm up your engine at the wrong speed.

This could lead to premature fan or engine failure.

And, there's no room for skipping the excessive vibration and the equipment is here that are likely to go along with it.



IT IS THE NUMBER

When you start the engine, pull the throttle handle halfway up. Then, when the engine starts, adjust the throttle so you get a high idle speed with the least amount of vibration.

Keep the engine running at this speed until the temperature gage reads 170-180°F.

Now, pull the throttle handle in and apply the load.

Adjust the speed for correct voltage and frequency operation.



OK, now when you're ready to shut down, release the load and pull the throttle handle down. Run it idle for a couple or three minutes, then shut it off.

FIRE INSURANCE



If your fire-fighting rig is the Water Master Truck Model 20P, you know it takes more than a quick walk-around to keep a rig that big staged up for 100 percent performance.

Here are some samples of the special care it takes to be sure the Water 20P is fit to fight fires.

HOLD THAT TURNT VALVE!

Before you shut off the water supply, you want to reduce pump pressure by slowing the engine or disengaging the pump clutch. Pressure needs to be down around 25 PSI before you push the turnt control valve to stop the water.

This is a high-pressure, high-capacity pump with an air-actuated control



valve on the control system—so it takes special handling.

Otherwise the air-actuated valve closes like a slam, drops 200 PSI on the relief valve, and drops as provided on the supply line. What gives is usually the water pump-discharge rate, or the brass flange on the water supply valve. Deal with!



REMOVE THE GI
IRON PUMP
ON WATER SUPPLY
WITH SPECIAL OVER
SIZED HOSES



FOUR SETS IN FOUR HRS

Like TM-4119-200-10 says, you want to flush out dried foam before it gets up the lines and blocks the foam pump.

When foam is exposed to air, it becomes highly corrosive and forms hard granular deposits. You want to flush leftover foam out of the system pronto, before it can foul critical parts and leave deposits that can cripple the operation.

Backflushing is one operation you want to perform by the book, because each valve has to be set right or flush out all the leftover foam.

The float pump, Primaries, won't come close unless you close the float drain valve for the flushing operation.



Close float pump

SEE IN THE BOX

It takes half a dozen healthy, well-adjusted V-belt soaking things circulating right in the Water MF engine section.

Specifically on the one belt set, a daily use of the spacers in your one crew may as open the work window before it makes sense. When any one of these three V-belt goes to pot, you replace the whole pulley-platelet' set.



Don't let
Safety gear

When done, hold it.

DON'T PUSH IT HARD



Take it easy.

Don't need a lightweight to take on a heavyweight job.

Now you've rigged a decent blade on your MRS Model 150 engine, but don't go trying to make it do the

work of a Cat D9 or a D9C TD-24—it's not built for heavy doing work.

The MRS engine can handle your temporary and other moved equipment and light doing work. But, when you circumstances is with a job that's out of its class, the light construction of the donor assembly leaves you with open for buckled brackets, a broken radiator and engine frame, and a broken hydraulic pump and lines, among other things.

Use the MRS on jobs that it was built to handle...and you'll save yourself time, energy and repair bills.

Please Note In PS 115...

Here are three key items for your copy of PS Magazine 115...

On page 7 cross out "except some models, rail and all nuclear items."

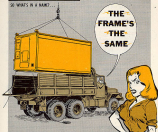
Engine equipment (which takes a big breath) is now crossed from the (initial MFRD) report called for by the new equipment control system. See part 5b, DA Cir 789-21 118 Apr 82; "Instructions for Implementation of the New Equipment Based System."

In on page 15 of PS 115, just cross out "Engine equipment" where the one-time MFRD is discussed in the right-hand column.

On page 15, under "Wang-Dress" you can delete DA Form 1415. The old "change card" is now less than you have to deal with. It's now called for in the new supply regulation, AR 759-35 118 Mar 82.

LET'S COMMUNICATE

SO WHAT'S IN A NAME...



Your S-141AC electrical equipment dealer may be the only thing in the shop with more names than shipped load and gary.

But whether you're calling it an S-111/111C-3 or an S-111/111C-9, or anything in between, it's still a light-weight, aluminum, welded steel, frame-you buy that needs a little care and attention on all its jobs.

You can do yourself and the dealer a big favor right now by updating the load-down procedures spelled out in the TM's for the equipment your dealer is

card with TR-50 794 (11-Apr-62) with Change 1 (16-Jul-62) gives you four procedures which supersede those in the TM's. It also gives you a list of other shops you need to know about the maintenance of the S-141's and S-141's.

When it comes to lifting, the eyes may or may not have it. Some shakers have both lifting and shakers eyes—others have only a combination eye.



If your shaker has both, you want to make sure always you use the lifting eye for lifting. They're the eyes on top.

These lifting eyes will take just about as much stress and strain as it takes to lift and lower the shaker—and no much more.

This means any pushing, jacking, rebalancing or rearing will use the lifting assemblies right off the shaker.



The shaker gets a lot of its strength from the foam material sandwiched between the layers of the skin. This foam must always stay closely bonded to the skin panels to do its job. Any loosening

or tearing of the shaker will lessen the load and leave you with nothing more than a shingle on each side of the supporting seat. Always as rigid as a tree trunk.

If you want to ensure that you don't lose these shakers around with a fork-lift, truck, crane, or what-have-you, it'd not only shake loose the foam-core, but it'd dent, puncture, twist and otherwise distort the skin and frame.

Then, insurance is also highly flammable.

Never do any welding or soldering on the shaker itself. The heat can also burn through this foam right through the skin panels.



Not only that, but high heat from the sun can cause the foam to break down and weaken the shaker. Don't let the temperature of the skin get higher than about 140°, or about 120°. You can use Thermocoups, self-indicating, 44-centelle MX-1770's, PNY 2281-221-2811 (Sig) to keep you checked on the surface temperature.

A fire shade and a lot of wear time is mighty handy if the sun's getting too hot. You might want to rig a canopy fly if you're parked way out yonder in the hot and glare.



NEW TIE-DOWN PROCEDURE

You've got a new technique for tying down the 5-1417G in the bed of the truck. It goes like this:

Attach a tie-down ring assembly from your regular multiple-leg sling onto the corner gear on each side of the cargo bed side rail.

Then hook the sling assembly cables



to the tie-down rings of the tie-down assemblies and the tie-down eyes of the dunnage. Make sure the turnbuckle ends of the cables are the same distance to the tie-down ring assemblies.

The turnbuckles should be tightened evenly, so you'll need someone to work the other side of the dunnage. Turn 'em in for as far as you can by hand—then give

'em an additional half-turn with a bar or rod through the turnbuckle eye. That's all there is!

These turnbuckles are mighty power and just one turn of the screw can make one centimeter the difference, so maybe backle the dunnage.



To help snug the dunnage in the truck bed, slide turnbuckle bars between the sides of the dunnage and the truck bed—and between the rear of the dunnage and the cab.

Your gunting kit, PGM 4115-TB3-024, will handle small rips and tears on the dunnage but you've got to follow the instructions very closely. The most important thing is to keep tension out of the dunnage to keep it from going bad.

Don't work that stuff you use in making the binding tighter. If you get any on you, wash it off right away. It can cause an inflammation of the skin.



S-141/G SHELTER SLING

Dear Mr. Editor,

Your article in FE 112 on the S-141/G shelter was great ... but I need one little bit of information you didn't include. And that's the TEM for the hold-down assembly that secures the shelter to the truck. **SFC M. F.**



Dear Sergeant M. F.,

The assembly you want is called Sling, Multiple Bag, PDU 6420-201-5315. These slings are being added to the Basic Issue Items List for the various configurations that use the S-141/G since there's no separate parts manual for the S-141. This sling can be used to (S) shelter with the M42 receiver.

The S-141/G shelter, however, has its own parts manual - TM 11-1400-201-129 and 11P. The multiple bag sling for it is listed as ERM 141G104-1041. These TM's will be with you as soon as TM's covering and items are created to include parts for the shelter.



Haystack

FOR DAMPENED SPIRITS



Water does different things to different spirits. It dampens some ... and dries others. On your list for AM-1 MFQ-44, it just dries out the spirit level lamp.

The water seeps down along the lamp-socket (Table WT-10) and then soaks into the spirit level through condensation. And if the glass out of the con-

nection is in working condition then after three days, these drips really get a few mils.

So what you do is secure the connections from their present 12 o'clock position so that they point down ... like 5 or 7 o'clock. This lets the water drip off before it gets a chance to hang around and work on the connection.

ALCOHOL DEGREASER, 94-7406
FOR 100-795-1441 1-gal. can
FOR 100-795-1442 1-gal. can
FOR 100-795-1443 5-gal. drum can

This is used as a solvent for stains and spirit lacquers.

It's also used for removing undesirable finishes, such as shellac, spirit varnish, lacquer, enamel, and for cleaning brushes and other spirit varnish.



DANGER—HOT NUMBER, PLAIN BERTY: This alcohol is highly flammable and poisonous. Drink and it'll blind or kill you. Don't breathe it. Keep it away from open flame.

CLEANING COMPOUND

FOR 100-795-1441 1-gal. can
FOR 100-795-1442 1-gal. can
FOR 100-795-1443 5-gal. can



This is used to clean electrical and electronic material.

SHINY SLAB, BITEA, TINA: This compound may leave a slightly oily residue, interfering with operation of contact points. Contact points should be cleaned with non-conductive abrasives and thoroughly dried.

It is a poisonous, flammable compound. You've got to have plenty of good fan ventilation when you use this stuff. If you can't get that, you'll have to wear a chemical cartridge respirator. You ought to wear protective clothing, like rubber gloves, too.

Keep it out of your eyes. Either use a shield or wear chemical goggles.

ALERT™ (EPA #1084), (FORMER), TL-6-101

25001-20-270 1-gal Clear (Clear)
25001-04-402 1/2-Gallon (Clear)

It's used to remove old paint and primer coating from plastic-coated magnesium.

It's used to clean equipment that's been used to apply nontoxic plastic coating compound.

It can also be mixed with rubber and used as a solvent for plastic, cold rubber and metal filler compound.



L. I. 1-TRICHLOROETHANE, (FORMER), 0-1-401

25 410-04-401 1-gal Clear (25 410-04-401) 1-gal (Clear)



It's used to clean electrical parts, insulators, and wiring.

It's also used to clean equipment eye lens.

THIS ONE BREATHES POLYMER! Vapors are harmful. Keep it off your skin, breathe as little of it as possible. Use a chemical cartridge respirator when you can't get real good ventilation.

TRICHLOROETHYLENE, (FORMER)

25 401-20-270 1-gal (Clear)



It's used to vaporize greasing equipment to clean oil, grease, and oil-bearing dirt off metal parts.

BE ALERT! Its vapors are toxic. Keep it off your skin. Don't inhale vapors. Use plenty ventilation.

NON-FLAMMABLE, NON-TOXIC

FM 4115-10-4762 (gallon Chem)
 FM 4115-10-4763 (5 gal. Liquefied Chem)

**TOXIC, NON-FLAMMABLE**

FM 4115-10-4802 (gal. acetone)

This is used to clean paint brushes which were used with paint thinners by acetone.

PLANTS FLAMMABLE. Keep it away from heat and open flames. Use plenty ventilation. Don't breathe it. Keep it off your skin.

TR 563 107 124 Jan 611 and TR 9-208 015 Jan 603 give you a breakdown on the use of substances for industrial use. SM 3-1-6800 (Apr 60) lists chemicals and chemical products. TR 6M1 80 describes chemicals listed in SM 3-1-6800 and gives information on their use and other pertinent information.

Now use the respirators you can use in protection against fumes of chemical substances above:

This is used in vapor-digesting equipment to take oil, grease, and oily dirt off metal parts.

It's also used to clean fungus from electrical connections.

WARNING: Its vapors are toxic. Breathe it as little as possible. Keep it off your skin. Use chemical cartridge respirator if working in a poorly ventilated area. Wash immediately if possible.



FM 4140-10-4002 (Chem-Respirator, Air Filtering) 4002-0-11, type W1. Authorized local procurement.

FM 4140-10-4003 (Chem-Respirator, Air Filtering) 4003-0-11, type W1. General procurement procedure (include 103 Dept).

FM 4140-10-4002
 (Chem-Respirator, Air Filtering) 4002-0-11, type W1. Authorized local procurement.



This respirator can be used but is being replaced by FM 4140-10-4003 (Chem., Respirator, Air Filtering, M5). Supplied from Requirement Type Contract through Chemical supply channels.

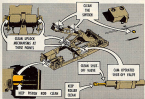
CLEANING TEAM



Eliminate grease and some volatile mineral spirits—they make a great team for getting some things cleaned around your Mike-Marcoski branches.

Flynnston . . . a rig dampened with volatile mineral spirits is a good bet for keeping the safety switch in the Tank clean. If the switch goes cruddy, it might not go down. And if it happens to go down, it might get stuck, so it pays to open the "eye" of a blow gun.

After you clean the switch, hit it with PL. Usually the way it says in SD 0-1-40-210-204.



The team'll also go into to see on the same apparatus shut-off valve . . . the eye lock mechanism . . . and the gloves and in the downback hydraulic cylinder. And while you're cleaning the shut-off valve, don't forget to give the roller a going-over.

You want to get rid of the dirt because it can lead to a broken shut-off valve and an optical circuit that won't close. And no closed circuit, no money down.

BE YOUR OWN INSPECTOR at the ...

MISSILE TRANSPORTER TRAILER

As it isn't got the same old handle, the depth of the field, or the gain of the field, the number left.

The first, who among you friends had?

Such as the way of life-in's built for you and you, the "advent" and "dreams".

It's always out to the open ... lugged away as by some, slow and limping temporary runs, weathered by rain, dust and heat waves.

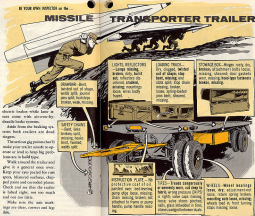
It's got them that can go the point that can go clipped and no electrical means that can go further. And looking it into a right spot somehow brings out a check of work that'd raise the hair off of a rat.

But if you point more a mile, any distance you'll see how it's also to have a suitable temporary trailer "round the town".

Your trailer is a workhorse, built to do an important job. Like the glider operator, it'll go to just one without a ready PM die.

This Be Your Own Inspector is a handy guide ... follow it closely and you'll be in shape when the way CMI hits your die.

Two models of the transporter trailer are shown, the M244 and M26141. Early types are equipped with direct



COUPLER—Best, loaded out of slope, with split, center pin split, handle, broken, weak, missing.

SAFETY POINT—Best, last broken, split, missing, loose, best, failed, with split.

LIGHTS, REFLECTORS—Lamps missing, broken, dirty, tilted out, reflecting in wrong, broken, missing, mounting, lock, wire body, fused.

LOADING TRUCK—Dry, clipped, tilted out of slope, step, best, missing, broken, loose, spring, cable, pin, bent, damaged, missing.

STORAGE BOX—Rings, nuts, do, broken, attachment bolts loose, missing, cleaned, door, gaskets, worn, missing, handle, pin, broken, missing.



INSTRUCTION PLATE—No, damaged, lost, or out of oil, painted, gone, not having, pump, clip, loose, missing, blank, missing, broken, all attached to frame or pump handle, pump handle missing.

TILES—Trails, especially in emergency use, not deep to level, wrong pressure, O-Ring, a right, water, caps, missing, long, wire, stone, packed, split, glass, attached to line, clean, edge, between, bush.

WHEELS—Wheel bearings loose, dry, adjustment, loose, valve, spring, broken, mounting, nut, loose, missing, wheel, tool, in front, turning, stops, missing, loose.



HOT TAP

INSTALL...

Connections loose,
trayed, missing.

Battery dead,
missing.

Fuel missing.



Check for
leakage
around
connections.



ELECTRIC SYSTEM—Check for frayed, defective wiring, poor, worn, missing in vehicles, loose connections, testing, missing, loose clamps.

MOTORIC SYSTEM—Check for no pumping action, level of fluid in master cylinder, leaks in hydraulic cylinder, lines, pump, reservoir, poor, loose, unsealed connections, plugged, clogged, blocked, closed lines.



Simple repair?

NO MORE
MAYHEM!

FOR ROOF

Join us today on the roof,
here's the info on RFD's and
TR's for your needs. (Check
DA Pam 3 10-4 for more info.)

DA FORM 10-10-7 Use Oil applies
to the installation of surface lead sheets
type like fittings by fasteners.

DA FORM 10-10-11 (Apr 58) provides
for replacement of storage tanks on
bulk trucks.

DA FORM 10-10-12 (Apr 58) deals
with providing drainage holes in the
storage box on mobile tank.

DA FORM 10-10-13 (Apr 58) sets
position for air reservoir tank on the
RFD's.

**JOE'S
DOPE**

THE BIG ARM





...PART AT THIS MOMENT... IN THE
JOINT HEADQUARTERS, THE
BRIEFING IS CONTINUING UNDER
ARMY DECISIONS!



...THINGS ARE CHANGING.
MORE EQUIPMENT IS BEING
PUT ON... THE BATTERY
AHEAD'S BEING READY
TO MOVE AT A
MOMENT'S
NOTICE!



...SO, THE ROAD AHEAD IS... ARMY
EQUIPMENT HAS GOT TO BE
READY... **COMBAT READY!**
THAT INCLUDES EVERYTHING
FROM CARS & EQUIPMENT
TO PERSONNEL...

TOO
DEEP
FOR
ME!



...NOW, IT DOESN'T TAKE A GREAT
IMAGINATION... HOWEVER TO FIGURE
OUT THAT THE WORLD IS TAKEN FOR
GRANTED... IS NO LONGER A
PROTECTION--WHEN A FLAG
COULDN'T GUARANTEE US ON THE
OTHER SIDE
OF THE
WORLD!



A WHOLE LOTTA
MAY HAPPEN IN
A COUPLE OF HOURS
... THIS IS A FACT
OF LIFE...



...AND THEN, WHEN
THE BATTERY IS
PREPARED-- YOU
GO, AND YOU GO
WITH WHAT YOU
GOT IN HAND.
THE EQUIPMENT
YOU'VE GOT HAS
GOT TO BE
READY-- ALL
THE TIME.

...THANKS TO OUR
COURAGE... WE'VE
MAINTENANCE
MORE IMPORTANT
THAN IT EVER
WAS!

YOU'RE READING ME LIKE A SHAM!
... NOW, ANYWAY, BACK AT THE
PENTAGON, THEY'RE GATHERING
OPINIONS LIKE A CHICKEN FARMER
AT LARRY TUREL... HANDLING OUT
THE JOBS... AND EVEN THE BODIES.



... FIG... THE KEY IS TO
GET UP THE SYSTEM SO
AS TO MAKE IT POSSIBLE
TO KEEP EQUIPMENT
CONSTANT READY.



... AND THEY
GONNA
IMPROVE THE
MAINTENANCE
SYSTEM
EVEN
FURTHER.

YEP... ALREADY
GOT THAT COVERED
BY FEDERAL YEAR
APPLIC 11 IN
THE 58-750 AND
750 101.



HEAVY... GONNA
TAKE MEN AND
MONEY TO DO
THIS!

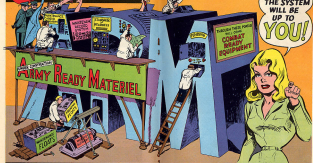
THEY
KNOW IT!



THEY GONNA FIGURE OUT IF THEY
NEED TO BUY UP THE MAINTENANCE
AND AUTHORIZED FOR MAINTENANCE
WORK, FUNDING (CONTRACT PLACE)
AND MAINTENANCE TRAINING.



Joe's Dope Sheet an "operation ARW"



OPERATING THE SYSTEM WILL BE UP TO **YOU!**

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



THROUGHOUT THE WAR OBJECT OF IT ALL IS FOR THE BOYS TO HAVE MEN AND EQUIPMENT THAT CAN TAKE THEM ON VERY SHORT NOTICE AND THAT INSURE A WHOLE NEW ATTITUDE WOULD BE DEVELOPED!



TEAM, THE MORE EMPHASIS ON COMBAT-READY EQUIPMENT— THE MORE IMPORTANT IS THE MAN WHO DOES THE MAINTENANCE!



RIGHT... AND THEY RECOGNIZE THIS... SO MAINTENANCE MEN GET MORE EMPHASIS TWO WAYS— FIRST— THEY'RE THINKING OF GETTING UP AN APPROVED MAINTENANCE CAREER FOR OFFICERS.



THEY'RE TRYING TO GET A LINE SET UP— FOR EACH OF LINE OFFICERS, NO MATTER HOW BE CONSIDERED COMPLETE UNDER THE OFFICER WHO HAS AT LEAST THE EQUIPMENT PARTS... BUT HE'S GOT MAINTENANCE OFFICER.



IN OTHER WORDS— LINE OFFICERS WILL BE COMMANDING EQUIPMENT AS WELL AS MEN!

YOU MEAN (GROANS) AT LONG LAST MAINTENANCE IS GOING TO GET SOME? MAINTENANCE IS REALLY MOVING UP IN THE WORLD?

YEA, AND THERE'LL BE COMBINED EQUIPMENT ALL THE WAY FROM STAFF TO THE MAN ON THE LINE ... NO MORE!





NOT MATTER

YOU SUDDENLY
LOOK SAD.



YOU SEE... THIS MEANS THAT NOW
I'LL BE MAINTAINING ALL THE TRAIL--
EVEN DURING FIELD OPERATION.



AND WHAT'S MORE... I'LL
NO LONGER HAVE AN OLD
SHIRT TO BLAME...

TRUE... AS USUAL IT COMES
RIGHT DOWN TO THE MAN
ON THE LINE... AFTER
"OPERATION ADAM" GETS ALL
SET, IT'LL DEPEND ON YOU
TO MAKE IT HAPPY.

QUESTION AND ANSWER DEPARTMENT



REPAIR PARTS PUZZLE

Dear Half-Rack:

There's a real problem for you in all the supply boys in my outfit straighten. Is there a requirement that repair parts be cleaned or oiled or may they be kept in preservatives?

If there is a requirement, would you please let reference?

Sgt O. L. S.

Dear Sergeant O. L. S.,

Well, quite like, Serge, there's no requirement one way or the other regarding the storage of repair parts.

The main idea behind packaging and preserving is to keep the material in top condition until the day comes that you need it—right?

Remember the preservative before you need the material only gives the way for things like rust, corrosion and other damage—plus the unnecessary extra job of trying to keep it clean.



It pays to me that it's just good old common sense: want to keep repair parts preserved and packaged until the time comes to use them.

Nevertheless it's a mighty important however-~~ever~~ item (and can't be placed in a bin and forgotten). You've got to keep an eye on your stock and check it often for things like boxes or wet packages, or corroded parts, etc.



Of course, when you find an item in bad shape, it's up to you to check it out and correct the problem before you put it back on the shelf.

Now, aside from that physical check, why buy additional trouble with a spin-and-polish machine when you can just take time to brush out by packing and preserving better preservative maintenance.

DOZER PUMP FIX



Dear Hal/Matt,

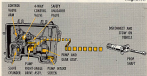
The oil service on our 485 and several other dozers has stopped during road marches.

It gets so hot the roller around the pump leaks across seals. The seals and gaskets on the control valve and slave cylinder get damaged.

The only thing we can think of to do is just the pump-out of action on the head won't build up there. It's to this by disconnecting the pump shaft from the PFD to the hydraulic pump right angle drive assembly. When we're not actually doing, we disconnect this shaft and wear it on the rollers.

There must be a better way. Can you tell us what it is?

Bill G. D. M.



Dear Margaret D. M.,

You're got the best way.

You're getting the best build-up because the 4-way valve won't go into the full down position the way it ought to when you shift the operating lever into the "H" (Hold) position.

With the control valve in this wrong position, you get an oil-flow restriction. The pump builds up pressure and the oil heats up.

Hal/Matt
Answers to Letters

TOOT TOOT

Dear Half Mack,

I need the insulator, horn cable, manufacturer's part CC-1344783 for my 14-year-old car because of a defect in the horn standing by itself on sharp curves. I can't find any P/N for this part, as there do I order it?

Sgt Mike



Dear Sergeant Mike, —

The supply people figured this part wouldn't get lost, broken or worn out, so they don't have an P/N for it and they don't stock it. That means you can't order it in the normal way.

There is another way, tho'. Ask for it on order a DA 1546 or DD 1149, and your supplier can reassemble the part from some junkyard vehicle.

They get the authority to do that under AR 738-10 16 Mar 69, and Change 2 (12 Oct 69) if the parts are needed and can't be ordered through normal supply channels.

It is good to remember this way because it can help you in a lot of cases.

If your support unit can't find a junker with the part you need, you

have no pressure is locally.

You won't find it on the market so you'll have to make it.

This is easier than it sounds and can be kind of fun.

The part is plastic so you get some stuff from a hobby shop, make a mold using the part from another truck, and then cast it in plastic. . . . You find out the easy way with a DA 1546 or DD 1149.



"HOT" BATTERIES



Dear Staff-Ser:

We learned, the hard way, that it's smart to take extra care when putting a lead-acid battery right to work in a piece of equipment. You can't be too picky about cleaning the posts and getting a solid connection with the cable clamps.

Hot off the charges, a battery that is still going can be easily exploded. All it takes is flow that hydrogen gas in the air that jumps from a bad connection when you push the starter button.

Two of our units last batteries that way safely. Nobody got hit, but the sparks were somewhat abundant. Are there any other ways a battery can be blown?

SFC R. L. B.

Dear Sergeant R. L. B.:

Yes, you can blow batteries by explosion in other ways—like cranking up the connections. Good connections won't always cause explosion, but they'll discharge the battery in a hurry, and could destroy the plant.

Most battery linkups are made as it's necessary to match the (+) positive cable with the (+) positive post, likewise the (-) negative cable with the (-) negative post. If the markings are



mining, or not this, better safety guide signs on the heavy box.

But the commonest cause of heavy explosion is carelessness that causes a short circuit—like dropping a metal tool across the terminals.



Like it tells you in TR Q&D 1815, the best way to avoid this type of trouble is to remove the ground cable first when working on a battery—and to attach the ground cable last when hooking up the battery. This goes for all ground cables, if you have a multiple strap.

Raymond



Always working on a battery remove cables ground last FIRST

Always attaching UP & SAFETY HOUSING LAST ON LAST

A BORING MACHINE



Dear Staff-Man,

Our staff finds plenty of good use for their earth-boring machines and gold miners.

However, there has been some question as to who has the maintenance responsibility for the contractor.

E. J. DeC.

Dear Sergeant E. J. DeC.,

AR 761-2410 (30 Aug 67) should end all the argument on this score since it states that the highest responsibility for the earth-boring machine and gold miner Models V10/MTQ and V10A/

MTQ are belongs to Sigint. These are truck-mounted models and are powered by the power take-off from the truck. DeLancey is responsible for the chassis.

Model V10/MTQ is covered by ESN 1120-408-8177 while the V10A/MTQ carries ESN 1120-408-8178. You can find repair parts for both models in TR 5-1500-289-287.

As a reminder, the truck-mounted earth augers (gas, engine driven) in the supply system are the responsibility of the Engineer.

Raymond

DON'T OVERFEED THE BIRDS!



Overfeeding a bird can be just as bad as underfeeding one.

Now, didn't I show a view on the one-walkie' about the rail-water gear-box on your *Slick 114-116*.

If you had the oil in'te open on the top of the filler hole, wud ya shoote? You're going to get leaky gear like wud all of pouring oil all over the place! What do I mean in full, the gear can build up enough oil pressure to blow the seal in your rail-water-drive cap, real easy-like.



The reason for this leaky-gear, or light-gear, depending on which one your bird has—is to guard against over-filling of the gear-box. This body means a lot of trouble, as called for in Chap. 11, Section II, paragraph 2, 14, of The 15-000-284-25-50 Feb 620.

But don't take this overfeeding prohibition from the beginning. Are you just out on a new, or occasional gear-box still right off the bat she gets drippin'.

IT'S HOT!

This may cause you to believe that somebody showed a leak gear-box on you. But hold it a second! Remember that fill about giving water to any new pet a chance to see, or work out! Sure you do.

The same thing holds true with the gear-box, only more so. In fact no many gear boxes are being pushed off of line that support's in a blind trying to keep 'em in supply.

To stop the run on gear-boxes (and

cut down on a lot of allow grease in the bargain), just remember that your clapper wants to flip at least 15 times on a bench in period before you make with the wrench. That's the stamp in project 11, 4445, H-11, 1904, TB 4775 11-0-1 114 May 621 ... and your 2-1 line of your '620.

When the bench is period, if you're still got no much leakage, then it's time to change the gear-box.

HOW MUCH IS TOO MUCH?

It's when the gear-box needs filling more than once between daily inspections. For example, suppose your gear-box has a sight-gage. The refill line is when the oil level is at the bottom of the gage. The maximum fill point is the top of the gage.

But most's likely you've got a leveling plug with an overflow drain cock. The refill time on this one is when you open up the drain cock and you don't get any flow of oil. The maximum fill point is when the oil is level with the plug hole.

To be more exact, the minimum safe operating level is 80% of oil. The maximum is 100%. But if you don't want to mess with a measuring container here's the quick and easy way to fill your gear-box.



ELL, DUT SE ...

Use your bird box on the side and take the filler plug out. Cut the lock wire and open the leveling drain-cock, or loop or retort glass on the sight-gage—depending on which you have. Then add the oil slowly as the run give it a chance to register.

Now, lower the gear-box slightly by leaning down on the rail-water gear.



When the gauge shows the quantity is at the maximum level, or the oil starts coming out of the drain cock, stop adding oil... you've got the maximum refill of 100cc's in there. When the float plug goes back and the drain cock is closed—match.

Our other point on overloading concerns greasing the ball-socket-joint change bearings at a 24-hour servicing. If you give the bearings more than a couple of shots (plus with the grease gun, the extra grease could be forced through the breathe hole in the ball-socket-assembly. That can plug the hole and also give you leaky seals.

Seems as though there's just no substitute for good perceptive maintenance practices on the gear-box. Overload a bird and she'll develop leaky seals. Feed 'er just right and she'll fly high and dry.



MARK YOUR DIALS

So your Michaels (A&T) has just entered the traffic pattern, fresh from the factory... good deal?



One thing you want to remember on your acceptance inspection, though. The manufacturer was not required to put the safe operating ranges on the instruments.

So you want to run your eyeballs over the basic TBE 10-118-024-03, dated 11 Mar 61, (revised 1 Mar 61), Chapter 2, Section VII, figure B-1, for all the marking ranges for your instruments.

STRAIGHT AND NARROW

Dear Editor,

Because of the big spread on our birds we figured a little extra aid for tug operators would come in mighty handy to help prevent towing accidents.

So we drew up a reference line for marking our Mustangs (10-11's) in and out of the hangar. It gives you the minimum 48" clearance when you need it—in the hangar door area.



To locate the line you just measure the width of the hangar door opening and mark the floor at mid point. Beginning at this mid mark, you paint a six-inch-wide line on the floor from the door to the bird's parking area. Of course, if you have several birds in a hangar the reference line would run along of any single parking spot. That way the tug operator can use it as a reference to move any bird in and out.

The tug operator just keeps the cone wheel on the straight and narrow line all the time. Saves a lot of measuring after you, because he has his hangar-door-48" clearance right-off.

Crew, 130th Army Brigade
Miller Field, S.I., N. F.

The Photo-Finisher like a good idea for any hangar to help cut down on some expensive repairs to door sludge parts. (Course your hangar doors want to be wide open and paragraph 44, AR 15-13 (20 Oct 61), "Towing Procedures for Operation and movement of Army Aircraft on the Ground", will give ... that means jacking, clearance guides, or wing walkers, and somebody inside to ride the hook.)

REAL GOLD-DUST TWINS

Here're a couple of real back-scattering points you can't afford to miss if the 11-13 wingwing's your baby. TB 820 880 (4 April 62) has the word on installing a tapered shim to keep the AT-44's ABC antenna from hitting the rail when starting high vibration. And CB 11-932 (4 April 62) backs up the TB by providing the authority for the part needed.



HANGAR TUG

Clare, Illinois.

We added our support shop to both a complete and plain in the front end of this 2000-lb Deere warehouse tractor—and now we have a Jim-Body Hangar tug.

We use the front end for handling the H-21 and the rear for towing the H-12, H-13, H-21 and several other aircraft.



WHEEL ATTACHED TO BLADE



WHEEL ATTACHED TO BLADE

The front plate has two manures: the big whistled splicer, under and under. That's because you're always facing the plate, whether you're pushing or pulling in. By backing up, you can use the blades all the way. And as long as you know what the man-wheel's doing, you can man your sleep.

We use the front plate about 25 inches up from the ground to match the height of the H-21's nose-wheel.

This old Deere is the one that had the Hinged-Blade hitch now has installed under 2000-lb 12-18000-1 (1/2" Dia FT). We used the hinged part as a complete and drilled 4 holes in a 12x12-in piece of 1-in plate, like so:

Then we made eight square washers three back washers about 2x1/2-in and four front ones about 2x1/2-in out of 3/4-in plated and bored holes in 1-in to match the holes in the 1-in plate.

Lastly, we got hold of a building hitch from the back-end of an MC-10 Federal crane (Crosby, plate hook . . . 200-2440-217-0240) and installed that.

Maybe you'd like to put this idea along to other aviation folks. Although we used an old Deere, we think other types of warehouse tractors could be converted just as easily.

Sgt August Lentz
Miller Field, I.I.

Old Note—Right you are. Here's a couple other AXP's with perforated push plates that'd do real nice: Clark 607 40 HMC 100 and Northwestern MPE 110—both 4000-pounds. Incidentally, kudos, you could also use the plate from the Jeep for this deal. In fact, the whole deal's great as long as you use a taxi signal man, side guides and a man on the hook in the aircraft like the towing instructions called for in T.O. 15-105-1 and each aircraft's own maintenance T.M.]



1955 to SAE 30

1956 to SAE 30

1957 to SAE 30

AIN'T NO SUCH RULE

A lot of old hands at the aircraft maintenance game have been using a handy rule-of-thumb to convert military grade engine oils into commercial SAE ratings. And it works just good enough so that you have believing it's reliable.

The "rule" goes like this:

1. For military grades with even numbers, drop 1000 and divide by two. (Example: 1100 — 1000 = 100 = SAE 50)
2. For military grades with odd numbers, drop 1000 and the last digit, then divide by two. (Example: 1001 — 1000 = 01 = 0.5 = SAE 1)

Well it seems we're right in these two cases. Only what happens when you run across Grades 1010 to 1001? Following the above rule, you'll end up with a big fat green egg for Grade 1001 when, actually, this grade equals somewhere between SAE 5 and 30 weight oil.

It's just a coincidence that the trick happens to come out right for Grades 1100 and 1001. The real authority for using SAE 30 and 50 oils is spelled out in TB AFM 2 (I) 4p-511, "Recommended Fluids, Engines and Transmission Oils for Army Aircraft."

Para 5 allows temporary use of Oil-50 and Oil-30 as emergency substitutes for Grades 1100 and 1001 aircraft engine oils... and these military stan-

dards engine oils are roughly equal to the like numbered commercial SAE ratings.

Since Grades 1100 and 1001 are the most commonly used aircraft engine oils, it might look like one system is as good as another. Well, the difference is that using the TB is the professional way of handling an emergency situation. Besides, you can't make a rule-of-thumb!



Meet Your NEW

Lay down that wrench, and yourself over to the maintenance manager, and take up the bidding on this new all-terrain, up-to-the-minute maintenance... the TM 1548-100!

This feature of TM 1548-100 is one set of all-terrain, board-pub-like all-terrain general maintenance procedures for all of those 405 articles published under the general heading of "Army Aviation Maintenance Engineering" manuals.

"I've got to get the new TM 1548-100!"

"I want to live!"

- TM 15-401-1 Mar 71 ... "General Practice" and "General"
- TM 15-401-2 ... "Maintenance of Aircraft Engines"
- TM 15-401-3 ... "Maintenance of Aircraft Engines"
- TM 15-401-4 Mar 75 ... "General Practice" and "General"
- TM 15-401-5 Mar 76 ... "General Practice" and "General"
- TM 15-401-6 Mar 77 ... "General Practice" and "General"
- TM 15-401-7 Mar 78 ... "General Practice" and "General"
- TM 15-401-8 Mar 79 ... "General Practice" and "General"
- TM 15-401-9 Mar 80 ... "General Practice" and "General"
- TM 15-401-10 Mar 81 ... "General Practice" and "General"



405 Pubs.



NO CONTACT, PLEASE

Each one of these 405-article manuals does not necessarily represent any individual or group of TM 1 article pubs. In other words, you can't say that TM 15-401-1 does away with the old TM 1-1, 1-2, 1-3 ... or that TM 15-401-2 means you throw out your copy of TM 1-18, 1-19. No, Sir! These general info pubs TM 15 are official until the Army says they've been cancelled.

But! When you general info pubs look like they're gonna have heads with each other, pass 'em off. (TM 15-401-10 Mar 81) says:

"To ease of conflict among provisions of publications, these publications of later date govern."

So when it comes to stacking up publications data, the 405-article rule is every case. Now it's going to be a while before every single page or section of an older TM 1-man TM 1548-100 is phased out by a later date TM 15, there'll be plenty of conflicting pubs crowding the shelf space in your work reference library for a month or two of limbo. If you see one of these potential conflicts popping its head up, treat the older pub like a chamberhead—kick 'em out of it.



LET'S DRINK &--

Although the 405-article rule for the latest publike use, they're still in the general info category. They never appear never-conflict with a --10 or --20 as a specific stretch or situation equipment. If they don't agree, then one or the other's got to be changed.



But until the change is made, you've got to go with the aircraft or equipment's manual. . . . Because para 16, AR 110-1 does not apply in this type of conflict, just like the maintenance of

it. Here doesn't tell the pilot how he's supposed to fly his bird, general rules that make room for specific equipment manuals.



READ THE BOOK

You can't tell a book by its cover. And if you never get any farther than the cover, you're never going to get over being confused about all the high-speed changes in aviation maintenance that're going on now.

For example, the index to the rear of TM 11-401-2 puts you in the know that this is your new guide on pulling out flight and maintenance operational checks . . . how to care for survival gear . . . storage instructions . . . maintenance of flight circulation . . . how to mark these replacement items . . . and more.

HOW MANY COPIES?

How many copies you want? You made up your own mind years ago that DA Form 13-31 (Request for 10 of Title and Blank Books) you mailed to Ft. St. Louis. The sign you've got under the First Edition column for "All Fixed and Rotor Wing" aircraft is the quantity you automatically receive on each of these 401-series manuals.

Any questions? The PS office is holding a 24-hour "write-in" every day and you all know the secret frequency by now. See ya on the ramp!

Clayton A. Woodard

TIRES — Treads dangerously worn, cut to fabric; uneven wear, wrong pressure (see your lift selection manual); chains over treads, nicks, cap missing; mounting nuts loose, drive fit rubbed; locking flange bent; foreign objects embedded in rubber.

ACCELERATOR — Not working, bent cracked, oily, checked; handle missing.



SEAT — Mount loose; bracket bent; loose; seat wires loose; belly frayed.



WHEEL HUBS — Lock.

WHEELS — Loose, need lubes; chain bent, rim and axle flange nuts missing; bent.

FUEL TANK — Leaks; dirt/dust drain plug loose; cap dirty; loose; gasket flat; gaps missing; loose; leaks; mounting screws loose; badly rusted; vent holes clogged.

HYDRAULIC OIL LOW CAP — Dirty; corroded. See lift's manual for additional correct cap and buffer to use.



Check the steering wheel, and make sure it's tight. Check the seat, and make sure it's secure. Check the tires, and make sure they're inflated to the right pressure.



HYDRAULIC OIL TUBE — Leaks; oil level low; oil dirty; tube cracked; SB and bracket cap loose; dirty.

APPROXIMATE
WEIGHT: 1000 lbs. (450 kg)
OPERATION: manual
REPAIRS: adjust the
 slack of the cables;
 or the valve, depending
 on fault diagnosis.



HYDRAULIC FLUID CHAMBER AND TANK - Tank and its legs; dirty; leaks, cracks, rust spots in tank and chamber. Bleeder screw loose; tubes and hoses leak; bent; hose clamps loose, rusted.



STEERING ROOSTERS, LOCK VALVES - Leak; mounting; loose; bent; fittings and tubes leak; locked, blocked or wrong.

BATTERIES - Dried; overheat; loose, corroded parts; straps; noisiness; too much; cables loose, corroded. Filter clog missing; leaks; vent holes clogged. Electrolyte level low; specific gravity low (should be between 1.27 and 1.30).



TOPPING CONNECTION OPENS PLUG - Leaks; dirty; loose.



TRAC LINE - Leaks; weak; bent; loose; worn.



DOWN LINE - Worn; weak; wiring loose at terminals.



WHEEL LINES - Leaks; fittings badly worn; mounting loose.



STEERING GEAR HOUSING - Insufficient seals; and greases; loose bearings; needs adjusting.



FRONT END - Loose; too much; clogged. Water level low; check antifreeze for season.



FRONT - Dried; too tight; nuts and bolts are missing; head's rusted. Clutch needs lub.



STEERING TRAJECTOR LEVER —Steers, locks, tests.

CABLE—Must work right, trim broken, cracked, correct. Realign the light or the fan.

TRANSDUCER COIL—Should read between 300 and 350 pounds after warm.

DRIVE LEVER — See WIND (2-800-222-000-1) which provides for reducing the length of the lever to prevent accidental mis-trip.

WIND UP—Indicates timing faults caused by timing.

WIND-UP LOCK—HERE SWITCH — Must work right, loose. Check correct service book into a temporary park up (trial).

SYMPODS (Warning)—Service Light, Light Switch, Signal, Headlight, Fan Switch—Must work, broken, lock.

STARTER OPERATOR IN POSITION—Long probes, cracked, loose. Check if down position of battery when twist a vis generator setting when engine is turning.

FRACHTON SHAP INDICATOR—Must work.

WIND-UP LOCK—Switch, loose, test.

22 BURNS WIND UP—Correct, loose, no light.

DRIVE WIND UP—WIND—Check, loose, lock.

WIND BUTTON—Must work, loose.

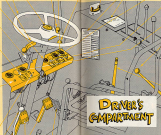
WIND GEAR—Red line.

WIND SPEED—Must work, loose, test.

WIND FLARE—Moving, point of rest, loose.

WIND INDICATOR—WIND, 0-200, moving, point of rest, correct.

WIND AND CAL FOR FLARE—Moving, point of rest, correction.



DRIVER'S COMPARTMENT

WIND-UP—Must work, check the main test play (check low for to hold the play).

ACCELERATOR—Loose, loose, rubber, timing, wear, test.

WIND-UP—Loose, test, moving, loose, plug for up loose, test.



WIND TEMPERATURE —Should read between 100 and 200 in normal operation.

DRIVE COIL —Should be 40 pounds per square inch at operating speed.

WIND CONVERTER TEST—Should be 100 in normal operation.

WIND UP—Must work right, loose, test, timing.

WIND-UP—Must test right, loose, adjust wind (check field where in normally good with one that (check test book).

WIND—Loose, and locked, open, loose, loose, moving, loose, loose, testing, lock, test, testing.

WIND-UP—Check closed test the fan should's in NORMAL position for one hand operation and in FORD position for the rest. This W' turns up the engine if you get in testing.

Check your car's engine and see if you can find any of these parts.



START 'ER UP

Lead us ear to the case your rig's playing. If anything sounds off key, Double-Check is right off. Here's some of the sounds that tell you a 980-100 hurts:



HYDRAULIC SYSTEM PROBS

While the engine's still going, give 980-100's hydraulic controls a short workout.



- 1 **LIFT CONTROL**—Stick, loose, bent, hard-moving.
- 2 **TILT CONTROL**—Stick, loose, bent, hard-moving.
- 3 **ROCK CONTROL**—Stick, loose, bent, hard-moving.
- 4 **ROTATION CONTROL**—Stick, loose, bent, hard-moving.
- 5 **SIDE-SHIFT CONTROL**—Stick, loose, bent, hard-moving.
- 6 **CHOCK CONTROL**—Won't work freely.

If the controls stick, could be the hydraulic control linkage is rusty. Fresh your oil can and squirt a few drops of



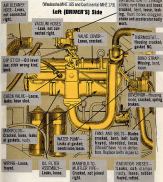
engine oil won't stop rust from

jetted strings. Control lever lockout device was included in MFWD 44-1558-221-0013 for non-loading crane operation. Also included in this MFWD was a hand throttle to make it easier to start up and maintain engine speed during warm-up period.

ENGINE

(Caterpillar 3412 D6 and Continental 3412 D7)

Left (DRIVER'S) Side



AIR BLENDER HOSE—Leaky, not connected right.

VACUUM HOSES—Leaky, not connected right.

CRIP STICK—Oil level low, stick wrong kind, bent.

CRACK VALVE—Leaky, leaks, bent stick.

WATER PUMP—Cracked, loose, leaks at gaskets, rusty.

WATER—Leaky, frayed.

OIL FILTER ASSEMBLY—Leaky, loose.

VALVE COVER—Leaky, cracked.

WATER PUMP—Leaky at gasket, rusted, loose.

WATER PUMP—Cracked, not joined right.

DISTRIBUTOR—Linkage broken, rods loose and loose cracked, bent, loose, leaking, float holes clogged, shaft and distributor body worn.

DISTRIBUTOR—Timing cracked, gasket NG.

ROCK STRAP—Wiring, bent, loose.

ROCK STRAP—Timing loose, cracked, spring broken.

FUEL AND AIR T—Washer cracked, bent, belt badly frayed, sheared, loose. Check for 1/2 in deflection. Replace belts as per 1.

RADIATOR HOSES—Leaky, old clamps rusty, loose, broken frayed, rotted.

ON THE RIGHT SIDE

ENGINE



DISTRIBUTOR—Locates timing cap and rotor, mounted on timing cover.

CYLINDER HEAD—Covers combustion in lower half of timing cover and roughly houses intake and the top valve.

SPARK PLUGS—Insert into spark sockets, create sparks, located in head, usually head front.

CONNECTOR—Mounting bolts, connects lower body to the belt and pulley cover.

WATER PUMP—Circulates coolant, driven by timing cover.

WATER PUMP DRIVE—Covers, usually tapered, with.



VOLUME REGULATOR—Waxes, located in head.

FUEL PUMP—Locates, with.

UNIVERSAL JOINTS—To the front, located, front, rear, rear axle.



CLAMPING DEVICE—Locates, used to clamp pulley's shaft to shaft.

STEERING SHAFT—Mounts drive shaft, located, steering.

UNDER

TRANSITION OF FILTER—Locates, used to filter. Located in head, cap, filter, rear, steering, cover, filter.



CONSTANT VELOCITY JOINTS—On front axle.



DIFFERENTIALS—Covers, located, used to turn, front, rear, rear, front, rear.



WATER PUMP—Circulates, mounted, with.

AIR CLEANER—Filters, located in head, rear, rear, rear.

WATER PUMP DRIVE—Locates, used to clamp pulley's shaft to shaft.

WATER PUMP DRIVE—Mounts, driven, with.

WATER PUMP DRIVE—Mounts, driven, with.

STEERING SHAFT—Mounts, driven, with.

WATER PUMP DRIVE—Mounts, driven, with.

Don't forget to check the oil level in the oil pan. It's located in the head, rear, rear, rear.



VEHICLE

WATER PUMP DRIVE—Mounts, driven, with.

STEERING SHAFT—Mounts, driven, with.

CONTROL LEVERS—Mounts, driven, with.



When the truck is used as a tow truck, the rear suspension cylinder must be placed in the towing position. When used with cross members, the rear suspension cylinder must be changed to operating position. The rear axle trailer bottom pins is constantly during change-over of the rear suspension cylinder.

3 LINES—
Cranked, bent,
used like
cables.

**FRONT COLLARION
CYLINDER**—Lacks
inner-rod-on-shaft,
needs hole, pins used,
piston rod secured.

HOIST SHIFT CYLINDER—
Lacks, drilled, cracked, pins
are not bent up, secured
hoop, badly cracked, appears
to leak, bent, cracked.

FORKS—Bent, broken,
nuts loose, backing
pins missing, badly
cracked.

HOIST SHIFT CYLINDER ASSEMBLY—
Inoperative, worn, cracked
piston, broken, ball-rod
ends worn, loose, teeth broken,
worn, cracked, chain anchor
damaged, worn.

EXTENSION CYLINDER—
Badly cracked,
bent, leaks, mounting
bolts loose,
cross-braced, piston
rod bent up.

HOIST CYLINDER—Badly cracked, drilled
leaks, mounting bolts loose, cross-
braced, piston rod badly cracked,
Crack after modification and bent,
the 4800 10-2000-23-26-3 10 May
83.

LIFT CYLINDER—
Leaks, mounting bolts
loose, piston rod
bent, bent hole.

CRANK SHAFT— Bent,
broken, nuts loose,
backing pins missing,
badly cracked.

Keeps seal edge open to see that
the cap screw makes heads in the hy-
draulic cylinder—and especially the
collarion cylinder—have not cracked
loose, inspect bolt regularly and keep
'em tight.

SAFE CYLINDER—Badly worn, needs
hole bent, bent.

**REAR COLLARION
CYLINDER**—Lacks
rod hole, on-shaft,
piston rod secured.

WIRE ROPE ASSEMBLY—
Cracked, broken, wire
is too old, broken, badly
rotted, and fittings
loose, used fittings worn,
nut needs hole.

VEHICLE ATTACHMENTS

The crane attachment's what makes your MC-100 a true ground mobile piece. It's a real hefty bulk with a sophisticated machine. That's why OCF's pick their best men to pilot this. And that's why it needs the very best PM you can muster.

It only takes a minute to make up change to convert MC-100 from a forklift truck to a crane, but there's a whole lot of PM to work on too when you make the change. Usually the particular parts and make sure you get all hydraulic quick-disconnect tight. And don't forget to see that dust plugs are used or sealed tight.

You can't be too careful when you

install the crane attachment. Make sure the hydraulic lines are hooked up right, and make real sure the crane's boom is conditioned like the TM says.

Shortcomings that might get by in MC-100's design when work won't get by as a mobile unit. MC-100's got to be ready to go, day or night.

Incidentally, here's a few tips that'll save you: Before you lower the backing pins on the stiff legs, ease 'em with grease. That'll make it easier getting the attachment open later on, too. This grease'll help even after the pins've been stored down, like it can be in 8000 10-2000-23-26-3.



STIFF LEGS—Legs and
boom bent, cracked, in-
spected, wiring lock pins
missing, badly worn.



HOOK—Cracked, badly
worn, nut worn, cross-
braced. Safety lock not
installed. See 4800 10-
2000-23-26-3 10 May
83.

HOIST INSTALLATION—It's on
ground—10 PSI, all lines
well used, real, some—25
PSI, all lines, cross dis-
connect—10 PSI, all lines, and
all custom fittings in-
line.

HOIST UNIT—Bent
work bolts, loose
cracked, fitted,
mount and mount-
ing hole, broken.

**CRANE WIRE
ROPE**—Cracked,
bent.

QUICK DISCONNECT—Broken weld, stiff leg
support and end boom frame loose, connections
loose, hole Compound leak from line.

BOOM—Bent,
broken welds.

WIRE ROPE—
Weld cracked.

WHEEL ASSEMBLY—Fully tested, loose, mounted wrong, loose hub cover and mounting bolt and bolts loose, worn, cross-threaded.

PORTABLE CRUISER MIMO—Fully tested, loose assembly and loose or too tight, loose hub, loose, fixed, worn.



LEAD BLOCK AND SHEAVE—Crossed, loose, bent, worn.

Crane used for handling missiles and explosives must be load tested when the vehicle leaves service and thereafter every six months or 100 operating hours, or after any hydraulic part's been replaced. The steps must be recorded on the crane and written in the crane's jacket file. Para 15 of your organizational manual has the steps.

LOAD TEST COMPLETED

18 JUNE 1960

LOAD TESTING BEM—Missing, wrong, inadequate, test not made.

PORTABLE HOSES—Broken, out, badly worn, tested, out of spec missing, dirty, gas-disconnect plugs and seals cracked, incorrect tagged.



CRANE HYDRA top and bottom—Cracked, with broken, test file.



LEAD BLOCK AND SHEAVE—Cracked, bent, sharp edges and burrs, bearing badly worn, loose, hub, loose and clean for light.

MIMO's—Not applied, not recorded in log book or on MIMO plate.

MIMO 10-2050-215-2071 (14 May 61)—Description of loose testing indicator and lift hook safety assembly on crane attachment. (URGENT)

MIMO 10-2050-215-2072 (15 May 61)—Description of check valve on hydraulic oil cylinder. (URGENT)

The crane attachment load limit instruction plate will be distributed automatically to all users instead of publishing an MIMO.

MIMO 10-2050-215-2071 (3 May 61)—Installation of keepers to prevent pivot pin tube from shifting axially in case of flange weld failure (URGENT). Note, however, that these keepers are

not required on all cranes. The MIMO will tell you which ones.

MIMO 10-2050-215-2073 (10x 61)—Ready maintenance for improved construction and safety. (URGENT).

Basic form from Use (NEI) for the crane attachment is scheduled in a change to TM 10-2050-215-10, while the NEI for the truck is in Change 2 (10 Oct 61) to TM 10-2050-205-10.

You can get the forms in these NEI's by submitting a requisition through supply channels to Commanding General, Columbus General Depot, 47TH QMRFPC, 1054, Columbus 13, Ohio.

Carole Rodd's

BRIEFS

Looking to keep your bird safe and healthy? Consider these tips.

Wash...but only if you really have to. It's messy.

Keep your distance

Feeding one bird too close on the tail of another being raised can give you more of a blast than you bargained for.... Hold the your bird on its back! That's why The 1-800-388-4111 Feb 41, "Ground Operation, Service and Maintenance of Aircraft," page 11848 says, in effect—no passing in the rear within 100 feet of a jet blast or 150 feet of a prop blast.

AP-3 oxygen mask

Aerobek MD-3 universal fit's working for you! The easy-to-remove, easy-to-adjust oxygen mask operation device for your AP-3 helmet. Get your oxygen (optional) requirement to apply MWVD 10-8415-282-2811 (7 Feb 42). There's a fit for every size face, small, medium and large. The MWVD's an expert.

Good for torps, too!

Top, it's true! The same stuff (Water Resistant Compound, Trade: Spac AB-C-11294, Type I FSH 8030-244-2840 L) gets recommended for re-sealing torques can be used for truck torps and all other kinds of cotton duck patches. And the same methods of application go for 'em all, too.

MBO fuel tanks

Having trouble with the fuel tanks on your MBO bottle-wagon? Do they come up with leaks after your tank business (or at some rough turn) of your career in these operations? A big, fat, YES, then MWVD 9-2326-213-26111 Line 421 may be needed to supply a mounting that will make the fuel tanks slide like eggs in a crate. This is an UNCLASSIFIED MWVD, so get your support to get it on.... like right away, now!

Timing circle bleed

Got troubles with your 42 timing circle? Like maybe the compressor needle's stuck? Could be the driver plate clamped in the valve assembly is magnetic. If you think so's the checking the instrument "driver magnetic" and return it to your support in exchange for a serviceable instrument.

Tight tube

If your 42 tube-socket lines truck wagon a serial number below 42781, soon its leg back to use if MWVD 9-2326-211-26111 (2 Sep 28) has been applied. If so, ask your Ordnance support to check the pump-to that all tubes to use if the new one's holding it right up the pump. Could save the last years of that engine's life.

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

671.60

HARD WORK

is an
accumulation
of easy things
you didn't do
when you
should have.



17

