

Issue 216

PS

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THE
PREVENTIVE
MAINTENANCE
MONTHLY



DIRT TIME

No matter where you are . . . Southwest Asia, back in the World, in Europe, or elsewhere . . . dirt will threaten your equipment.

Right now in some parts of the world it's dry. In other parts, this is the wet season, and you're not bothered by dust. But, you can get your bearings and broken ground up with mud.

You can't keep all dust (or mud or whatever) off your equipment. After all, your gear is there and sitting up whatever's around. You can, tho, do a bit to make sure it does the least damage.

Clean it off before it builds up. Separate equipment, when you can, where less dirt will be stirred up. For example, don't run a generator flat down in dust and sand when you could put it up on rollers or on a platform.

On equipment with filters, like engines and electronic gear, make sure the filters are being air to. Once or change the filter elements before they get all the air, it chocking air filter will kill off the toughest equipment.

The more dust or the more mud you've got to contend with, the more you have to protect your equipment from it. That's about the best thing you can do for your fighting equipment. It's good to



IN ORDER TO GET THE MOST OUT OF YOUR PS EQUIPMENT, READ THE PS BOOKS AND PAMPHLETS. THEY'LL TELL YOU HOW TO GET THE MOST OUT OF YOUR PS EQUIPMENT.

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CHERRY LEADER, FRONT Buggy.
PATROL WAGON.

COMMANDO CONTROL

WANT UP A
FEW TIPS TO GET
YOUR COMMANDO
ADDRESS? DON'T
FORGET!

It's a little different, right—so it takes a bit of more know-how to keep your KAP100 or KAP1001 Commando around on twisting, slanting roads of the past.

You may know the new command car by some other name... like the V100, the Buggy or the Death-Bug, whatever you call it, here's some PM tips and reminders to help you with command car care.

Like with any piece of new gear, you don't get behind the wheel until you've been checked out on the Commando. You can do damage in nothing flat if you're not hip to its controls. Spend all the time you need with its operator's and maintenance manuals.

IN THE DRIVER'S SEAT

First of all, never use 4-wheel drive on level surface roads. Shift to 4-wheel drive only when you're headed into mud or sand, or when you're driving



the wheel... and then go into 4-wheel drive again when you see loose sand and wet or the side drive conditions, and for rough differentials.

Watch it when you adjust the operator's seat. The seatbelts have cutouts your fingers while you're sitting or leaving the seat.

Next, you always release the clutch early-like, but especially so when the Commando's under heavy load . . . like pulling through heavy mud or deep sand. If you pop the clutch you overload the rear axle shafts and you can break 'em. You'll be able to continue on for a spell, but the busted shaft will eventually bring on differential damage that'll disable your Commando.

DO OVER-LOADING HAVE NEGATIVE SUBSEQUENT SURVIVALITY?



Big thing to keep in mind here: Commando's terrible pulling power. If one wheel can grab, you can be sure the Commando will share load out of any more spin. And, that's where your operating skill comes in. You never try to run your way out of that kind of a jam. You ease up on the go-power until you have better traction . . . otherwise the overloaded wheel will do the job alone, and it can wreck an axle shaft in the process.

Same goes in waxy crossings. Take it easy if you snag a rear wheel on a curb, tree or some other large obstacle. You'll save axle damage, maintenance and expenses.

DIAGNOSIS

The rear brake-line and the electrical wiring, running between the battery and engine compartments, will be damaged if the batteries overflow. To check for overflow each time you check the batteries. If there's been spillage flush the area with clean water and let it drain.

THE ACID OVER FLOW FROM THE BATTERY CAN DAMAGE THE WIRING.



FLUSH AND DRAIN THE BATTERY AREA IF THE BATTERIES OVERFLOW



To hold down weather, keep the battery water level at about 1/8 inch above the plates. And, get this wrong number, unrelated to white lemons, inside the battery cover door. Acid will damage wires, wiring and tubing. Do not use acid lemons. If acid overflows, flush area first with water and drain.



Something else that'll help is to lift the battery lines from 1/4 to 1 inch off the floor. You can reach the lines through the hole in the bottom section of the engine bay shield. Just pull up on 'em 'em any time.

ENGINE OIL OVEN

Under normal conditions you lube the Commando by the LCI on page 28 in the manufacturer's operator's manual, and on pages 25-26 in the manufacturer's maintenance manual. But, in real use, riding, hot or dusty climate, you have to lube the Commando more often.

In miserable hot sunny, dusty climates—or when you run a lot in mud or water, for example, the engine oil change may be needed at 1500 miles, instead of at 3000 miles, which is OMC's for normal operations. And, the vehicle may also need complete lubeing care every 2 days or so—especially the U-joints, drive shafts, drag links, tie rod ends, spring and shock pins, plus anything else underneath that's clogged or dry.

WASH DOWN



Remember to grease the 2 bearings on the drum when you roll out the wash cable for cleaning.



NO TIGHT LINES

One place you never take, no matter where you are, is the Commander's turret ring gear assembly. The turret rides on pins, greaseless bearings. Grease or oil of any kind in the ring gear will cause die and grind and wear/tearing and grinding... which it interferes with turret operation and will damage the ring gear assembly.



TURRET MATS



Be sure to police the area under the turret before regularly. Dirt, mud, trash, expended brass, etc., falls through the openings in the turret platform. The stuff'll pile up and block or damage the shipper's electrical connections.

A piece of light wood, shaped to fit the top of the platform, will keep stuff from falling through. Just be sure the wood's tightproof and that it's latched up to the platform.



TAPPING OVER

And, Mr. Gunner, before you start shooting, remember to disconnect the drop cord to your helmet's bucket. Otherwise the cord'll get yanked out and the commander will be damaged.



ABOUT HIGH-LIFT TIRES

In an emergency you can use the Commands with the tires for 10 miles more—as up to 50 MPH, and you'll not lose steering control. With its special, 14.00R20, mudbar, run-flat tires (PN 2610-914-2411) you can bog out of a bog spot even with the tires. The tires may seal up its studs, but you'll be safely home . . . or, wherever you have to bog to.

But, don't get carried away . . . the mudbar stud is solely for emergencies. Any other time the studs are like the studs. Fill you can possibly give 'em.

For example, you can't tell if a mudbar stud is flat just by looking, or even by kicking the tire. You have to use the tire gauge. So, check 'em real often, especially when you're riding rough roads a lot.

Use the tire chomper (PN 4910-040-0420), like it's up in page 9-120 in the maintenance manual. If it's not handy you'll have to make do with the pry bar, some strap tension, and a couple of strong backs to pull a ring off the rim. But either way be prepared for real muscle work, especially if the rim is rusted.



20 TIRE
(MUDBAR)



60 LIP WELLS

On earlier model XM700's, rain and moisture can collect around the gas tank caps, so you have to make with the wipe cloth as needed. Like when you're going to refuel, or daily if the Commands's just sitting there outside, or it's rainy weather. If you forget this chore the water'll build up and can seep into the fuel when the cap is removed.



GLAZING WINDOW

You can seal leaky windows with caulking compound (PN 8050-900-0414). It's listed on page 79, TM 9-2320-241-20P (Rev. 59).

WALK AWAY

If you have to back down into the water (from a scullow, rubberman, etc.), be quick about getting the Commando's tail out of the drag. If you go too slow, or if the right line on your waist isn't quickly swung into the right compartment—and plug, plug . . . you and your Commando will hit bottom fast.

MAN

The operator's and maintenance instructions for the Commando are covered in manufacturer's manuals available from the U.S. Army Tank Automotive Command, ATTN: AMSTA-001, Warren, MI 48090.

MT's Manual No. 182126 Lige 001, Car, Armored, Light, 4x4, Operator's Manual. (If you've had the lesson for this manual, it covers the Commando's day control equipment . . . its identification, use and RFL.)

MT's Manual 182507 (Feb 76), Car, Armored, Light, 4x4, Maintenance Manual.

The only DA pub available on the

Commando is TM 9-2110-241-20P (May 69).

MT's and MTM's Machine Gun—Operator maintenance info is in the manuals for similar vehicles that use the MT's and MTM's MGs:

TM 9-2110-114-02—M40A1 carb.

TM 9-2110-111-02—M60 carb.

TM 9-2110-112-02—MTM GEN

Operator's Handbook, MT's and MTM's Machine Gun (Apr 69). This green covered book was published by the U.S. Army Weapons Command, ATTN: AMSTW-004, Rock Island, IL 61904, specifically for the Commando.

TREAT TWINS ALIKE

Dear Sirs:—

The differential in the M113 APC is the same as the differential in the M113A1, right? Is only a different procedure for adjusting the steering knotes. May you find in TM 9-2100-214-02 w/1A 1, 2, 3, 10-B 11 (Oct 69) for the M113 and in TM 9-2100-217-02 (Feb 69) for the M113A1?

THANKS, JOYCE
and instead of
saying "I'm glad"

JOYCE A.P.



Dear Sergeant, E.A.P.,

They're twins, all right, and should be adjusted the same way. Go by para 2-110 in TM 9-2100-217-02 for both of 'em. This procedure will be picked up in a TM 9-2100-214-02 change or revision.

JOYCE A.P.



S-QUARTER PUMP

NO SUBSTITUTES,
PLEASE!



To save money (Part No. 56456) when ordering 5/8" Fuel Pump and Mounting Gasket, P/N 2960-517-5086, for your M715 3-1/4-ton truck or M725 one-ton truck. Order by description—don't give registration and add "No substitutes on request." Under the same P/N but a different P/N (388146), you'll get a single action pump—instead of the double action job you need.

LATCH THE LOCK



Don't fiddle.

Here's a suggestion that'll help other AF members to keep their food maintenance tabs from disappearing.

Normally, when the 21-ton truck rolls out base is pulled out, it's possible to joggle the padlock and slip it over the latch arm and open the base . . . bye bye tabs, that's all maintenance.

To stop this dirty-deg action, just lengthen the latch arm as the padlock will slip over it. It works like this . . .



GP 4 R. G. SHAGREN
5th Army, Korea

Mid Note—That's a groovy fix and it looks like it'll work on the 3-ton truck too! Please, use. The latch arm extension has been OK'd for installation at organizational level by AF Army Tank Automotive Command.)

NUT ON THE LOOSE!

When you're checkin' around for loose parts, make sure you put a wrench on those hinge brackets over 'er hubs.



WIDE BRACKET NUTS LOOSE!

They sometimes have a way of working loose. Since they're what hold your dump body on the truck, you can imagine what'll happen if they fall off! If you jam 'em in 'em tight, you give your mechanic no work done over with his tools.

The nuts are supposed to be on the outside of the bracket. There've been cases of the nuts being installed on the inside



where the bolts you get hooked up with the sub-frame. If yours are wrong, get 'em put on right—and keep 'em tight.

Check them, too, on your cab mounting bolts. Travelling over rough ground can loosen 'em—then your cab will shift forward, jam your brake shoes so it can't siting and lock up your brakes. Keep your cabs mountin' right!

Loose fuel tank straps? The right fuel tank, especially, has a way of loosening up. This lets the tank shift forward. And you wind up with the fuel transfer pump bracket damaging your fuel tank. Check these straps—on both fuel tanks—and keep 'em tight.



And how 'bout your transmission-to-axle drive prop shaft? Keep a close eye on those hubs. Loose? Get 'em tightened.

WITH YOUR TRANSDRIVE AND BRAKES IN SERVICE, YOU CAN TURN THE WHEELS BY HAND IN SUCH AS THE P.D.S.



DANGLING CHAINS



Just one cracked link in a tailgate chain can give you one big fat headache—when you learn to open it.

With your tailgate open as the bottom for special dumping, your chains are used to adjust the air opening you need. A cracked link will let go when your load puts pressure on the tailgate.

You're just begging for cracked links when you let your chains dangle and bang against your truck.

Even worse, a dangling chain can whip the head right off someone walking alongside the road. It has happened!

To keep those tailgate chains moved along when you're not using 'em,

STOWAWAY STONES

There's no such thing as free; your tailgate control, too—you'll just bend or bust something. If your control doesn't work pretty easy, you may find the trouble is stones 'n' dirt 'n' stuff jammed against the rod. The left rear make pocket can get packed full, so run it out with a stick to give your control real operating room.



SLICK BOX



Your dump body's not much more than a big steel box. It doesn't ask for much maintenance. Mostly it just carries stuff—and you get ready to dump. That's what it's like a chair. If your load won't slide out, you'll have to dig it out.

As long as you have slick 'n' clean. Keep it raked (on its safety brakes, usually when your truck is parked, so water won't collect in there and make rust). Keep it clean—no concrete or bludgep material left in there or dry. Flat is,

when you're handling bludgep, slick some diesel fuel or anti-rust/oxidant oil in your dump between loads to keep that stuff from sticking to bed.

Another dump-truck is a layer of boards in the bottom of the box when you're handling equipment that's got a blade, bucket or comb. The boards will keep you r from from getting' stuck up.



IT'S YOUR LOAD

You, the dump-truck operator, are responsible for how your dump truck is loaded. It's up to you to see that you take on all you can safely haul—without getting too much. It's up to you to see that your load is positioned right—usually parked in the center when you're handling loose stuff like crushed stone, gravel or sand.

You are the guy who makes sure the loader operator doesn't spill material over the side into your truck's fuel tanks. A couple big rocks or chunks of dirt dropped on your fuel tanks can knock 'em loose or bend their supports. Even lighter stuff will tear up the fuel



and electrical lines on top of your tanks. So unload it—load 'n' clear—when you see your dump-truck getting' cluttered.

LEAD FOOT



Sure, your 1-ton dump truck can travel at highway speed while carryin' a 1-ton load — but that's only on a highway.

One of the things that separates operators from amateurs is knowin' when to load lighter and travel slower. Goin' full tilt over rough ground with a heavy load is just more than your dump truck can take — you could lose a spring or crack a frame crossmember. Or you could break a major rod — or pull the landing gear off the shaft.

Tryin' to get that thrust with the motor can leave you stickin' with nootin' but a pile of mud — because that's all your dump truck is if it can't operate like a dump truck.

END OF THE LINE

Leavin' there is one thing. Gettin' rid of your load is something else.

How easy it is — for both you and your dump truck — may depend on what you're carryin' and how much.

Take plain ol' sand, for instance — wet 'n' dry. You'll have no trouble dumpin' dry sand, no matter how much you've got on. With a good three dump and a little help from your shovel, wet sand'll slide out pretty easy, too — unless you've gotten on one big a load. Then you'll find it pushed right, a little in a hard rake, in the bottom of your dump — and might wish you about shovelin' out.

So chalk it up as a lesson — not so much wet sand now time — and dig 'er out with your shovel.





WELL, I'VE USED EVERYTHING I GOT... NOW WHAT?

HOW ABOUT A CHANGE IN APPROACH?

Never try to shove out a stubborn load with the "stuck treatment"—the bucket's up your dump track and then demands' on the brakes. Or rammin' your rear wheels against a log or curb. Your hydraulic cylinders can't take it. You could even fold up your frame like a jackknife. If you don't beat something' the first time, you've sure started your pile of' dump track down a short road to ruin.

Break out your shovel—'stead of breakin' up your dump track.

SLOW... AND EASY

Your dump-track is no slingshot. There's not much on dumpin' your load in a big heap—the time you think you're arrivin' will be long, several times over, in slow time when your hydraulic system finally calls it quits.

Your power system works hardest to raise that part of your dump in front of where your hydraulic cylinders are pushin'—and that's usually the biggest part of your load. Raisin' your dump too high too fast takes more work. Besides, you shove all that weight toward the tail end of your track. If your load decides to slide, instead of slide out, you could tip right up on your tail or even snap your frame.



So, even with any stickin' stuff, press up just low enough and high enough to keep your material droppin' off your tail. This'll make room for the material up front to slide down—and lighten the job for your power system.

This, too, is why you keeps a sharp eye out when you're being loaded. If you're takin' on a mixed load, like boulders and wet stamps, make sure the heavier boulders are set toward the nose of your dump—they'll be right there for slow dumpin'.

POWER DOWN

Ready to head back for another load?

When, then — hold still till you get that dump sorted back down. You could snag a hitch-or-wire-activated-pedal's toe before. Brakes, crawlin' over rough ground with your dump up: it can rough on your hydraulic cylinders and dump hinges.

Some guys say it doesn't make any difference whether you power down or just slip your PTO control lever up into NEUTRAL, and let your dump coast down. Other guys say coasting down will blow your hydraulic seals.

Here's the jury on that argument: You power down only. If you let your dump down without power, you're heading for trouble with your hydraulic cylinders—you can even lose your dump body hinges.



When your dump has been put back down snug and you're ready to take off, make sure your PTO control lever is all the way back in NEUTRAL. If you go crawlin' around with your control lever just a little too far forward, you'll chew up the gears in your PTO.

And put that lock over in front of your control lever. It'd be bad enough if you accidentally nudged your control lever into POWER UP with a load of material — but it'd be downright tough if you happened to be crawlin' away

and dumped 'em while you was crawlin' down the road.



DOOR PANEL CLIPS

Do your thing for 1-1/2 days track door panel's door's missing retaining clips.

You can get new button clips if you're in the warranty period, 6,000 miles or 2 years. See Article 71 of the DRB Digest, TB 750-001-1, 1-Jul-89.

If you're not in the catch zone, create your "own point."

Call us, get!

These drill new holes for the size of any door metal across handy. But watch it—don't block the moving parts inside your door.



DRB DIGEST 750-FOR TRUCK...

HANDY HOOD HANDLE

DRILL NEW HOLES HERE... WITH DRILL.



HANDY HOOD HANDLE... HERE!



Now you can have a hood lifting handle on your 1-1/2 ton truck—just like you'll be used to on new production jobs.

Article 3-7 in TB 750-001-1 1-Jul 89 tells all—parts, drawings and procedures.

MISSING LINK FOUND

So who needs a whole new chain when just one link breaks?

Now you can get a connecting link to fix the leveling jack chain of the 15-ton leveler assemblies, X4074, and the nonleveler vans, X4060, X2060, and X4063.

It's called Roller Chain Connecting Link, with P/N 3020-500-0022 (PN 71-800-201-01).



SEAT PIN MISSING?



How'd you like to be tossed over—the windshield of your M111A1 1/4-ton truck?

Not then, you'd better make sure the retaining pins are in your front seats. When the pin's missing, a sudden stop can flip the seat up—and there you lie: a real one of a kindpin.

Sure, the pin's a non-stock item. But you may be able to get a replacement from your own point. Some guys use a straight-headed pin with corner pin flats on the head (see TM 9-2330-214-200, Fig. 56, Items 3 & 4, or Fig. 57, Items 7 & 8).

Even better is Pin, straight, headed, PN911415-004-9016, in Pin-Cat CS111-EL-A Plus 004—its extra '16' legs,

instead of a corner pin, you can make a clip from wire—like a seat hanger or half of a long-stem pin. Then you can make the seat pin seat quicker 'n' easier to get to the laundry compartments.

Or use a seat 'n' hole—anything that'll keep the seat down.



Couple minutes from now both balls close or unclose the tripod legs to keep the set from flexing one way being all kinds of things. But the legs on the tripod for legs in your way.

Don't swallow or inhale the wing ball or gear teeth on the tripod legs. While you're both inside, whenever you see any the eyes, break the wing ball or chip the teeth ... making a hole in the falling or is not.



NO STRAIN

IF YOU'VE USED THE WING BALL BEHIND THE BATTERY BOX IT'LL RECEIVE LESS STRESS TO STRAIN.

The 50-degree bend in the CA-6000 remote cable connector makes for adding muscles in the wiring when it's been hanging for a long time. The wiring inside the connector oval pulls down from the strain ... putting your remote to sleep out of business.

Instead, keep the CA-6000 50-degree cable behind the battery box to ease the strain.



LET'S TALK ABOUT BATTERIES FOR A MINUTE... REMEMBER THAT EACH MODEL CONTAINS A DIFFERENT AMOUNT AND MIXTURE OF ELECTROLYTE.

The 20-027 sealed cadmium battery will offer no volume, according to model. When you've got it with the filter kit to the right model, filter an un-packed with the battery. In 20-027 battery requires a different amount and mixture of electrolyte, so if you don't get one mixed, you can identify from the top.



The 20-027 plus model filter packed with Gelatin No. 20 20-027-002 20-027 model 20-027, and contains 100% of electrolyte.



The 20-028 has Gelatin No. 20-028-001 20-028, Model 20-028, and contains 100% of liquid.



The 20-028 plus model are made by Faraday Electric Corp.

The 20-028 is, packed with Gelatin No. 20-028-001-0-002, it's made by High Filter Co., contains 100% of liquid, and has no model marking.



If any electrolyte in the filter kit is considerably spilled, filter is replaced with 100% (distilled water) No. 20-028-001-0-002.

Check the 20-027 with a filter once every half hour during charging. If the cell gets hot, or over-heat, or the battery of lower quality, that the charger must and get the battery checked out. Checkers are you've got a charged cell... which means you test it for a replacement. Keep the cover open so you can see gauges or tanks.

Also, never use anything except the 20-027 charger to charge the battery.



RADAR AT THE READY

It's comfortable to live with Mike, it's been around so long you just take it for granted.

Fast fix, you can get on familiar with your AN/SPN-44 radar unit, you can be down-right routine with it.

Knowing you wouldn't want to be caught in the gulf, continuously in otherwise, here are some maintenance to guide you both in the kind of care you know your Pappy-4 needs.

Keep about 1000 ft. of the No. 1 battery tape backup with your flashlight light cable if you haven't got the adapter. Without the adapter, you can damage the connector end of the tape.



Keep the ends of the No. 1 battery tape ... to measure things, too.



When you do a power battery, or shut the power off, be sure the battery cable is in the No. 1 position. Always measure things. Be sure the power cable is all in, when you connect a battery.

Work with connectors also use a pencil for fasteners ... quickly measure length in gulf.

People mean you are hard, mean you when the top and battery aren't aligned, drop you on the ground, pull the cable right out of you by yanking the cable off instead of disconnecting by twisting the connector ... and so on.

Cables, too, get it, prime among them being the battery power cable.

I'VE GOTTEN
FOR A CHANGE
OF SECURITY
TO KNOW I'VE
RECEIVED THE
CABLE. 1954
FOR THE PAPPY-4



Whatdays do when the steam stops, and the name of same applies to you?

Like, year after year the steam is clean it's simple PM that you do there!

You guess. Your ADL 1170-11 order we made it.

The fact that Tiger 21 has been around for a good long time doesn't mean it'll stop around without maintenance. Granted it when you can't take it in. When you need PM (Flight) Team Cap... can do it yourself once and need new positions. Like what comes...

... SO HERE FOR THE GOOD WITH THE PM TEAM ...



CONNECT:
With us up — only to look by following.



Turn the connector, not the cable ... and slide to hold the connector off-mounted path to the cable.

IF STOP

It's not necessary to tighten the best position connector more 1/2 inch of the way down. When you feel a clicking, stop — and you're right on.



Extend your adjustment free-rotation long enough to remember this other point. You can keep from blowing away by keeping a connection away from the 12 1/2."

Adjust it with your fingers. Be after each necessary, and in always possible.



SAME OL' SAME, SAME

PM



BLIND

Key files down ... to good maintenance to avoid damage.



Very power supply files also are fine up the water in the engine.

IF STOP:

If it stops we continue to do. This on the drive bit.



INTEGRITY CONTROL

Now look for the inside control adjust of the box up. It turns the caps.



SPIN ADJUST

For the good adjust of the 10-12 position as slowly — whenever you adjust the gear. Adjusting it up or down can be a maintenance to the roller transducer.



As all, all necessary check the pressure with of fuel capacity.

WORKING TO IT, TITTLE — JUST KEEP CHECKING AWAY AT THE 10 PM TO BODY FOR THE 11 PM TO 11 1/2 PM.



PMPH



WORKING WITH

Follow TIM procedures on all adjustments. Experimenting can put your set out of business. Thus, first, is 100 percent Kennedy location multiple wrap. No bridge Ties to that advice. Spitch slow—it's a BRG move.

With the antenna reflexes steady, test plan... but avoid having it. You can hold it... and get inaccurate readings.



While your antennas are flapping, remember this: wrap the antenna cable to the set's leg or a guy wire to keep it from flapping. Use tie a knot, and breaking. It can be a future trap some way to prevent damage.



IMPORTANT POINT: Do not allow cables to be connected directly from set lead to be at least three inches after you participate to it.

Using the relay with a connector will not be the same than a damaged relay... it will.

Lifting the antenna group (G&G-COM) components by the hardware or pedestal can break up a number of things the circuit is sensitive. Hence, when you lift the components, grab the base on opposite ends and lift up and roll.





Use the water and guy wires cap placed, as indicated in the sections during field use. Keep it from blowing or falling over.

Keep components clean. Wipe off dirt and slush as it accumulates to keep it from clogging hose circuitry, jacks and so forth.

STORAGE

When you remove the components from trench sites, put the covers back on the hoses and secure the clamps.

Securely close all hose clamps, which may require that you tie, but it may require that you tie.



Whenever you separate the hoses, make, be sure the end blocks in the working areas are secured so they don't drag the equipment or break off.



After the white ends on the entrance points, finish the hose before you close the entrance points. Otherwise it may be difficult to get your gear and the machine on.



And, when you disconnect cables from the cables and the steel caps on the poles, but only do the caps long and short, they also use that also.



Try to tie up over the equipment before you get the entrance pointed into the wall for storage — and make sure it's well in place when you get the rig on the case. The way it is used for hanging out large objects, like the end end.



Finally, when you disconnect a cable, always find the best way if it has one. Keeping the cable on the end stop can hold off using, damage the cable, have pins and otherwise find on the equipment.



LEAK STOPPER



Got a problem with molasses seeping from your RT-305 or RT-441 receiver-transmitter?

Chances are you've got a soggy honey juk.

You can cure it like so:

Slightly loosen the 4 screws on the H honey juk. About an 1/8-in. turn will allow the juk to flex . . . and put even pressure on the O-ring, re-establishing the seal.

Next time you put the RT unit in its case, shake the O-ring for wet or dry and give it a coating of silicone-impregnated FIBERGLASS-888. It's a thin white,

TUBE TEST SUBSTITUTE



Don't bring this figuring it may be one of the type 7000 tubes of your AM-155M-148 oscilloscope?

Sweet it out. The data for tube type 6222 gives you what you need to use the 7000 tube feature by such names as 5Y6, 7Y6, 6Y6A, 7Y6B, etc.) with your TVC/LE tube set up.

Your data for the 6222 (and 7000) is on page 72 of Ch. 3, *TE DIAGNOSTIC 1171* (Jan 62).

Only difference in the tubes is that the 6222 draws more heater current.



WANTED

For Possession of Any Lower Equipment.



NAME: Ben "Wanker" Boudreau. Known by several aliases, such as "Wanker," "Wankin'" and "Wankin'guy."

POSS-ENEMY: ALL. **WEAPONS:** No, no. It isn't clear all current loads were made to be equipped in your cabinet. We never actually before-testing, so I'm not.



POSS-ENEMY: ALL. **WEAPONS:** NONE. It depends on whether the testing controls. If I'm not, say I-2, he starts with 2 or more loads every time I.



POSS-ENEMY: NONE. **WEAPONS:** None. I accept two sets. Always, always, for just a difference in or less. Some of these loaded loads aren't built for a single handle.



POSS-ENEMY: NONE. **WEAPONS:** None. It's a loaded and the get-upside ball.



POSS-ENEMY: NONE. **WEAPONS:** None. None of these loads are built.

But some other ways some guns, often just about having a 20 that frequently calls it "load-out," not practical, but possible. Big in line or heavy. Don't tell, don't tell — but these kind of the best and very style and usually great.



POSS-ENEMY: NONE. **WEAPONS:** None. It may be armed with both conventional. Sometimes most frequent when armed only with a condition for use or something — to pay, quickly, produce or produce.



BEWARE THE

DIRTY DOZEN

FIREPOWER

3. CHAMBER

Problem: Can't chamber a round correctly.
Symptoms: Chamber never closed or chamber up.
Solutions: Clean and lubricate slide. Check rounds.
Answer: Remove rail and magazine. If the slide's at 3, add resistance support to replace barrel.



4. SLIP RING

Problem: Can't load rounds into
Symptoms: Round or rounds sticking and spring.
Solutions: Remove rounds—run slide and 1/4 inch SL.
Answer: Clean and lubricate ring and spring. Remove rounds. Insert in SL to push rounds in.



5. REAR SIGHT

Problem: Can't zero rifle.
Symptoms: Barrel and spring loose by rail and magazine.
Solutions: Clean and lubricate slide/rail.
Answer: Loosen rail from frame (R) and (L) magazine. Test from 50 if the barrel's free up rail.



1. FRONT SIGHT

Problem: Can't zero rifle.
Symptoms: Front sight high, shoot and using rail from.
Solutions: Slide and take sight with 1/4" SL.
Answer: Loosen rail from frame (R) and (L) magazine. If this doesn't work, move to SL.



2. BARREL BORE

Problem: Slide up
Symptoms: Slide engaged up by forcing path, clearing and
 white, noise, heat or other foreign matter.
Solutions: Lubed barrel/bushing.
Answer: Lubricate barrel in SL.

USE THE NEW FROM
 BUCKLE UP
 HOT SUPPLIES



6. LOWER RECEIVER EXTENSION

Problem:	Corrosion.
Cause:	Moisture.
Efficiency:	Remove buffer and spring to clean and lubricate receiver.
Answer:	Remove butt stock or draw tube to full stock cover and extension—slide gun with P.A.



7. BUTT CAP SCREW

Problem:	Can't remove butt stock or draw tube without shifting of parts.
Cause:	Draw rod and draw tube end stopped.
Efficiency:	Pipe through the draw tube.
Answer:	Remove cover—draw P—take it. Clear tube obstruction.

KEEP DRAW ROD CLEAR



8. TAKE DOWN PIN, DETENT & SPRING SELECTOR LEVER DETENT & SPRING

Problem:	Detent and springs not function. . . . take down pin won't hold receiver groups together. Selector won't operate or stay in place.
Cause:	Worn or damaged parts.
Efficiency:	Get someone's help if you can't take these parts.
Answer:	Remove damaged parts for cleaning and fitting with I.M. . . . replace parts if necessary.



9. HAMMER SPRING

Problem:	Trigger won't work.
Cause:	Hammer spring disintegrated away (under barrel of new trigger pin).
Efficiency:	Be sure hammer receiver parts, draw, detent and pin together right.
Answer:	Get I.M. to reassemble correctly.



**JOE'S
DOPE**

**SOMETHING'S
GOTTA
GIVE!**

SMOOTHER
BLANK, TALK TO
BROCK, BROCKED
BROCKER COMPLETE
WITHOUT A BROCKED,
GIVE A LEFT A LEFT,
GOT A BROCKED
BROCKED, GIVE A
FOURTH? AND,
OVER.

THAT'S BROCKER
BROCKED... GOT ON THE
LINE AND BROCKED GIVE
A LEFT, GOT A BROCKED
BROCKED?

YEA, TALK TO
BROCKED... BROCKED
TO GIVE
BROCKED, BROCKED?

NO BROCKED, I'VE
BROCKED BROCKED... THE BROCKED
A PAK IS BROCKED
AND BROCKED...

LATER THAT DAY...

...AND NOW IT
COMES TO
REARMS-
BLADES, THEY
NEED AN IDEAL
...AND
SOMETHING
BOTH OF 'EM!



WE'VE
FOUND THE
DROPPER WITH
DROPPER
PATTERN!

YOU GOTTA MEET THESE GUYS,
TOMMY... WHO ON FIVE... GIVE
EMPTINESS, JUST STAYING OUT OF
THE BALLS OF BUSINESS... NOT A
DROPPER, MAN, THEY ARE
SOMETHING ELSE!



HEY, WHAT
HAPPENED?

...IS THIS
THE GREAT
DROPPER BEING
CONSTRUCTED
??



YOU'RE NOT
GONNA BELIEVE
THIS, COME ...

THE DROPPER HE CALLED FOR, I AM
IN... LIKE, RIGHT ON THAT... WE
HAVE ALL PRESENT W/ APPROVED
FOR...



OH, HAPPY
BY... WE DON'T
NEED TO LEAVE
THE DUMP!





HEY, DID YOU
REARER ALL THE
LIGHTWEIGHT
STUFF?



YOU
LAME, THAT
REARER'S
TURNING
UP EVERYTHING
LOOSE BRUP
TO FLR.



CLANK
CLANK
CLANK
CLANK

SOMETHING'S
HUNG
UP THE MOTOR
HAND...
COVER ALL
HANDS I
GIVE IT OUT.

THE
MOTOR'S
HUNG
UP
GIVE
IT
OUT.

I, YOU
YOU
GIVE
TO
THE
UP
LOOSE
BRUP, WE
JUST
GIVE
THAT
BRUP
ONE
OF
FLR.

REARER
DIRECT
DANCE, TUNOR



OH, WE'RE
LOOSE... WE
GIVE IT OUT.

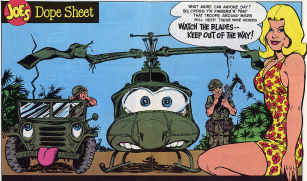
REARER
DIRECT
DANCE, TUNOR



OH, BOY...
LET'S
MOVE IT!

Joe's Dope Sheet

WHAT MORE CAN ANYONE SAY?
BE CAREFUL YOU'VE PROVED TO THEM
THAT TROOPS AROUND HERE
WILL HELP! These nice women
**WATCH THE BLADES--
KEEP OUT OF THE WAY!**



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

IF YOU WANT TO DISPLAY THIS CONTENTION ON YOUR BULLETIN BOARD, OPEN STAPLER, CUT IT OUT AND PASTE IT UP.



WOT'S THE PROBLEM BIT?



ALL WE NEED IS A LODGE SOMEHOW STUCK UP IN THE SKY



AND...?



WELL, ANYBODY SEEN MY FLASHLIGHT BATTERY RECENTLY?



WELL, THE COLLECTOR'S BINDING.







FOR MORE INFO...

ACCURACY PAYS DIVIDENDS



The Army Maintenance Management System is a 2-way street. Keep accurate info flowing from already log book forms to the head shell, and you'll get accurate info back . . . when you need it.

The U.S. Army Aviation Systems Command now has The Aircraft Life Cycle Maintenance and Ownership Record (TALCMOR) for each serial-numbered helo.

This historical record of maintenance actions lets the engineer types study improved procedures—minus the maintenance crew . . . and more.

Should you need to reconstruct info when a log book is lost or missing, you can your support units first-off. If you don't make us finally just take the new TALCMOR route.

Contact: Commanding General, U.S. Army Aviation Systems Command, ATTN: AMSGV-2/EC, P.O. Box 200, Ft. Lewis, Wn. 47106.

Give the specs for the request, list FSN, app, model, serial and/or part number. Include the data required and your return address.

That'll keep your records up-to-stuff.

GOTTA LOOSE SCREW?



Some flight sunglasses, FSN 5405-711-6304, have cropped up with unthreaded screws that'll come loose at the frames and temples.

Hybrid fixers. Move the temple up-and-down. If the screws work loose, they're the unthreaded type.

If you have an optical shop close by, they can use a clamping tool to tighten those screws. But, if you don't have that service close, use a drop of shillac or clear fingernail polish on the screw to keep it from backing out.

If you've already lost the screw, run a thin wire through the hole where the screw should be and clamp it. That'll hold the temples until you can get the glasses repaired.

NOT SOF IN

ROGIE WHEEL WRAP-UP

GET 'EM! GET 'EM! SHOVE ON THE MAINFRAME CREW!



Happy maintenance of the ground handling wheels and axle systems on your Hueys and Huey/Cateras can mean big trouble. Like maybe the wheels do a split from the skid! Ever see a commander blow his cool because of poor flight status check?

CHECK WHEEL

Do a double take on these systems during your next inspection.

Pay extra attention for wear at the axle to lower bearings—where the wheel assembly bolts on. If axles are stripped, worn, bent, cracked—explain 'em please, 800/526-4444, 1-714/24-028-145-0 works as always, and for \$6.78 it's a bargain.



800-526-4444
OR 1-714-24-028-145-028

800-526-4444
OR 1-714-24-028-145-028

There is no tire wheel, wherever they may be. Check the wheel mounting pins. Be sure they're straight. More's likely you'll find the front mounting pins in CONNER BORO condition. It's that spring-loaded pin that got a real eye-bolt to eyeball exam.

Replace entire pin if it's cracked, chipped, broken, bent.

Use the frame pin for greenery, in our opinion. Grad or run could keep it from coming good. If so, you'll have a short-circuit incident... a shorter trip on the wheels.

Never forget the spring. If it feels like it's lost some of the old zip and doesn't snap back in a hurry when it's depressed, change it. A set of high wheels has no level more 'n our bird, and the spring gets mind-blow.

WHEEL CHECK

When you check the wheels, check the space between the pump wheels on axles and the forward axles. They should be real close. Add washers if necessary—no trim or size pins. Get a right fit. The wash space here and the pins'll be jared one of the axles by a hard knock. You'll spend extra hours replacing the drive in your Huey's forward belly.

You've got double trouble if your bird shakes with excessive vibrations. An unbalanced front Huey hubless... and you've called the dogs of your Conqueror.



Caution: If the Hoopster gets down hard anytime, you risk a sprung coil. So, before you do your thing with the wheels — add 'em or take 'em off . . .



TAKE A COURSE OF INSTRUCTION FROM THE HOOPSTER DOWN!



Never, like NEVER, lift or lower the Hoop's weights with pump action only. No Hoopster here, Doctor. Pump handle points forward when lifting D, E and AIR-CL models; aft for B, C beds.



Now go-ahead lower your bird steady into both wheels according. Sure class, much, wheel, disk, Hoopster, submachine, you teacher!

No come to operate leg the air get by putting on one wheel assembly at a time.

WHAT'S GOING ON HERE?

JUST KEEP THE AIR ON THAT SIDE! AIR PRESSURE!



DRAG COUNTS

I WISH I COULD'A HELPED 'EM, SORRY—NICE LINE TOOL, THX, THX, HAHA! A SHAME!

Dear Woody,

I've searched high and low for the up and down, fore and aft references on the Maye specialized elevator.

I'm coming out of poles to look into.

What are the wear limits, Woody?

WILLIE

Dear Specialist S. E. E.,

Keep your eyeballs over a horse.

The UH-1 elevator beams and spar reference are controlled at time of manufacture. There's no tolerance for the field. If the spar is loose check for damaged parts that would have to be replaced.

You may have a slight drag in the right-hand elevator, tho. If it's less than 1 degree, plus or minus 1/4, it's OK.

Guess you do want the proper elevator drag. To get it, install a spring scale in the arm of the beam.

Pull the spring scale, moving the elevator from all locations to forward lock. The scale reading while pulling the elevator should range from 7-1/2 to 10-1/4 pounds. Adjust the tubes to get it.



That add more slack between the rotators, increasing the diameter of each support by 0.0001 to 0.0005 inch, to get a slight over drag on occasion of the beam without any chance of binding.

THE RIGHT MACHINE AND TOOL...

AN UNBEATABLE COMBINATION



Hardware comes in many places. It takes a heap of the right eye to keep your flying machine of yours in one piece.

Take the HueyCoban (UH-1H) rotor chopper support being, P/N 200-030-244-1 and -2, attached to the rotor structure.

Some folks—carelessly avoiding putting an NAD chopper rotor hub in a steel hole—would give him a scupper lip. He was right... that's the trouble.

In the event of a hard landing the hole won't close. The rotor support will be heavily damaged... lots of extra maintenance time and other gear.

There's the engineer-type called for down in that living as they will show, keeping rotor support damage to a minimum.



When a hole is found closed or loose it should be replaced with a like item, but new.

In this case use a 20A TT1000 rotor hole of the proper size and grip length.

PHOENIX



TOOL KIT

Any work worth his salt knows that he should use the right tool on hardware. Sometimes, too, it's best to call one tool from another.

Focus in on Phillips (arrow left) and Reed & Prince (arrow point) screwdrivers, for example. You have both eyes in your general mechanic's tool kit. Your HueyCoban has only Phillips screws.

If a Reed & Prince is used in a Phillips screw, it'll strip out the screw... make time to change these habits.



Using the wrong size screwdriver, or one that's worn, can often leave up the work. Use the right size and replace worn ones.

If you use both eyes and can't tell the difference, look for the name stamped into the metal shaft.

No name? Then, guess the point into putty or a piece of soap. The imprint will clear it.

KEEP YOUR BOOTS ON



Dear Windy,

Old weather really leads the stuffing out of our boots using skidder boots since there seems to be little use for the boots in these parts, would it be OK to take 'em off in pairs, backwards together and backwards together—and leave 'em off?

SP6 T.L.H.

Dear Specialist T.L.H.,

No skidder. The hand shed says no-der.

If a boot wears to the gulet where it must be changed before you can get a replacement your commanding officer can authorize flying the bird with the pair of boots retained. This would be an incentive to send more boots were available to be put on your bird.

Follow the poop in the O-8 organizational maintenance job to prevent boot foot damage. Like—never drag feet boots over the fence and keep your hangars off 'em. Keep the boots clean and they'll last longer.

Windy

Q & A CH-47 FILTERS CLOGGED?



Maybe you don't have the correct, improved flame-away type on your Chinook's T80 engine (F1). Order 'em now: High-pressure water fuel filter FSN 308B-108-5076, F1N 83474 replaces FSN 2940-910-8178, and low-pressure in-line filter FSN 308B-179-0008, F1N 50179-1 replaces FSN 3000-060-1258.



YOU'RE TOW RIGHT!



Dear Willy:

It's another beautiful day and you're upright about the corner forward/rearward steering pump for our Big Red™ (M74). I say a towbar-tye comb on the main gear steering legs is OFF for the push/pull deal.

My friend says not to . . . you have to set the tail wheel steering gear when moving the Drive Lever. What's gonna load about?

WILLY



Dear Specialist E. F.:

You're right with the program, Serge. But here's a couple of cautions about towing. Before you go with the tow, make sure the power steering switch is OFF. Now the tail wheel is a 300' free-wheeling deal.

Keep in mind, too, that you lose a bit of positive control when you push any self-wiring Assembly. So when, if you've got to move one more's mind distance, it's a good idea to tow it—forward or backward—using the main steering legs or tail wheel deck.

Willy

SHINE ON

Can you
add the
look, shape
and size?

Search no longer, Madman, for a replacement battery to use in your survival kit always under light, FM 4150.007-1109. The battery, FM 4150.007-1109 (RAC 110) is now in supply.



Dear Wally,

What's the deal about posting signs for aircraft on jacks?

They and other safety using jacks recommend posting all the aircraft posting signs saying, "Warning! Aircraft on Jacks."



THANK YOU

THANK YOU FOR THE INFO. I'LL POST THE SIGNS IMMEDIATELY.

Dear Specialist J. B.O.,

It says in Paragraph 1-71 of TM 55-1500-204-207

(Apr 78) on general maintenance practices, apply:

Aircraft on jacks shall be so labeled and signs marked.

Wally

HANDLE WITH CARE

Removable aircraft bearings can't be replaced if they've not handled with kid gloves and preserved for shipment. Preserve bearing contamination by following the prep in TM 750-000-3, Ch. 1-11 (al 801 locked up by TM 55-1500-204-207, on maintenance bearings).



MAINTAIN THE SCHEDULE

Air types—schedule your Periodic Maintenance Inspections inspections at 25, 50 and 75-hrs after completion of the Periodic.

If you pull a PDI early, say at 424 hours, the next one is still due at 450 hours.

Read all about it in the new TM 55-1500-804-20 (2nd Feb 78) on the inspection system.

I DO MY PDI AT 424 HOURS — NOW I'LL HAVE A 26-HOUR GAP!



NO DEAL - YOU'VE GOT TO DO IT BY THE BOOK.

HOLD THE POLISH!

WE'RE
ALL OUTTA
DIPS, POLISH
AGONY!

Spit 'n' polish will make a bird look sharp. But, it's not recommended.

The word's in para 14, TB 146-09-2 (para 67) on painting and marking of aircraft.

Never use light oils, polishes and waxes on bare-metal painted surfaces . . . just about all surfaces.

These materials cling to the metal surfaces and are just about impossible to remove during a touch-up paint job in the field.

Wax, for one, is especially hard to remove. Even a thin film will prevent paint from sticking to a surface.

Wash or dry-clean your baby—including your Males—according to the maintenance plan and do it the right way for flight. No corrosion or wax paint needed!

SAVE THE INSERTS!

When you Chinook (CH-47) opens, disconnect the engine fire detection system for testing, or remove it for an engine change, there is no the traditional connection.

Make sure shell and insert, P/N 11-081-0, P/N 1608-129-0158, work with each connector.

To help keep the insert from falling out and getting lost, tape it to the connector.

If the insert doesn't stay put, you no longer have to enter the whole wiring diagram to get the insert.

Ask for the insert now listed in TM 11-1120-309-309-1 (para 70) and save money.



Does your SPH-4 pilot's protective helmet fit a dented/good/boss, but it takes maintenance and constant care to keep it that way.

Three helmet sizes fit 2 sizes to get one that fits. The regular size, P04 4415-144-4081, will fit head sizes up to 7-13 1/2, and the extra large size, P04 4415-144-4083, will fit head sizes 7-17 1/2 and up.

You should never use your helmet as a stand on a place to store things.

Stress, too stress, on the rubber boots, steel, rope straps, or chin strap as a handle.

Always use your carrying bag to take your helmet. Before you place it in the bag, make sure the rubber boots in pinned inside the helmet.

Never assume the chin lock may more than necessary to adjust the lines. You should be able to lock the line in any position by turning the chin lock one quarter turn.

Here's some trouble spots to look for to keep your helmet number one all the way:

Suspension and retention line assembly — missing parts, bent



Encapsulated steel strip — missing, frayed



Eye cup spacer — missing, dirty, broken




Retain shell — neck padding, strip

Flair lock latches — attachment and secure to the housing

Flair lock curve assembly — loose, missing

Your housing assembly — broken, warped, missing, frayed, cracked, loose screws but job of helmet at clear indicated on flow (to keep flow tight)

Your lens — scratched, cracked

Communication gear — not working

Retention suspension assembly — broken, missing, frayed

Roof strap — missing, frayed, fastener won't hold

Edge loading — loose, broken

Chin strap — missing, frayed, fastener won't hold

Head band and suspension assembly — loose, missing, frayed

Down pad assembly — broken, missing, frayed

Energy liner — bent, broken





IS THIS THE
BEST ONE...

ROUGH TERRAIN

You can feel 10 feet tall and strong as an elephant with your Chevrolet, 4x-4s, or Fordson/International models. Both sets may not look alike, but they all have similar working parts. Here's a rundown on parts common to all rough-terrain models. There is built-in air and water. One does food, one does fuel, before more trouble crops up.

TIRE & WHEEL

Try going, with around your heavy, heavy for an all-terrain, look for—



GENERAL CONDITION — Check dirt, rust, cracked, loose cracks, gaps in one side, fuel, side of fuel tank.

WASH ALL THE MACHINES IN
A BUSH OF THE RIGHT CHASE—AND
YOU WANT YOUR OWN WITH
A BUSH OF THE RIGHT!



TIRE — Under-inflated, flat, hole or leaky, worn, cut. Correct pressures are 25 for rear and 40 for front in the 5,000-6,000 lb models. 30 for front and 40 for rear in 8,000-10,000 lb. You can use 10% of the PSI for in real soft ground.

WHEEL, LUG NUTS — Loose, missing.



TRIMM AND SHROTTETS — Lids, blades, roller-pile mixing, mulching, infiltration, post-kill mat.



LIGHTS — Motorized, when equipped. If fitted, front-mounted, brake, joint, side-lights.



OVERHEAD GUARD — Rails or plate fitting, overhead mounted or fitted, control safety features.



FIRE EXTINGUISHER — Mounted, manual or automatic (hand, neck, foot, or clip).



HAUL ASSEMBLY — Engine, feet, lower body.



HAUL BOX — Cover features (mounted or broken, mount issues, steel body).



WORLD WITH
TRADE TRUCK



FINN II — Standard, painted, pin track or mixing.



TIMERS — Best, control system, control or broken.



SPLASH COVERS — Dampening, foot, foot, lower section (large, painted or broken).



I'M AHEAD
THEIR VIBRATORY
AND THE BEST...
THEY'RE OVER-
LOADED.



AIR CLEANER — Loading, blank to-
tens or mount base, 80% (check model
for indicator).



AIR-DRYING PLANS — Mounted, low-
ing base, damaged, from rail or hole.



AIR FILTERS — Carry dirty, rotating,
blow clean dry-cure filter with carbon
for or flameable liquids. Soap, water,
and air-dry if you must wash 'em.



COIN EXCHANGE — Rails base, mix-
ing, twisted (any foot stretch or not to
ball).



COILING SYSTEM — Trays, water
dirty, constant front line, four change at
loading (only in reverse, with freeze in,
sufficient for expected low temperature
low 10° F/30°C).

HYDRAULIC FLEXIBLE LINES — Low hp, lifted, deeply drilled.



WHEELS — Broken, loose, not, mismatched.



OIL AND FLUID LEVELS — Low, dikes daily check hydraulic oil with level dip and power oil.



DOE PANELS — Left side on M250 and M2750, both upper and lower Dept. unbalanced, hydraulic lines leaking or broken, side panels not secured.



DOE MANUFACTURED FOR ON THE OPERATING CENTER LINE.

BATTERIES — Electrolyte not per plate, inspect weekly to be sure specific gravity is above 1.280, and is fresh above 1.280.



WHEELS — Screw bent, wings bent, pushed back, rigid, not being.



FUEL FILTERS — Run primary daily, secondary weekly; don't let replace elements quarterly.



ENGINE CONTROL

Now start up, and let your ears tell you if it's running right — no backfires, no sputters, no rattles, no rumbles, no black smoke belching out.



Then check:

EMERGENCY STOP — Eye, eye, starter (also stop, handle brakes, foot.

IGNITION CONTROL LEVER — Not working, sticks, won't stay in place.

START BUTTON — Battered, broken, erratic starting or starting.



SERVICE BRAKE — Foot sticks, soft, too much plus (4-10 is about right).

ACCELERATOR — Loose, sticks, breaks.

PARKING BRAKE — Parts missing, loose, goes to feet next before engaging or won't hold.



NORMAL STOP — Handle damaged, staff binding, broken.

TRUCK CONTROLS

I'M NOT SURE WHICH IT WAS... BUT ONE OF 'EM DOESN'T WORK RIGHT!



LET'S RUN THRU ALL SHIFTS AND CHECK THEM... ONE-AT-A-TIME!

FORWARD-REVERSE SPIN

—Sticks in neutral, no-gears hand, handle loose.



DIFFERENTIAL LOCKING PEDAL

—Stops, jams, no-tire set position.



THE FOUR-WHEEL DRIVE

—Overides differential lock-out, takes-hold slowly, jerks, hard-to-engage.



TRANSFER-FUNCTION

—Shifts-hand, grows, con-trols loose.



NO-NO PEDAL

— Jerky, slips-on hills, wet/road.



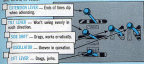
ENGINE-BRAKE CONTROLS

—Clipping in or out of 2-nd-to-4th wheel slow hand, rough, jerky.



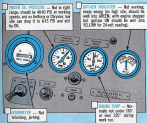
FIXE ERRORS

Take note of a three in notation to be sure shop don't jump back and forth, up and down, or worse.



INDICATORS AND GAUGES

These run a separate system, because they tell you when everything is OK.



LIGHT SWITCH — Locking switch not working (can show main switch to 30 amps or Stop Light without raising belt).

CONCRETE PRESSURE — 45,000-lb. rigs only. Normally not under 110 PSI, and not over 150 PSI.



LIGHTS — Stop light, headlights, 80 Series, front and rear fenders, panel — indicator lights, too — do all work OK!

CONCRETE TANK — Normally not under 100" or over 200" on 80, 75 or 60, T&C or 4,000-lb. trucks; not under 100" or over 200" on 30, 000-lb. units.

WHEEL — Wheel lock, normal.



WATER TANK — Won't work, usually should go well into 0-20000 area at start, then drop back at or near center. Strong DTS reading indicates trouble.

CLUTCH OIL PRESSURE — Not under 100 PSI or over 175 PSI on 10,000-lb. trucks.

WATER OIL PRESSURE — Normal range 0 to 400 PSI.





COULD LAUNCH

The Yamaha transmission handles open shells, but let us caution and Anthony COOL's, are made to break down forward or starboard. That's a forward launch, not a starboard launch. Forward only, so don't be surprised if

1. You'll see it — P. Includes all the things that ... and let it snap.

1. Some gear does not fit the tip to the in. Don't even tell for it. You can't see it.

When you do it breaks down to less speed, either on a steep grade, or under load, or both. Breaker does you get for 80 mph, but with a transmission and you've spent \$2,100. Add \$5,200 for an engine, everything is easy.

TRAIL SPOT

On Yamaha, check the underside to be sure the low-lying hydraulic cylinder is full-free and correct. It's your anti-snap go-box, and you can cream it if you don't take it any more. Make, make, and roll, make.

On any brand, no overloading and no ship loading.

Nothing changes over the lines. Taking that doesn't overline overline all day.

Even the pure 40 doesn't emphasize U-joints and steering linkage points do check each and every one, especially when you've worked in salt. You relate every time you've been ongoing.

Nylon or nylon bushings on your side-shift rod get me late. Sand will get in and grind both rod and bushing up.

When starting, avoid shifting on that starter button longer than 30 seconds at once. The main a forward launch manual 40 is a 1-minute rest between tries. And spooling all over —



DRILL AND TIPS



Let your engine warm up a minimum of 3 minutes in winter before you start out, and give it 1 to 20 minutes warming in winter. Always use good SAE grade.

WINTER 3-MINUTE WARMUP IN CORNER



4-10 MINUTE WARMUP IN WINTER

While it's warming up, know that don't take off your battery-powered top. It's especially made a few minutes to work your axle and suspension, your fuel system, your oil, and so on, before you get started out.



Yes, hot tires and supply, and you do this weekly. Let it cool and replace your hydraulic tank cap both up, let a little level in normal movement up, then top it down as necessary. Do not waste your money until you realize it's all.

The drill has the best reason it'll get out air balls and vacuum in tank and limit to your pump won't "run dry" and burn. Moving faster moving over your burner cylinders, yokes, and handles. You get a "run" -quick making with look down, unloaded, on.



ANY LOAD CAN KNOCK IN OUT IF YOU DON'T BALANCE IT PROPERLY.

LOADING TIPS

Another thing you could skip on is unloading. It isn't just picking up one truck. It's also in how it's done.

Naturally, the rated load won't hurt you if you work right, but half that much can wreck either type if you handle 'em wrong.

The wrong way is to extend your forks way out, gallop all over rough country and fast, and never bother about balance. The right way is to slow your load back, retract your forks to the load rest, and let the boom ride on the prop-locks simply. It is simple and prevents damage.



WRONG**RIGHT**

A tractor must be backing down ramps or long slopes. It prevents your rig, your load and gives you better control.

SAFETY TIPS

Make sure they're between, with the rear left, with 1 ft. of minimum side clearance (just with cab and mirrors).

Always use proper hitching technique. Put all 4 feet under the hitch tongue.

Check after every hitch job for leaks, rattle, and changed oil drops.

For better and longer life, use 20W-50 and don't overfill. Use the best oil to give extra protection and less stress on the bearings that last longer.

Keep your tires well-maintained for top performance.

40000 loads ...

10 14-200-240 21 150000 11 150000 12 150000 13 150000 14 150000

140-207 150 200

140-211 150 200 150000 1 150 200

140-212 150 200

15,000 loads ...

10 14-200-240 21 150000 11 150000 12 150000 13 150000 14 150000

140-207 150 200

140-211 150 200

140-212 150 200

Speaking of hitches, check us out whether MFD 10-1000-240-2001 (just 60" in on your rig — Anthony Serial New LT-1 show LT-315 and Chrysler CC-0000 show CC-0700) get it. LTD and your problems are ours. Check your log books 2000 S. If the MFD hasn't been applied, get with your regional national mechanic person.

So that's it. Happy heavy hauling.

YOU'RE RIGHT, GUY... SHOULD'VE TALKED TO AN EXPERT FIRST. PROBLEM SOLVING ISN'T HERE IN THE LOG.



THE 40-HORSE STAYS WITH THE FLEET

THEY 40-HORSE JOB COULD HAVE MADE THIS THE HIGHEST POINT IN THE BARBON... JERRY... (THE...)



Remember taking about your 40-HP outboard motor in its simplicity.

The motor is designed to operate on a regular basis. Anybody can make it go and keep it going, as long as he does no more than let's suppose so.

Which brings us to Point No. 1: Keep your old pal's hands-off things they aren't supposed to touch.

The release of outboard motor mechanics isn't all-suffice. Meaning, don't make unauthorized adjustments or repairs. That's spelled BONY!

Here's the plain talk on operating and maintaining the 40-horse at each level:

1 Control the fuel flow by hand in order to save the best charge in place.



OPERATION

2 Turn the oil vent on the job to.



3 Keep you in the water by opening the hull on the job. (The 40-horse's good engine should do it.)



4 When the motor runs on 40/60/80/100...



5 and the 40-HP 40/60/80/100 lever straight up.



1 Move the throttle lever to neutral (straight up) . . .



2 Add the throttle lever to OFF. Slow down as if you're making a right turn, and check your parking brake in the OFF.



3 Use the ignition key to toggle between ON and OFF, and know it when the motor starts.



If you're using a new tank of gas, or it's the first start of the day, push in the manual choke switch next to the ignition until the motor gets going.

Allow the motor to warm up for a minute or two.

Move the throttle lever to the OFF or OFF, push the manual choke forward slowly until the gears engage . . . and go!



MANUAL CHOKE — If your choke is warm and up, the procedure for starting the motor with the heated choke is identical . . . except that you keep the ignition switch in the ON position and put the manual choke in OFF position to start. Push the choke to OFF when the motor starts.

The foregoing procedure will get you going, and keep you going, with no damage to and under running with the motor.



DO NOT HOLD THE KEY OR SWITCH ON FOR MORE THAN 5-10 SECONDS. YOU CAN DAMAGE THE SWITCHES, BURN THE MOTOR, OR KILL THE BATTERY.

The throttle lever controls your speed. When you make down at top speed, raise the throttle slightly. This allows you to maintain your speed, but it can fuel you by 25 percent . . . thanks to a clever fuel-air gauge.





MAINTENANCE

Successful maintenance programs need like you.

BATTERY — Keep the battery fully charged. The SG4 should have a specific gravity reading of 1.285 to 1.315. Keep electrolyte above the plates always, and refill with distilled or rain water. Don't overfill. A low battery doesn't have the kick to turn the electric starter . . . and a "click" is all you'll get. Never let the specific gravity drop below 1.280.



FUEL PUMP — Use fresh, clean sparkplugs . . . and heavy grease. Your motor takes J17 Champions, M11K SCs or M11K starters . . . with gap set at .028. A hard-on-start motor could mean you need a plug change.



OIL — Your motor uses a 50-1 oil/gas mix, which means you use a pint of oil to 6 gallons of gas, or a quart to 12 gallons. For a good mix, you should use a gallon of gas in the bottom of the tank, add the oil and shake the tank about a dozen times. Fill the tank with the remaining gas and swing the tank about 20 times to mix it good. Never use auto gas. It gums the carburetor, fouls the plugs, etc. For the first 40 hours use a new motor the Fuel-Mix ratio is 25-1. That's one quart of oil to 6 gallons of gas.



LOWER OIL PAN—The gear case lube level should be checked after every 10-hour operation . . . and filled up's you can see the tube at the OIL LEVEL hole. Use the proper oil only. If you're not sure about number of hours, check the lube supply. Running the motor with oil level low or empty wears up the lower end.



LUB WASH—After running the motor in salt or brackish water, clean the exposed parts (all of them) with fresh water and go over everything with a lightly oiled cloth. You don't have to flush the cooling system with fresh water.



MOOSE HOOK—A hoist hook, attached to the lifting bracket at the rear of your motor, is the best way to lift the dead weight off the boat. The lifting bracket is under the cover. Loosen the motor uprights. If that's not possible, be sure the power level of the motor is higher than the lower end . . . to prevent water residue from draining into the cylinder.



OVERHEAT—If lower or the temperature warning light on the control panel occasionally, if it glows red, check your TM to determine the cause of overheating.

STARTING—Lifting gear with gear off can lead to dull mechanical damage. Fill only with water spray.

WISDOM



STARTER—If the motor doesn't hold off after three or so tries with the electric starter, go through the starting procedure again to be sure you haven't missed something. If your checklist comes out OK, stand up on your troubleshooting techniques to THE 1-2004-200-04 (200 000).

Before your mechanic or your helper should check the 4 screws on the magnet assembly for tightness. A dash of adhesive compound, FOM 9030-001-2008 will keep them from working loose . . . and keep the plate and your Synchro from coming off . . . with heavy-duty damage.



Always start the motor when it's out of water. In addition to working up the water pump, you might also hit the moving parts of the motor gearbox.

The negative post of the battery is connected to the ground. Disconnect the ground before you remove the battery cables. For extra care, first disconnect the



Cooper's extra points: Mix oil and the prop-erty, in amount and type specified in TSM.

Don't make unnecessary adjustments, including carbon cover.

Start slow about 1/2. Remember no starter that if you've got power and can't go.



Adhesive compound or a chisel done on the strands of the propeller leads will keep the propeller retaining nut from backing off. Check-out benefits.



Speed-shop types go on that of high-speed propellers on this job, too. Maximum RPM range on the 40-horse is between 4100 and 4300. Anything lower's slow will tear up the motor. Be slick with the best prop.

Final reminder about the TSM before you make it more . . . and keep it handy when you're operating the motor.

THE NEW GRADE 1940

PUBS HELP EXPLAIN

THESE ARE THE BEST ON-THE-ROAD PARTS!

YEAH, BUT I SUBMITTED A REQUEST MONTHS AGO ABOUT THIS... OR WAS IT SPENT... OR...

Numbers for parts-to-have lists on DOD M&M products are hard to come by because there's no CDL manual on 'em.

But baby, you can get commercial eye-pals by using U.S. Army Mobility Equipment Command ON 74 04G-5005. Submit your request as an equipment-eye requisition and mark it "ATTN: AMMORE-RTB-R." You will get an operator's manual, a parts book for that 6-cyl 71 engine, and a grade parts book all together.

But because these are commercial manuals, they don't show FM's for hard-to-keep-and-like-it:

Owner, 60 Series, w/guide, P/N 7400-1758, FM 74-150-488.

Owner, 60 1/2, w/guide, P/N 7400-1760, FM 74-150-541.

Owner, 60 1/2, P/N 7400-1761, FM 74-150-471.

Owner, late-60 1/2, w/guide, P/N 7400-1762, FM 74-150-478.

RIGHT HEATER—WRONG SPRING

HELD BY THE HOT A NEW SPRING!



You can get the heater spring that holds the wick line plus on your Pro-way Model 441-2ES Inconel heater by ordering Part No. 812811, Mfr Code 48143, P/N 1-505-183-1189.

The wick's P/N is 0598-125-1794.



ANOTHER WORD THERE'S CODE IN THEM THAR MILS

The new government serial numbers remind you of Andrew Sandberg? What — there's a storage in those digits. Here's how you decode it:

1. The first letter in the serial number tells who made any 60 Standard Motor Cars, so:

- B = International Harv.
- D = Dodge Motors
- C = Chrysler Motors
- M = Ram Motors Co.
- J = Jeep
- F = Ford
- K = Kaiser Motors
- L = Lincoln Mercury
- P = Packard
- R = Ram Motors
- S = Sales Engineering
- T = Top Motors
- U = Union Engineering
- V = Volkswagen
- W = Westinghouse Electric
- X = Xerox
- Y = Chrysler Corp.
- Q = American Motors



GET THE TEMPERATURE
RIGHT!

2. The second letter telling the kind of plant:

- B = Standard Motor Standard Engineering.
- D = Motor 600 for Chrysler Engineering.
- C = Motor 12-400 for Chrysler General.
- M = Motor 12-400C.

SERIAL NUMBER

BC6400300069

3. Number, the last and the character, show the year the model was first issued. (Use a 00 means the first of that series ever and is 1964.)

4. Character 3, 4, and 5 show the rating, the 000 is 000 and 000 is 1000.

5. Character 6 the 10 give with respect of number two, 0001 the 1000, 000000.

WELL, YOU DID IT,
THE CODE'S SIMPLE,
AS BASIC!



There may be some other letters and characters hanging around beyond the ones shown that spell out the car's ancestry and origin, but none else. The ones you want to keep track of will be something like FA 64-000000, which would mean Ford's made, 64-64, built 1964, 00-00, the 10th car off the line.

2380 CRANE HOOK TIEDOWN

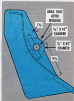
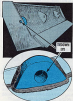


Yes, Florida, your utility blade on that 2380 Rough Terrain Crane should have a redline eye on the right end. It was a retrofit design change, but some of those heavy-lifters didn't get the treatment.

If your crane wasn't included in the retrofit, you can do the changing yourself. You'll need the help of a good

welder authorized to work on SC-5 steel. The authority is AS 158-11, since the official drawings call it a "field fix," it's a minor alteration.

You weld the plate-on, then-drill and chamfer. It'll be the greatest help long-lead for centering your boom on the down as it won't center the left-hand side of its cradle.



TURN IN YOUR VEST



Dear Bill West,

Thank you for keeping the protective features of my orange vest from washing up over a half a dozen times, but when I graduate from the job I should keep it in — even in my back yard and on my wall, if that only gives some more exposure. But it's very uncomfortable.

193 K.M.S.

Dear Margaret K.M.S.,

In Rembrandt Arms you only those quality vests can be exchanged for vests that have stiffeners added to them.

Your supplier should be able to have the stiffeners added to those vests, or they should be able to exchange them for vests that have the stiffeners, which come under those IBM's listed in Ford Car CD400, 70-B, 4.

Small, FN 847-11-170

Medium, FN 847-11-170

Large, FN 847-11-170

3 Large, FN 847-11-170



FUEL FILTER SWITCH

Start and service cleanouts on Champion 600-47000's 11-CPM air compressors come easy if you just make one change in the fuel system.

Get a Fuel Filter, IBM 2940-904-0700, with a built-in shutoff valve, and you can forget about having to drain the fuel tank on every weekly fuel filter service.

The filter's the same filter's installed on most Mill fuel engines.



Carroll's
MFI Mini's



Just a Minute

All MFI's appearing in *FI Magazine* are listed in the current *AMCI* (Auto Manufacturer Code) directory. The *AMCI* directories are in the hands of most MFI's. Ask your MFI if they have the *AMCI* from previous years or other nearby dealers.

Draw Collection

A couple of pages used on the left back-mounted drawer next to the MFI's 1 day-mounted drawer need updating. Vacuum pages, F24 6681-828-4217, needs collection every 90 days and pressure pages, F24 6681-828-4218, needs collection every 180 days. See W 190-706.

Section IV Keyed

No section IV in your new 700T? No need. This area reference of what you can have mounted (MFI's) is F1816 is being dropped from 700T's, and for those new won't be updated. But from now on you get the info from the updated form for 28 700-701 and from the old form 186 area reference (28 700-20) as quoted in Car Ch 210-84 (13 Feb 76).

It's A Little Bit

When you get behind the wheel please write us a letter about the O4. It's a 2000-12 give the BCI, number of accidents at that temperature and any other background info you may have. Always copy's pages read all the info they can get to check out the engine.

Out to the Meet

Are you ever more like to look us to get a trailer or something with, F24 66 828-3700, and the 18,000-8151, also a unit trailer, F24 66 828-3421, and will get an amount, completed or otherwise? Send us a form 11 asking for a 18 2-41 28-333-11 on the whole unit, and a 24 2-41 28-276-12 and 23F for the air conditioner alone.

A Quarter Inch!

Forget it — no more free radiator repair for your 2711 engine (not for other 2688-Series 1.6-lit vehicles) unless the vehicle is still under warranty, codes 18 24-2200-270-12 (Jan 67) and 18 2-2280-2841-1/2 (Jan 68), this warranty ends on 6000 miles or 2 years. [The article on page 66 of PG 271] sure good.]

all want a
the mechanic
doing.



Book's Book's

Search the MFI in pages 4-12 of the 2-4280-204-12 (Jan 69) for your MFI portable device. You need 1501 8120-877-1002 for the huge 1000's hold the receiving bracket books.

Not Too Deep


Super for them all 751-10111 and 1997 MFI's under support of Electrical Parts show you. That information should meet OCE-41 8021-64. That's the Electrical Manual, and it formerly covered both the MFI and OCE numbers. The MFI number has been dropped.

Don't Know You

Hold it out on the 5111, always drop the 5111 reports for BCI 6P and 4P, reporting correct conditions to BA on BA 1155 only. For other equipment, no entries are required in columns 174 thru 177 for O4 5111 pages to 144440-80 (see our "Q" words needed for reports submitted by punch card). On the other hand, customers may submit the info that normally is entered in those columns for local use or for completing their facilities reports (M 208-1 or 121-8). The word used out in the May (1 Feb 6) page 70.

Older Car Care

Like to juggle a few cars for yourself or a work-up? MFI's starting an engine with any type of combustion starting and could be like that. Any time you start with any engine equipment, be sure there's no smoke, fire, electric sparks, or anything else going on. A good clean step, cushion, and double that under foot — or you could get blown by the road. And on starting manual wheel vehicles,

Would You Stake Your Life  on

the Condition of Your Equipment?

*If your vehicle's
air cleaner
is going to
clean air...*



Keep Your Air Cleaner Clean

Take care of it the way the TMJ says ...
Remember — dirty air means for turbo
engine wear and tear ...