

Issue 142

PS

1994 Series

THE PREVENTIVE MAINTENANCE MONTHLY



SPECIAL ARTICLE
YOUR MAINTENANCE
IS THE KEY

TIMES HAVE CHANGED

There was when a good rabbit was seen who always made overalls, drilled well, performed chores he was told to do well, always did, kept his '93 in the maintenance and ready.

But times have changed—times were dull or granddaddy were stiff. Along with the new Army green, we've got loads of equipment that you and everybody up the line have got a right to be using, ready to fight.

[illegible]

You're in a modern garage with modern equipment . . . the best in the world. And to keep it that way you've got to keep it maintained, ready to go—the fit of a tight-fitting car every day of the week.

1. *Journal of the American Medical Association*, 2000; 284: 2689-2695.



PS

100

THE UNIVERSITY OF CHICAGO

Abstract

1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058 2059 2060 2061 2062 2063 2064 2065 2066 2067 2068 2069 2070 2071 2072 2073 2074 2075 2076 2077 2078 2079 2080 2081 2082 2083 2084 2085 2086 2087 2088 2089 2090 2091 2092 2093 2094 2095 2096 2097 2098 2099 2100 2101 2102 2103 2104 2105 2106 2107 2108 2109 2110 2111 2112 2113 2114 2115 2116 2117 2118 2119 2120 2121 2122 2123 2124 2125 2126 2127 2128 2129 2130 2131 2132 2133 2134 2135 2136 2137 2138 2139 2140 2141 2142 2143 2144 2145 2146 2147 2148 2149 2150 2151 2152 2153 2154 2155 2156 2157 2158 2159 2160 2161 2162 2163 2164 2165 2166 2167 2168 2169 2170 2171 2172 2173 2174 2175 2176 2177 2178 2179 2180 2181 2182 2183 2184 2185 2186 2187 2188 2189 2190 2191 2192 2193 2194 2195 2196 2197 2198 2199 2200 2201 2202 2203 2204 2205 2206 2207 2208 2209 2210 2211 2212 2213 2214 2215 2216 2217 2218 2219 2220 2221 2222 2223 2224 2225 2226 2227 2228 2229 2230 2231 2232 2233 2234 2235 2236 2237 2238 2239 2240 2241 2242 2243 2244 2245 2246 2247 2248 2249 2250 2251 2252 2253 2254 2255 2256 2257 2258 2259 2260 2261 2262 2263 2264 2265 2266 2267 2268 2269 2270 2271 2272 2273 2274 2275 2276 2277 2278 2279 2280 2281 2282 2283 2284 2285 2286 2287 2288 2289 2290 2291 2292 2293 2294 2295 2296 2297 2298 2299 2300 2301 2302 2303 2304 2305 2306 2307 2308 2309 2310 2311 2312 2313 2314 2315 2316 2317 2318 2319 2320 2321 2322 2323 2324 2325 2326 2327 2328 2329 2330 2331 2332 2333 2334 2335 2336 2337 2338 2339 2340 2341 2342 2343 2344 2345 2346 2347 2348 2349 2350 2351 2352 2353 2354 2355 2356 2357 2358 2359 2360 2361 2362 2363 2364 2365 2366 2367 2368 2369 2370 2371 2372 2373 2374 2375 2376 2377 2378 2379 2380 2381 2382 2383 2384 2385 2386 2387 2388 2389 2390 2391 2392 2393 2394 2395 2396 2397 2398 2399 2400 2401 2402 2403 2404 2405 2406 2407 2408 2409 2410 2411 2412 2413 2414 2415 2416 2417 2418 2419 2420 2421 2422 2423 2424 2425 2426 2427 2428 2429 2430 2431 2432 2433 2434 2435 2436 2437 2438 2439 2440 2441 2442 2443 2444 2445 2446 2447 2448 2449 2450 2451 2452 2453 2454 2455 2456 2457 2458 2459 2460 2461 2462 2463 2464 2465 2466 2467 2468 2469 2470 2471 2472 2473 2474 2475 2476 2477 2478 2479 2480 2481 2482 2483 2484 2485 2486 2487 2488 2489 2490 2491 2492 2493 2494 2495 2496 2497 2498 2499 2500 2501 2502 2503 2504 2505 2506 2507 2508 2509 2510 2511 2512 2513 2514 2515 2516 2517 2518 2519 2520 2521 2522 2523 2524 2525 2526 2527 2528 2529 2530 2531 2532 2533 2534 2535 2536 2537 2538 2539 2540 2541 2542 2543 2544 2545 2546 2547 2548 2549 2550 2551 2552 2553 2554 2555 2556 2557 2558 2559 2560 2561 2562 2563 2564 2565 2566 2567 2568 2569 2570 2571 2572 2573 2574 2575 2576 2577 2578 2579 2580 2581 2582 2583 2584 2585 2586 2587 2588 2589 2590 2591 2592 2593 2594 2595 2596 2597 2598 2599 2600 2601 2602 2603 2604 2605 2606 2607 2608 2609 2610 2611 2612 2613 2614 2615 2616 2617 2618 2619 2620 2621 2622 2623 2624 2625 2626 2627 2628 2629 2630 2631 2632 2633 2634 2635 2636 2637 2638 2639 2640 2641 2642 2643 2644 2645 2646 2647 2648 2649 2650 2651 2652 2653 2654 2655 2656 2657 2658 2659 2660 2661 2662 2663 2664 2665 2666 2667 2668 2669 2670 2671 2672 2673 2674 2675 2676 2677 2678 2679 2680 2681 2682 2683 2684 2685 2686 2687 2688 2689 2690 2691 2692 2693 2694 2695 2696 2697 2698 2699 2700 2701 2702 2703 2704 2705 2706 2707 2708 2709 2710 2711 2712 2713 2714 2715 2716 2717 2718 2719 2720 2721 2722 2723 2724 2725 2726 2727 2728 2729 2730 2731 2732 2733 2734 2735 2736 2737 2738 2739 2740 2741 2742 2743 2744 2745 2746 2747 2748 2749 2750 2751 2752 2753 2754 2755 2756 2757 2758 2759 2760 2761 2762 2763 2764 2765 2766 2767 2768 2769 2770 2771 2772 2773 2774 2775 2776 2777 2778 2779 2780 2781 2782 2783 2784 2785 2786 2787 2788 2789 2790 2791 2792 2793 2794 2795 2796 2797 2798 2799 2800 2801 2802 2803 2804 2805 2806 2807 2

[illegible]

FTE PERSONNEL		FTE PERSONNEL	
POSITION	NUMBER	POSITION	NUMBER
ADMINISTRATIVE	1	ADMINISTRATIVE	1
TECHNICAL	1	TECHNICAL	1
RESEARCH	1	RESEARCH	1
TEACHING	1	TEACHING	1
GRAND TOTAL	4	GRAND TOTAL	4

Description		Amount	Balance
1000	1000	1000	1000
2000	2000	2000	2000
3000	3000	3000	3000
4000	4000	4000	4000
5000	5000	5000	5000
6000	6000	6000	6000
7000	7000	7000	7000
8000	8000	8000	8000
9000	9000	9000	9000
10000	10000	10000	10000

1000



THAT MOUNTAIN ...
A REAL JUNKIE—

Notes on the M35A1

Your M35A1 24-400 truck (available) is a lot of waste for the back.

She'll take you down and bring you back with-out much more than 20-24 hours. She can go with you to deliver with class.

There's no one else for more about the M35A1 (available) operation: maintenance, plenty of cargo space, more without starting, etc., etc. She's a lot to more people (the police, ...)

24-400 24-400

IF YOU ARE
A REAL JUNKIE
YOU WILL
BE A REAL
JUNKIE

TIPS for the DRIVER

ONE ENGINE ... BUT—

Even for all the M35A1 looks a lot like an M35, but you can tell 'em apart because the M35A1 has an air intake valve head sticking out the right side of the engine.

BEST GEAR—

On the M35A1 you always ... but always move out in the last gear. On other trucks you can sometimes get away with moving forward in second (or don't say it is on the M35A1 because you could cause power train trouble).

STEER—

The clutch is plenty strong enough to do what it's supposed to do but it won't take much "yelling." If you kick the clutch you can burn up the clutch disk, and the pressure plate can heat up and crack. That'll cost you over \$100 to replace, so keep your foot off the clutch. Duh. Be sure the clutch pedal doesn't ride the door frame. If it does, notify your unit mechanic.

JOINT PATTERNS—

The shift patterns of the 8000 and 8000A are the same except for 1st and 5th gear, which are the opposite.

8000 JOINT PATTERN	1	2	3	4	5
	2	3	4	5	1
	3	4	5	1	2
	4	5	1	2	3
	5	1	2	3	4



MANIFOLD ATTENTION—

Page 37 of TM 9-330-294 is the GM info you use to operate the manifold heater unless the engine is being cranked or is idling. This is for reason. If you operate the manifold heater with the engine going at a high RPM you can blow out the turbochargers and, if this happens, engine oil gets sucked up from the crankcase through the turbocharger and into the combustion chamber. With this extra fuel coming in, the engine runs wild . . . maybe big damage.

HYDRAULIC LOCK—

A common cause of hydraulic lock is forgetting to turn the emergency switch OFF after you stop the engine. If the emergency switch is



left ON it's keeping fuel pouring against the manifold heater valves. If these valves leak, even a little bit, and the emergency switch is left

ON for a long time, you'll have a hydraulic lock.

So—now, be sure you turn the emergency switch OFF when you shut down the engine.

If you leave hydraulic lock and try to start without taking any precautions you can cause a lot of damage to your engine or even ruin it entirely.

Be sure to check the engine first with the EMG STOP handle pulled securely but like it says on page 29 of TM 9-330-239-10 (Doc 611).

FUEL FILTER—

You've got to check your fuel filter every day. This is an important step in checking the oil level. Before you start your check, turn



your emergency switch OFF. This puts pressure on the fuel system and makes it easier to check the filter. Draw off about a pint of liquid from a clean can. Be sure to turn the emergency switch OFF when you get your pint. After you draw out the fuel filter if there's any water or gunk in it.

Remember, Change 1 May 62 to TM 9-330-239-10 gives you more to do. You check the fuel and emergency filter and also the third-stage filter if necessary. If you find a lot of water or gunk in the third stage tell your mechanic.



If your damaged fuel filter is OK you don't need to check the emergency filter.

Be sure you have the right kind of filter element. The wrong kind could do serious damage to the injection pump, which would reduce engine life and cut down on engine performance. Use only fuel filter element in FM 2946-116-7007.

ACCESSORY SWITCH—

If you leave the emergency switch on overnight it'll drain your battery and wear out your fuel pump. When your air pressure falls under 60 PSI pounds, the low-air-pressure warning buzzer will come on. Don't put more strain on the battery. So—now, be sure that emergency switch goes OFF before you get OUT—of the truck for the night.





VIBRATION

You get a lot of vibration with the M1040. That's why the front-light bulbs have one screw (not six more rubber boots). One thing you can do to help is keep the vehicle from operating at a low idle for longer than absolutely necessary. Keep your idle speed between 450-750 RPM or cut down on vibration.

SELF-STARTING

This vehicle can start off all by itself. This has happened. A guard M1041 with the engine started all but the transmission, the gear and the hand brake are not even weakly nudged by another crash. It started off by itself and kept going until it wrecked itself against a military pole.

To keep this from happening to you, say that you've stopped with your engine off, leave her parked with the shift lever in neutral and with the hand brake on.



STOP SWITCH

Last production M1041's have a new dip switch with critical markings which provide for additional oil capacity and emergency insurance marks to help you estimate how much to add. The new dip switch has the same number as the old switch (Star No. 100-2700, 100-2000-000-1100).

Before starting the engine, make sure the oil level is above the full mark. Add oil to bring it up to this mark if necessary. Then start the engine and after the oil pressure's up, shut off the engine and wait for one minute (more or less slowly) before making the oil-level check.



ON PRESSURE

On page 26 of TM 9-200-100-10 (Doc 11) Step 9 says your oil pressure gauge should read above 11 PSI. Actually, 10-15 PSI is normal oil pressure during idle and 10-20 PSI is normal during operating conditions. If the pressure reads a little high at idle, don't worry, it's OK.



FLY-HEEL PLUG

The fly-wheel drive plug hole is left open during normal operation. The only time it's closed is when you get starting. Then you withdraw the plug from the hole and put it in the fly-wheel drive hole.



FUEL TANK

Keep enough fuel in the tank to insure at least 1/2 full at all times. Your gauge shows the fuel amount in the tank, not the amount you can use. When it's under 1/2 it's dangerously low. Also, keeping the fuel tank full helps prevent one derivation.



ENGINE STOP GEAR

Quite a few of these cables have been broken, it's pulled away, like every, now, leave the mouth for something else.



HOSE CLAMPS—

Because of the engine vibration the coolant hose-clamps can work loose. Check 'em often, particularly in winter, and keep 'em tight. The air induction hoses clamp also need frequent checking.



LOW TURNS—

Turn starting fluids OFF with the MOON. If you do it the way it says on page 39 of TM 9-2700-155-10 (Doc 41). Otherwise a snowed vehicle will kick right off when you turn it on more than 10 times.

WINDSHIELD WIPERS—

You may wonder what the best use is for your windshield wiper motor. You point it so that the wiper blades are in the best position for the wiper blades out of your line of vision. With the wiper motor off, the blades will stay put and won't creep back across the windshield.



FUEL—

There've been some changes in the fuels recommended for the M54A1. The latest pump is in MD 9-1330-295-11 (Nov 65):



- Grade 80 Fuel Type PW-800—not to be used below -10°F
- Grade 80 Fuel Type PW-800—not to be used below -10°F
- Grade 70 Fuel Type PW-800—all temperatures.
- Grade 60 Fuel Type PW-800—all temperatures.
- Oil fuel (M54A1-2000)—all temperatures.
- Aviation gas is OK. Use M54A1 fuel.



TIPS for the MECHANIC

AIR CLEANER—

On other trucks you're probably used to running the engine with the air cleaner off for short periods during servicing. The M54A1 supercharger makes such a powerful air flow that the supercharger in the pipe has been known to snap up with materials sticking on the border.



Of course, this is wonderful but they're a little hard to read if the supercharger glides them too fast. So don't run the engine with the air cleaner off. You're also likely to work dirt into the engine which can ruin it.

In servicing the air cleaner, you first inspect the mesh on both ends of the element for cracks, rips and signs that dirt is passing into the engine. If the mesh looks like they're in good shape, then clean the elements. Use an air gun if you can. Never touch the air-cleaner element on its lip because this can damage the lip seal. A damaged lip seal can let dirt leak in and ruin the engine.



Be careful. Before you install it again, clean the air-cleaner base and radiator with a rag. When you put the element back in, make special pains to get it seated right on the upper and lower seals.

If you can't use compressed air, hold the element vertically and gently get the sides. Don't bend it.

If you have trouble changing the element in the filter assembly, check to be sure the element is seated right. Otherwise, you could seriously damage the element.



WATCH
your hands!
CAUTION
TO LOOSE
ELEMENT



Over-tightening the air cleaner and changing the element when it's not necessary leads to damaging the seals. Make checks now have an air-cleaner maintenance page on the data board.

"GOLD"
I got a KENNEY
in my air cleaner
junkie!



Don't clean the air-cleaner until the red flag in the page is over halfway up. The mechanic can check if the page is working right by partly blocking the air-cleaner tubes. This should make the flag rise in the page.

The filter element is substituted for replacement at company level. Ask for filter, element, air intake element, P/N 2540-804-1208, as listed on page 18 of your TSB 9-2540-253-25P (Rev. 6/3).

RAAF WOODS -

There's no P/N in the -25P for the air-cleaner tube band so be sure you don't lose it. If it's already lost, submit a complete written justification through your normal supply channels. Ask for (Wood) inside air cleaner, P/N 2540-875-8343 (Rev. No. 1,001,748).



NO OILS NECESSARY -

- Don't be trigger-happy with your grease gun. You don't take the governor, the worm, the clutch pilot-bearing, the clutch release-bearing or the speedometer drive shaft. These parts are taken care of by field or depot maintenance. Wipe clean the clutch grease on the clutch fork and be sure your oil gets in the clutch and makes it slip.

MOUNTING BRACKET -

- The working gear mounting hole maintenance work item. To keep an eye on 'em, and keep 'em tight. Replacement holes, P/N 5086-000-8744 listed in TSB 5,2150-255,11P are savings. Ask your support to get them for you.



AIR COMPRESSOR STRAITS—

The struts shown on page 128 about TM 9-13.60-205-10-10a(2) is no longer on the vehicle. The one you now have is a replacement.



app. To arrive in you reach into the housing with a small screwdriver and pry gently along the edge of the disk to get the filter out.

After you clean it, drop the filter into the housing downward and make sure it's seated in the normal top of the housing before you put the plate over the filter.

It's important to keep the filter clean because a dirty filter can cut down on your braking power by drawing off some of the air. Clean this filter often if you're in dusty areas.

AIR COMPRESSOR WRENCH—

A pulley adjusting air compressor wrench has been issued for the M113L1.



AIR GOVERNOR—

The locking nut on vibratory hose and change your adjustment. As the nut vibrates in it raises the



pressure. As it vibrates out it gives you low pressure. To keep it from vibrating put on internal excitation on the locking nut.

1200 AMP—



The front and rear cylinder heads are alike and the cylinder head covers and the cylinder head water-cooler manifolds are made on the front and rear ones are later.

changeable.



The second and third stage fuel filters are both alike and both of the oil filters are the same. Be sure only the right diameter filter in the TM 9-13.60-205-10-10a(2) can used for the engine.

RIGHT GEAR—

The cable leading to the right headlight gear stopped between the lower radiator and grill lower



and the light-mounting point. The vehicle vibration across the cable until it got cut through and your right headlight goes out. Try to tape the cable in place so it won't get stopped. Check it every now and then so be sure it's OK.

BRAKE-ONCE BEFORE SPRING—

Make sure your brake shoe return spring ends are positioned in the one sliding hole near the top bracket and suspension. Some vehicles have come from the factory with one or either of the brake spring ends positioned in the top bracket assembly and your brake won't release right. If you have a brake trouble make as your brake bearing up, take off the wheel and check the brake shoe return spring ends to make sure they're positioned right.



BRACE FLUID LINE—

The line from the master cylinder to the cylinder-hydraulic and sometimes runs to the master cylinder rod. This is a steel line and is split along the seam. Check this line for leaks every time you get under the vehicle.



POWER LINES—

The fuel lines and water lines get rubbed by their bedding clamp and then they leak. To prevent this, be sure you get enough slack and position 'em so they don't rub against sharp edges that would damage them. Check them often for chafing and rubbing.



FUEL PUMP—

If you want to know if the in-tank fuel pump is working, all you have to do is open the drain cock on the first-stage primary filter—after turning the necessary switch ON. If the pump is working it'll squirt the fuel out under pressure. When you're operating on gasoline you can have vapor lock in your fuel-injection pump if the in-tank fuel pump is not working right.



AIR LINE JOE—

There's only 1/32" clearance between the main air line from the air compressor and the upper valve air lines. The twisting of the radiator when the vehicle is in motion can rub the line against the frame and cut it. This is a copper line and you have to be so tight it cut off the way so it chafe the frame by about 1/4 inch. Use a line-bending tool so you can bend the line without crimping it.



INJECTOR LEAK-OFF LINE—

This is plastic, but since it's painted you can't tell. It's fragile and plastic break is real easy if you pull on it or step on it when you're working around the engine.



WINTER BRAKE?

The lower leads on the right radiator bracket has to be installed in clearance in facing away from the engine on the far blade and tie the nut. Check this because some vehicles have been coming through with the leads in wrong.



EXHAUST MOUNTING

With your vehicle on level ground the edge of your engine far blade must make the radiator tie to lead. Some radiator mounting brackets are oriented to the blade like the radiator cover. If this happens—or worse likely to happen—this is what you do:

1. Remove the radiator mounting bracket (P/N 2449-232-4170) is one inch between the mounting bracket and the upper edge of the lower spring mounting member.
2. Add another shoe if needed to the radiator mounting belt to make the tie blade fit the shock spring.
3. Remove the direction of the right engine mounting bracket lower half and cut off about 1/2 inch.
4. Adjust the radiator mounting spring. P/N 2449-232-4170 is one inch between the mounting bracket and the upper edge of the lower spring mounting member.
5. Adjust the radiator tie to the far blade will show the radiator correctly fit in.

ON-FLYER BRAM-PLUG

You drive off shore and replace the filter elements. The reversed piping plug, P/N 4728-149-0791, shown on page 11 of your 20P is hard to get out because you have no tools from the bottom instead of the top like you do with some other military vehicles. Late production vehicles have a new plug that you can remove and install with the 7/16-in. open-end wrench in the ground mechanism and use.

When you take out the old plug to service the oil filter during normal maintenance, replace it with the new plug, P/N 4728-149-0791, (Part No. 447533).



OIL FILTER

Change the oil filter when you drain the crankcase. Use the oil seal-wrench (or 3,000-inch).



FUEL LINE

The fuel line from the main tank to the injection pump can wear out in a hurry if you let it rub against the waste drive shaft. If you see the rubbing, put a clamp on it or tape it to keep it out of the way.

DIFFERENTIAL DRAIN PLUG



The differential drain plug is hard to screw in and out. The best way is to use a close-fitting wrench the full depth of the room in the plug. Keep a 90° angle between the wrench handle and the room in the plug to keep the wrench from slipping and damaging the plug.



WOOD BRACE

On most M10A1's the right rear hood brace fits the air cleaner when you close the hood. There's no M10A1 mechanism you to grasp out a chunk of the brace, but sometimes the brace gets unintentionally crushed a bit and then it won't brace.





There's a new and stronger clutch disk in the supply system but it goes under the name F09—2X20-870-8744—as the old clutch disk. You can tell the new one with the improved clutch lining because it has a paint mark on the exposed metal surface of the disk or hub.

SUPPLY CHANGES

HOSE ASSEMBLY—

The hose assembly fuel-injection-overflow-and-return-line-to-fuel-filter (also often No. 77400004, item 18 on page 18 -JOP) (see 623 note on the engine block and wear out quickly. There's a new replacement ready for this under F0M 2900-081-0211. With this you also need Tee, F0M 4730-088-0000; Elbow, F0M 4730-051-0474, and Elbow, F0M 4730-051-0073. With these parts you mount the hose as it enters the engine block.

INLET ADAPTER—

Have having trouble with the rubberhanger inlet-adapter cracking at the mounting flange? Well, give this happy news to your support . . . an improved inlet-adapter can be requisitioned as F0M 2900-050-0300.



NO. 0000 COVERS—

The G40-series listing for the M2141 has been changed. Now all 215 covers that were formerly listed as G400 have been merged into the G402-series listing.



RECEPTACLE COVER—

There's a new F0M for the receptacle cover on your rear wiring harness. The old number is listed on page 28 (item 2) of your -JOP but the new number is F0M 7000-770-1420.

LEAF SPRING—

If your support has to order a No. 1 leaf for the rear spring assembly on your M2141 they're going to have some trouble if they order it from TM 9-2330, 215-21P (see 62). Yours is listed on page 66 as item 14 but the F0M's wrong. It should read F0M 2140-085-0075.

TWO-WAY SAFETY

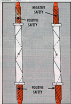


Why is a pinch change link like a roundabout?

Because they've selected the same way—naturally.

Take the rail route pinch change link on the Mojave (KCH-57), for example.

You wouldn't want to use a positive safety. Wrapping the link wire around the barrel would prevent it from running one way, but it still could run the other way.



The joint just doesn't have a lock wire hole in it, so if it should get loose, the barrel could run in the direction that

would shorten the pinch control link. You know what this can lead to . . . a rail route out of sight!

Even the negative way wouldn't let the barrel turn either way, because half of the wire will tighten if the barrel turns one way and the other half will tighten if the barrel turns the other way. But an in-flight break in the single strand could send the whole shunting into next Tuesday.



You wouldn't want to use the negative safety either.

To make doubly sure the barrel ways put your feet but it is to use the two-way roundabout safety, now, though. You'll find it in Chap. 2, Sec. 1, Para. 1-3 of TM 98-1130-204-20 (28 Jan 84).

ENGINE OIL DETECTOR
TURNS WHEN OIL'S IN ...

METAL

FATIGUE



Let's face it—the yellow glow of a ship detector WARNING light in the cockpit can give the pilot an extra margin of safety. That's why all birds are being equipped with a simple type of detector.

Take the Challenger (334-13) head-up, for example. One end of the electrically charged wire is hooked into the frame and runs all ramp magnetic plug, and the other end runs the warning light on the instrument panel.

If a piece of magnetic metal is attracted by the flow of oil in the ramp plug, it'll be held there by the magnet in the plug.

At the same time that the ship hits the magnet, the detector electrical circuit is closed and the light flashes on in the cockpit.



Course this light isn't a signal for the pilot to hit the panic button. A second landing is called for. Heavy wing loads on the sensor open light-flashed wing birds in the sensor circuit.

The way to figure the reason for a normal landing. After all, the light could be a false alarm, caused by a short in the electrical circuit.

The detector could also let out off due to ordinary engine wear. This comes about over a period of time, as metal particles build up on the magnetic plug. When this film forms a bridge from the sensor rim of the plug to the magnet, we give the light.

No matter what the reason for the detector flashing on, however, the pilot has to get a going over by maintenance.

Checking the ramp plug may be all that's needed.

A more thorough check on the condition of the engine can be made by having the oil checked in a laboratory. An oil sample will show by the amount of metal indication in the oil, whether the engine's about to hold up.

The lab report, plus other poop such as the total engine time listed on the component record, the Form 2408-01, will give maintenance people the info needed to decide whether to keep the engine running, or to pull it.

Thanks to the ship detector, air-ops now have a new weapon to fight the over-riding battle against metal fatigue.



CFBr BRACKET

Dear Windy,
Checked out all available parts concerning new type CFBr for outgassing.
Numbers can I find on JEN for your broken mounting bracket.
My help will be appreciated.
SFC R. H. L.

NUMBER

Dear Sergeant R. H. L.,
Just's sorry if FSM 258-148-1110 (Rite Guard P/N 87 1550) should bring you
Broken, Fire Extinguisher,
horizontal and vertical surface
mounting for Extinguisher, Fire, Mounting surface
2.75 lb. It's in DoD Catalog 24118-01A (3 May 64).



FILE, SINGLE-FLUTE (cut, cut, right cut, cut face, 1 in lg tool to pt.)



FOR 10-100-0000

FILE, SINGLE-FLUTE (cut, cut, left cut, cut face, 1 in lg tool to pt.)



FOR 10-100-0000

FILE, DOUBLE-FLUTE (cut, cut, left cut, cut face, 1 in lg tool to pt.)



FOR 10-100-0000

FILE, DOUBLE-FLUTE (cut, cut, left cut, cut face, 1 in lg tool to pt.)



FOR 10-100-0000

FILE, DOUBLE-FLUTE (cut, cut, left cut, cut face, 1 in lg tool to pt.)



FOR 10-100-0000

FILE, DOUBLE-FLUTE (cut, cut, left cut, cut face, 1 in lg tool to pt.)



FOR 10-100-0000

FILE, DOUBLE-FLUTE (cut, cut, left cut, cut face, 1 in lg tool to pt.)



FOR 10-100-0000

FILE, DOUBLE-FLUTE



FOR 10-100-0000

(cut, cut, left cut, cut face, 1 in lg tool to pt.)

FOR 10-100-0000

(cut, cut, left cut, cut face, 1 in lg tool to pt.)

FILE, DOUBLE-FLUTE



FOR 10-100-0000

(cut, cut, left cut, cut face, 1 in lg tool to pt.)

FOR 10-100-0000

(cut, cut, left cut, cut face, 1 in lg tool to pt.)

FILE, DOUBLE-FLUTE



FOR 10-100-0000

(cut, cut, left cut, cut face, 1 in lg tool to pt.)

FOR 10-100-0000

(cut, cut, left cut, cut face, 1 in lg tool to pt.)

FILE, DOUBLE-FLUTE



FOR 10-100-0000

(cut, cut, left cut, cut face, 1 in lg tool to pt.)

FOR 10-100-0000

(cut, cut, left cut, cut face, 1 in lg tool to pt.)

FILE, DOUBLE-FLUTE



FOR 10-100-0000

(cut, cut, left cut, cut face, 1 in lg tool to pt.)

FOR 10-100-0000

(cut, cut, left cut, cut face, 1 in lg tool to pt.)

FILE, DOUBLE-FLUTE



(cut, cut, left cut, cut face, 1 in lg tool to pt.)

(cut, cut, left cut, cut face, 1 in lg tool to pt.)

FOR 10-100-0000



FOR 10-100-0000

FILE, DOUBLE-FLUTE



FOR 10-100-0000

(cut, cut, left cut, cut face, 1 in lg tool to pt.)

FOR 10-100-0000

(cut, cut, left cut, cut face, 1 in lg tool to pt.)

FOR 10-100-0000

(cut, cut, left cut, cut face, 1 in lg tool to pt.)



1. The first step is to identify the problem.

1. **Introduction**
 2. **Background**
 3. **Methodology**
 4. **Results**
 5. **Conclusion**
 6. **References**
 7. **Appendix**
 8. **Index**
 9. **Table of Contents**
 10. **Figure 1**
 11. **Figure 2**
 12. **Figure 3**
 13. **Figure 4**
 14. **Figure 5**
 15. **Figure 6**
 16. **Figure 7**
 17. **Figure 8**
 18. **Figure 9**
 19. **Figure 10**
 20. **Figure 11**
 21. **Figure 12**
 22. **Figure 13**
 23. **Figure 14**
 24. **Figure 15**
 25. **Figure 16**
 26. **Figure 17**
 27. **Figure 18**
 28. **Figure 19**
 29. **Figure 20**
 30. **Figure 21**
 31. **Figure 22**
 32. **Figure 23**
 33. **Figure 24**
 34. **Figure 25**
 35. **Figure 26**
 36. **Figure 27**
 37. **Figure 28**
 38. **Figure 29**
 39. **Figure 30**
 40. **Figure 31**
 41. **Figure 32**
 42. **Figure 33**
 43. **Figure 34**
 44. **Figure 35**
 45. **Figure 36**
 46. **Figure 37**
 47. **Figure 38**
 48. **Figure 39**
 49. **Figure 40**
 50. **Figure 41**
 51. **Figure 42**
 52. **Figure 43**
 53. **Figure 44**
 54. **Figure 45**
 55. **Figure 46**
 56. **Figure 47**
 57. **Figure 48**
 58. **Figure 49**
 59. **Figure 50**
 60. **Figure 51**
 61. **Figure 52**
 62. **Figure 53**
 63. **Figure 54**
 64. **Figure 55**
 65. **Figure 56**
 66. **Figure 57**
 67. **Figure 58**
 68. **Figure 59**
 69. **Figure 60**
 70. **Figure 61**
 71. **Figure 62**
 72. **Figure 63**
 73. **Figure 64**
 74. **Figure 65**
 75. **Figure 66**
 76. **Figure 67**
 77. **Figure 68**
 78. **Figure 69**
 79. **Figure 70**
 80. **Figure 71**
 81. **Figure 72**
 82. **Figure 73**
 83. **Figure 74**
 84. **Figure 75**
 85. **Figure 76**
 86. **Figure 77**
 87. **Figure 78**
 88. **Figure 79**
 89. **Figure 80**
 90. **Figure 81**
 91. **Figure 82**
 92. **Figure 83**
 93. **Figure 84**
 94. **Figure 85**
 95. **Figure 86**
 96. **Figure 87**
 97. **Figure 88**
 98. **Figure 89**
 99. **Figure 90**
 100. **Figure 91**
 101. **Figure 92**
 102. **Figure 93**
 103. **Figure 94**
 104. **Figure 95**
 105. **Figure 96**
 106. **Figure 97**
 107. **Figure 98**
 108. **Figure 99**
 109. **Figure 100**
 110. **Figure 101**
 111. **Figure 102**
 112. **Figure 103**
 113. **Figure 104**
 114. **Figure 105**
 115. **Figure 106**
 116. **Figure 107**
 117. **Figure 108**
 118. **Figure 109**
 119. **Figure 110**
 120. **Figure 111**
 121. **Figure 112**
 122. **Figure 113**
 123. **Figure 114**
 124. **Figure 115**
 125. **Figure 116**
 126. **Figure 117**
 127. **Figure 118**
 128. **Figure 119**
 129. **Figure 120**
 130. **Figure 121**
 131. **Figure 122**
 132. **Figure 123**
 133. **Figure 124**
 134. **Figure 125**
 135. **Figure 126**
 136. **Figure 127**
 137. **Figure 128**
 138. **Figure 129**
 139. **Figure 130**
 140. **Figure 131**
 141. **Figure 132**
 142. **Figure 133**
 143. **Figure 134**
 144. **Figure 135**
 145. **Figure 136**
 146. **Figure 137**
 147. **Figure 138**
 148. **Figure 139**
 149. **Figure 140**
 150. **Figure 141**
 151. **Figure 142**
 152. **Figure 143**
 153. **Figure 144**
 154. **Figure 145**
 155. **Figure 146**
 156. **Figure 147**
 157. **Figure 148**
 158. **Figure 149**
 159. **Figure 150**
 160. **Figure 151**
 161. **Figure 152**
 162. **Figure 153**
 163. **Figure 154**
 164. **Figure 155**
 165. **Figure 156**
 166. **Figure 157**
 167. **Figure 158**
 168. **Figure 159**
 169. **Figure 160**
 170. **Figure 161**
 171. **Figure 162**
 172. **Figure 163**
 173. **Figure 164**
 174. **Figure 165**
 175. **Figure 166**
 176. **Figure 167**
 177. **Figure 168**
 178. **Figure 169**
 179. **Figure 170**
 180. **Figure 171**
 181. **Figure 172**
 182. **Figure 173**
 183. **Figure 174**
 184. **Figure 175**
 185. **Figure 176**
 186. **Figure 177**
 187. **Figure 178**
 188. **Figure 179**
 189. **Figure 180**
 190. **Figure 181**
 191. **Figure 182**
 192. **Figure 183**
 193. **Figure 184**
 194. **Figure 185**
 195. **Figure 186**
 196. **Figure 187**
 197. **Figure 188**
 198. **Figure 189**
 199. **Figure 190**
 200. **Figure 191**
 201. **Figure 192**
 202. **Figure 193**
 203. **Figure 194**
 204. **Figure 195**
 205. **Figure 196**
 206. **Figure 197**
 207. **Figure 198**
 208. **Figure 199**
 209. **Figure 200**
 210. **Figure 201**
 211. **Figure 202**
 212. **Figure 203**
 213. **Figure 204**
 214. **Figure 205**
 215. **Figure 206**
 216. **Figure 207**
 217. **Figure 208**

1. **Introduction**
 2. **Background**
 3. **Methodology**
 4. **Results**
 5. **Conclusion**



100



100



100



Abstract

Figure 6



100

[illegible]

SCREWDRIVER, FLAT TIP plastic handle, 15 in. or longer for 1 in. or longer screws. **CLASS** 12000. **ITEM** 12000.



FOR 12000-000-000

SCREWDRIVER, FLAT TIP plastic handle, wrench grip.



FOR 12000-000-000

16 in. long, 15 in. g. handle.

FOR 12000-000-000

16 in. or longer, 15 in. g. handle.

FOR 12000-000-000

16 in. long, 15 in. g. handle.

SCREWDRIVER, DR. TIP double end, common sized screw type, 16 in. or 18, 16 in. g.



FOR 12000-000-000

SCREW DRIVER, WOOD holding wedge grip, double handle, 16 in. long, 1 in. g. handle.



FOR 12000-000-000



SCREW DRIVER, WOOD holding wedge grip, double handle, 16 in. long, 1 in. g. handle.

SCREWDRIVER, WOOD double end, 16 in. or longer, 1 in. g. handle, 1 in. g. handle, 1 in. g. handle, 1 in. g. handle.



FOR 12000-000-000

SCREW, SCREW DRIVER 16 in. or longer, 1 in. g. handle.



FOR 12000-000-000

SCREW, SCREW DRIVER 16 in. or longer, 1 in. g. handle.



FOR 12000-000-000

16 in.

FOR 12000-000-000

16 in.



SCREW, SCREW DRIVER 16 in. or longer, 1 in. g. handle.

SCREW, SCREW DRIVER 16 in. or longer, 1 in. g. handle.

FOR 12000-000-000

16 in.

FOR 12000-000-000

16 in.

FOR 12000-000-000

16 in.

FOR 12000-000-000

16 in.



SCREW, SCREW DRIVER 16 in. or longer, 1 in. g. handle.

FOR 12000-000-000

16 in.

FOR 12000-000-000

16 in.

FOR 12000-000-000

16 in.

FOR 12000-000-000

16 in.

FOR 12000-000-000

16 in.

FOR 12000-000-000

16 in.

FOR 12000-000-000

16 in.

FOR 12000-000-000

16 in.



BOOKS, STICKS, BRICKS. 14 in sq ft, steel
style, 12 point springs . . .

FOR 100-100-100	74 in
FOR 100-100-100	74 in
FOR 100-100-100	74 in
FOR 100-100-100	74 in
FOR 100-100-100	74 in
FOR 100-100-100	74 in



BOOKS, STICKS, BRICKS. 14 in sq ft, steel
style, 12 point springs . . .



FOR 100-100-100	74 in
FOR 100-100-100	74 in

BOOKS, STICKS, BRICKS. 14 in sq ft, steel
style, 12 point springs, 12
in sq



FOR 100-100-100

BOOKS, STICKS, BRICKS. 14 in sq ft, steel
style, 12 point springs, 12
in sq



FOR 100-100-100

BOOKS, STICKS, BRICKS. 14 in sq ft, steel
style, 12 point springs, 12
in sq



FOR 100-100-100

Consisting of

FOR 100-100-100

BOOKS, STICKS, BRICKS. 14 in sq ft, steel
style, 12 point springs, 12
in sq

	100	100	100	100
FOR 100-100-100	74 in	74 in	74 in	74 in
FOR 100-100-100	74 in	74 in	74 in	74 in
FOR 100-100-100	74 in	74 in	74 in	74 in
FOR 100-100-100	74 in	74 in	74 in	74 in
FOR 100-100-100	74 in	74 in	74 in	74 in
FOR 100-100-100	74 in	74 in	74 in	74 in
FOR 100-100-100	74 in	74 in	74 in	74 in
FOR 100-100-100	74 in	74 in	74 in	74 in

BOOKS, STICKS, BRICKS. 14 in sq ft, steel
style, 12 point springs . . .



FOR 100-100-100	74 in
FOR 100-100-100	74 in
FOR 100-100-100	74 in
FOR 100-100-100	74 in
FOR 100-100-100	74 in
FOR 100-100-100	74 in



BOOKS, STICKS, BRICKS. 14 in
sq ft

FOR 100-100-100

FOR 100-100-100

FOR 100-100-100



JOE'S DOPE



AND
ITS
USES

You are falling through a dimension, out of sound
or substance, but ... of bliss
... you are falling ...

EXPLOSION



"I don't want
to be in this
place, but I
don't want to
be in there."

BLUE
SMALL



"I don't want
to be in this
place, but I
don't want to
be in there."



"I don't want
to be in this
place, but I
don't want to
be in there."



"I don't want
to be in this
place, but I
don't want to
be in there."

"I don't want
to be in this
place, but I
don't want to
be in there."



Joe's Dope Sheet



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

IF YOU WANT TO DISPLAY THIS CENTERPAGE ON YOUR BULLETIN BOARD, OPEN IT FLAT, LIFT IT OUT AND PIN IT UP.







HOT TOO TIGHT, PLEASE!



Hey, there, you with the red face. Any time you go out here, you're in trouble, right?

Like the guy who doesn't know when to stop after he has his 100-mm rifle loaded for target on a 74-ton truck.

He follows all the poop in just 34 1/2 of TM 9-1080-105-12 (Star 74), with changes, right up to the point where he aims the rifle barrel with the traveling lock and pushes down on the clamp locking handle.

That should do it. . . . BUT he doesn't stop there. He gives the traveling or elevating handlebar (or handle) another nudge to make sure the rifle's good and right.

And, besides, that does it! The first bump the vehicle hits, wham! The planetary elevating gear assembly takes a damaging jolt.



HITCH-HIKING M67



Dear Half-Mast,

Is there any one "best" way to protect an M67 travelling right when your parking is in a vehicle? The GPO's first issue our weapons sometimes ended up a ride with broken lock rings, damaged bludge blocks, bented fuze-mentals lights and telescopes, and so on.

Number TAND-1011-211-12 (Feb 62) and TC 22-1 (2 May 62) is much help on this.

Sgt C. L.

Dear Sergeant C. L.,

It's right, Sarge. Almost all the gals do is to imply that the best way to get a weapon from here to there is in good condition.

But, here's some tips you might find helpful, depending on how you plan to transport your M67.

March, the best way to carry any state-transportable shoulder weapon on a vehicle is for the gunner and loader to sit with it in their laps.

If our man's stuck with the thing, he can do it this way.

1. Remove the fuze-ment light and the scope and put them in their carrying case.



2. Attach the handle cover and break cover to the weapon.



3. Use a piece of cloth to make a good 1-inch square by at least 1/2 inch thick. Lay this on the vehicle floor to cushion your weapon.



4. Hold weapon supported between the legs, with hands and up, mouth and neck up on cloth cushion.





For unattended transporting, either put the gun in its shipping container the way it came, or make a box big enough to hold it safely. Either way, put the instrument light and telescope in their cases and pad the inside of the box with rags or paper.

Anyway you do it is right, so long as the weapon comes through in fighting condition.

Harry's Place

BETTER'N AN EAR PLUG



Here's good news for you, guys who get that ol' ringing in your ears every time your M17 screams like guns off.

Your M17 was supposed to come equipped with a neoprene sound suppressor ring. But, if it didn't—or you got shortchanged—you can still get one now. Just for all a regulation milking Ben Ring, Sound Suppressor . . . **ITEM 1011-011-0002.**

When you get it, slip it over the muzzle end of your rifle—use both hands from the forward end of the tube. It'll crush the tube when the weapon's fired or is accidentally cocked.

This ring's mentioned in Change 1 (21 Jul 61) to TM 9-1075-229-12 (2 Feb 61).



NE TOUCHEZ PAS!



You're not the type to plod around with the joy stick in your finger joint and control rods. Oh course not.

But, watch out for the guy with that tin tin hands and the imagination of a fly-boy. Sooner or later, he'll get so yanking that stick back and forth . . . doing power dives, figure-eight, and what have you.

Yeah, what, indeed! A Super GCM, that's what!

That stick tin tin—a rubber foot. The foot presses the electronic components that guide the foot to the target. Rough movement of that stick makes or breaks the foot. This tin tin and stuff into the electronic parts. Like said—Super!



THE BIG FOUR

Hold every pick-a-pick-a-thing!

When you're adjusting the rear tension spring on your M100 location, allow four inches between the spring cup ends instead of the 3 1/2" to 4 inches shown in Fig. M100, TM 9-2500-21-7-20 (C)1 60.



THE PROPERTY
OF THE
ARMY
IS NOT TO
BE
REPRODUCED
OR
TRANSMITTED
IN ANY
MANNER
WITHOUT
THE
WRITTEN
PERMISSION
OF THE
ARMY
OFFICE
OF
PUBLICATIONS
AND
GENERAL
INFORMATION

WHAT'S YOUR NUMBER?

Most every piece of equipment in this man's Army has a serial number that's used to keep track of it. That goes double for modified equipment like the MG M1 tripod mount, which is converted to the MG M121 for mounting your M60 machine gun.

Some of the modifications like have an identification plate with the new serial number right on it. No sweat. The plate gets tacked on to the head of the tripod.

But other bits have a conversion pump sheet with the new serial number stamped on it. The old M1 number on the tripod gets scratched out and the new one added, along with the other M121 info.

There's if this new pump sheet gets lost, at some time, your field maintenance support is going to have to come up with a number.

Does your M100 have its serial number? Well, if it doesn't, you'll want to check with your support—soon.



SERGEANT SLANTS

WHY SLANTING AN ENGINE? THE SLANT SLANT. THAT'S RIGHT, SLANT.

WHY MUST YOU SLANT THE SLANT? BECAUSE IT'S THE SLANT. THAT'S RIGHT, SLANT.

ACUTE

COUPLE HEX

WHY MUST YOU SLANT THE SLANT? BECAUSE IT'S THE SLANT. THAT'S RIGHT, SLANT.



Do it right the first time and you'll save time, sweat and equipment. OK, OK. So you've heard this advice before! But, since when have you stopped reading in Golden Plumber?

Especially when the lyrics have to do with something someone like you, knowing the coupling on the XM101 mounting system.

Yep, it's plain as a dish (and it's possible to think you can do it on an operation like this. "Come, come, you position these couplings just right, you'll end up with broken or damaged boxes—and no functional Sergeant."

So, once and for all, whenever you experience the couplings you'll have go through the entire routine, too subtle, like so:

1. Release the brake system air pressure by turning the chain ends on the air coupler.
2. Disconnect the air, then hold the emergency coupling in the mounting bracket. The other holds the brake in the coupling. That do the same thing to the same type coupler on the engine coupling.

EMERGENCY	10° DISCONNECT
EMERGENCY	10° DISCONNECT

4. Release them. The table sets, that hold the engine and emergency coupling in the mounting bracket. Taper right, that is, six about 10-15 feet points.

That's it.

STICK TO THE CHART, ART!

Maps. Like never!

That's the word on substituting OHC for OHC in the hardware components of your XM101 (forget something wrong).

Like why? Well, because your table don't say so, you get no from OHC, because, 'cause the pressure is in OHC, but up the delivery table with wagon in the situation and index.

So, what if you do if you run out of OHC? You don't, that's all. You keep



enough on hand to call them.

However, don't use anything but a quart (15M 1010-251-0080) or a gallon can (25M 1010-251-1144). If you open a 20-gal drum, chances are what's left over will spoil before you get to use it—and contaminate your brancher's hydraulic innards.

You can order all you need through TM 10-440-251-127/1 115 Max 644.

Here Notes

ON THE LEVEL

Dear Half-Mon,

How about considering a situation?

Just how much oil do we put in the AG's olive container in our Nike-Mercurio booster engine control indicators?

I read one thing in one place . . . and another in another place.

Sgt. B. M.



Dear Sergeant B. M.,

You can't go wrong if you go along with what is says on page 118 of TM 9-1440-250-20.

That is—"Oil variable container so that oil level is visible in the oil gauge glass."

Half-Mon

DON'T TRY IT

Dear Half-Mon,

About our Nike-Mercurio missiles . . . we notice that corrosion is developing inside the wingpits from around the rivets.

What should we do to get rid of the rust?

Sgt. B. M.

Dear Sergeant B. M.,

Send the boys back up the line—to the depot.

That's right . . . they're the only people who're supposed to put the booms back in shape when they become corroded or want to park.

Half-Mon

DON'T RUSH IT

Word's getting around that at least our Nike-Mercurio outfit has been gipped because its booster check airplanes were short of oil.

When here is that the men in the unit had been following TM 9-1440-250-20 . . . 12D 9-1440-250-20A . . . and the plate on the front of each check. What is, they thought they had been.

If there's a sure way of being fooled into thinking that you have enough oil in the checks, it's to pour oil into 'em like you're trying to put out a fire.



The biggest lesson on the plate for each check spells it out clear and simple: Fill Slowly. And the plate explains why . . . to bleed air in the checks completely.

When you pour in the oil slow-like—as if you're loading a stack of flapjacks with syrup—it's safe to figure the checks are filled once the oil starts to run out the venthole hole.

GOOD NEWS

The rubber covering on your Nike-Boreas launching and handling rail quickly disconnects cables more take a beating.

AWO 34440-00-80530 (11 Mar 61) judges the situation by fixing things so you don't have to twist the cables to get 'em in the dummy magazine. But the AWO doesn't get rid of the problem of shot cable covering—on entirely.

The answer would be new cable assemblies . . . and that's just what you'll be getting. Cable assemblies (AWO 1-000-805-004) with a new, tougher covering are replacing the cables you're now using.

Don't be in a rush to replace the new assemblies, tho. They won't be handling your way until the new ones start to run disappear from the supply system.

Meanwhile, you'll be helping things by making your cables last as long as possible. When they develop small cracks in the covering, wrap some electrical insulating tape around 'em. But,



if the cracks are so deep you can see the wiring, get rid of the cables. Taping cables don't in this shape could mean nothing in constant . . . and that'd be twice as no tape as all.

WHAT'D HE SAY?

Dear Half-Mist,

It's probably nothing to worry about, but I thought I'd check it out anyway. The surface of the propellant grain on some of our Nike-Boreas ZATB rocket motors has developed a coating of white stuff that reflects light. Do you know what it is?

Dear Sergeant M. W.,

You asked the question . . . so here's the answer: ammonium perchlorate crystal deposits generated as a result of a "leaching" process common to such propellants.

Despite the high-tech name, the crystals are nothing to worry about. They won't bother you and won't foul up the motor.

Half-Mist

AWO PL 10.

MORE
Here
Notes

COOPERATION & COORDINATION

There're two things to remember if you're going to help your support unit do what it says in TB 3-1400 (24-34) (1-21 Nov 55).

The TB tells your support people about the inspections, wiring and maintenance they have to take care of to keep your missiles and launching rails up to snuff.

When they take off with a missile and roll to give them the clearance, you'll get replacements to keep your cables in full strength.

It's your job to disconnect the missile before it's taken away. And you want to bring the log book for the missile up to date before it heads up the pier for your support unit's shop.



THE RIGHT ONE

You can come up with a choice for flipping a coin.

But that's not the best way to decide which 1507 cable to use in the external guidance equipment in your Nike-Boreas and Improved Nike-Boreas systems.

Do what the slide rule says. Use the electronic rule that's listed under 5000-805-4004, not the one that comes under 5000-805-1555. There's just enough difference between the two to make a difference in the job they'll do for you.

YOU'RE THERE WITH A VRC-24!

COMMUNICATIONS

Remember when it used to be like a game of chess trying to figure out how to communicate from ground to air?

Like, you were just about witless when you had to connect an AM net to an aircraft when all you had was your ground-to-aircraft-based FM radio.

Or, if the aircraft had a UHF radio, you'd have to play all kinds of games to get to it with your land-based VHF net.

And, maybe, the frequency of your net didn't match those in the aircraft. Or, trying to connect Air Force or Navy support aircraft on their frequencies really worked up a nerve.

Well, that was "remember when" time. Along came the AN/VRC-24 and the AN/VRC-68 radio sets, covering UHF and 1710-MHz channels. . . . and some dreary days were brightened quick-like.

For just about the first time, the VRC-24/Track-68 ground-to-air "radio" provides the means for good ground-to-air communications.

The VRC-24, which does the vital air-to-ground work, even gives a

bonus. It can communicate from those old kind-of, the AN/VRC-3 sets. (It works radio sets, too.)

The Track-68 also runs a double show. It mates with the ground-to-air with from a dual location—and, it can be vehicle-mounted if an AC 115V or 100V power source is available.

Don't let the different manufacturers throw you, though. Major components of both sets are nearly identical. The big difference is the PP-100/U, available only with the Track-68.



Both sets feature a frequency range from 125.8 and to 169.0 mc, which really gets you up where the birds are. . . . and then includes Air Force and Navy-type bands.

Persistent enough it may be, don't let us lead to the conclusion that the new sets replace any existing ones. That includes the ABC-21, which'll stay up where the birds fly. But it, the ABC-21 is one of the jobs the new radios are designed to see with.

About the only thing the VMC-10/Track-40 system is a big hole in the Army's comms system.

In-o-o, give another cyclall of some automated prime purposes of the ground-to-air net.

First 'n foremost, they're designed to give continuous transmission and reception during altitudes operations. These jobs can be done under adverse in temperature, weather, terrain and what-have-you.



Like, these two communications jobs are ground terminals in a common setup which controls tactical altitudes in close support of ground forces.



A third point is that some radio accessories and controls used with you are old runarounds which've been around long enough for you to know them.

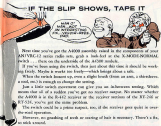
Also, these are only maintenance using units here to bother with includes replacement of tubes, lens, knobs and a few other easy items which require no major subassembly of the equipment.



The new do need some special air equipment, but not at the organizational level. All you need is the AM-1000/100 maintenance, the TC-1000 electronic tube test set and the TK-115/10 test kit. They've been around, too.

Ground-to-air, you've got it made.

IF THE SLIP SHOWS, TAPE IT



To make sure it won't happen the first time, or again, use the switch where you want it (NORMAL, most likely). Then spread a piece of tape across the switch, anchoring each end of the tape to the circuit board shield of the A-4000.



A SHORT STORY

Once upon a time there was a television comedian that was short-tempered and short.

It couldn't have been **BT-45**, '47 or '48.

Anyway, it seems this **BT's** career just couldn't get away from trouble! One place dropping out was where he failed with the transient women coupling.

You heard this one before!

Well, regardless, this too would turn to **TRASH** AND **COUPLING** around



like so when he was under his transient circuit. If the circuit still wasn't fixed,

even with the coupling control turned as far in as it was supposed to go, he'd have it—out of control in.

No. Don't ruin the ending for your buddy, let him read on.

Now, suddenly, with the control turned as far in as it possibly could go, the coupling didn't



touch for now. Or maybe he's stopped against the **BT** circuit. Suddenly again, when it hit the **TV** or circuit it started.

Quick as it started it burned out a place dropping out. The **BT**, of course, couldn't transmit.

He got that message real quick-like. Naturally, that'd be the end of this shorted story. But since somebody

may've missed the moral, stick around a sec' while it gets shortened.

The point is: When you get the coupling control turned in so where the transient circuit should be closed—and it's not—stop! Get your support or trim the coupling. And don't leave it.

The newer version of the **L33** unit—on the coupling dial—have a plastic cover on 'em to avoid burning, but lots of the old ones are still on the **BT's**—and they shoot out quick-like.



Overall, there's always the possibility that somebody didn't adjust the coupling right in the first place... which could mean you'd have to tune the coupling all the way in to test it. Naturally, if the coupling was adjusted properly before you got the **BT**, you wouldn't have to worry about shorting it.



Now, if you just got the **BT** and can't turn it, suspect the coupling is not adjusted right. Tune gain after you've used the test article. Have your support check out the coupling.

The End

When it comes to the Mark-69, your **AMMCO-69**'s radio manual set, don't be like the Joe who kept his shiny new battery locked in the garage because he didn't want to go to sleep.

If a battery doesn't go, it's useless.

You'll get just about as much use out of the new filters for the **69B-114/116C** filter kit if you don't take off their newspaper covers before you turn 'em on. In other words, the filters can't do their job if you keep 'em in their paper "garage."

Besides, leaving that wriggling on the filter could harm the battery.

Sure, the filter will stay shiny as long as the covers are on. But remember this, the filter manual is supposed to give a little

MARK-69



FILTER FOLLY

misled. And nobody's gonna gig you because it does.

Besides, the Mark-69's too important to be discarded just because some Joe wanted to keep a shiny shiny.

Here's another point: Don't keep a Mark-69 picture of the repair shop. You operators should mark every end, tighten the wire cover connector occasionally.

It comes loose. It is gone too loose, the distributor'll come again. That made a job for the old school, but a little operator **PRI** wouldn't prevent.



TRY A REWIND



Colorful results! Sure, rewinding, there's another good way to attack the problem of ribbon trouble on the TT-500 representation of your AM/FM/STB telepresence set.

What probably caused the trouble was that the ribbon was wound on the spool wrong at the factory. But though it is, too many just are looking it out when the bad wind leads the wrong moving lever on's the lever can't do its job.

That unhappy way has its beginning when the first wind of the ribbon is looped through the moving lever window of the spool. When you see it, the ribbon catches the end of the lever and binds it.

SECOND
LEVER

SECOND
WIND
LEVER



So now, the next step you get (like him, FSN 7540-251-8047 from GSA) look for a loop through the lever window (inside the spool). If the loop's there, rewind the ribbon by hand on its empty spool till it's unlooped.

Then, put it on the TT-500. Your troubles should be over.

WHERE'S THE CABLE?

Dear Half-Max,

Would you like to get the power cable between the AM/GBC-450 radio telepresenter and the J-400 generator, FSN 4115-075-4182.

Can't find anything on it in our parts.

SFC R. L. M.

Dear Sergeant R. L. M.,

It took a little sweat, but here's the help you want:

Cable assembly, power, electrical, CE-7004/U 115-foot, FSN 5905-000-0043. It's in the newest Best Deal From Texas List for the Army-65.



Half-Max

BRACE YOURSELF FOR THIS

Dear Halcy-Mark,

How're chances of getting a word or two in PE on the construction of the newer model PE-11 reel units?

Too many users forget to slide the brace forward before reeling it out or lock it in place. Result: The reels are spread wide open, which means the brace has to be repositioned before it can be slid out and locked.

We didn't have this problem with the old brace. It swung out—without reeling required. That's probably the reason for the damage, since a lot of us are used to the older type.

Sgt. J. P. M.

Dear Sergeant J. P. M.,

Swing like a wheel or two is needed. The point on the brace being slid forward is mighty important to prevent damage . . . and that means all the way forward, parallel with the container, before reeling the brace to the opposite container.



Heckler point: When the reel unit's to be moved, you release the brace from the opposite container, swing it all the way back to the rim that anchors it, and then slide it back so it can be placed in storage position.

Finally, when the reel unit's used as a wheelfarmer, make sure the brace is placed in storage position.

Otherwise, the brace could swing out and possibly injure the user, damage itself, or damage the wire on the reel.

I think we've about covered it, Sgt.

A PLUG FOR



You have computer plugs—the ones on an IBM/XT or IBM/AT portable workstation—wired inside a long distance!

Take a close look at the brass end of one of the plugs. Does it look clean?



Oh... maybe it does. Just for kicks, then, take a piece of coarse cloth and rub it over the end of the plug for a few seconds.

You can see that what you thought was clean wasn't. The coarse cloth can whisk whiskers.

To keep a piece of the stuff handy... and every few days go to work on the plugs. It doesn't take long—even on the 58-66 with its 52 plugs.

You might even find that the clean plugs will give you increased signal strength.

SO NOW YOU KNOW

When it comes to electrical and electronic wiring for aircraft, it's hard to get off the ground without a copy of **TM 11-580-11** (Dec 89).

It's called, and should file, "Insulation Practices for Aircraft Electric and Electronic Wiring," and it gives you about general goop on the subject that you'll probably know what to do with.

It's not exactly a new TM, but it's one that could really have been lost in the shuffle somewhere and never reached your fat little pilot-coloured hands. It gives you the real low-down



on such things as safety wiring, grounding, bonding, splicing, soldering, taping and tying, and some emergency repairs.

All in all, a real handy little guide for general reference and for filling in the occasional gaps between your 24- and 11-series TMs.

A LUKEWARM MATTER



There's a couple things about the older AN/FPP-1 projects: no, you shouldn't ever get water's infamous stink.

Like, when you're outside the take-up and cooled belts of the previous belt, lukewarm is as hot as you should get. In other words, that's not anything better's lukewarm water.

Not, no, please, hot water reaches the other belts of the older line projects. Sometimes the belts can grow as

much as an inch when they dry out from a hot bath. And that's not so hot.

Naturally, overhead belts don't do much for the take-up and feed rolls. So, no, lukewarm's the word. Every body'll understand.

The current line FPP-1, has manual spring take-up and cooled belts which don't need washing.

THIS STUD CAN'T TAKE IT



Thelovewin, the best place used on the portable most of your AN/FPP-1-G rated machinery: no is mighty handy. Unfortunately, it's more handy than handy.

The second phase of the new studwin assembly will show the studs right off the stud when the stud is carried in a jump or 14-ton truck.

The jump from bugging the stud studs, gets a 12-ring welded to the base plate and use an 8-inch on the studwin assembly to hold the stud assembly in place.



MORE ABOUT YOUR MIG



Sometimes it's the operator who needs a little FM.

Like when you're the operator of a MIG (Shielded Metal Arc) Arc Welder, EBY 941-891-0411, found in your No. 1 Supplemental Tool Kit. There're some things to keep in mind for your own protection.

There'll be less danger from sparks and burns if you wear light leather clothing. There're even welder's apron-shoulder fitted in EBY Caring CR95/ H-FLA (1 Jan 68)---

SP28, W2821, leather, eye compatible color, 44 type, better during or after, without type or points, 18-in long, 14-in wide, without size, EBY 941-234-401.

SP28, W2821, leather, eye compatible color, 44 type, strap with metal buttons during or after, without type or points, with quilt bag, 47-in long, 18-in wide, 1st EBY 401, type 1, 1st 1.

If you don't have leather clothing, then wear heavy, dark colored clothing. Make sure that your neck area's not exposed.

You need good ventilation that isn't drafty to protect yourself against cancer gas poisoning. It's a good idea to take a first-aid book every hour.

Make sure your welding helmet has a No. 10 shade (EBY 4101-113-44-01), when you're using from 75 to 200 amps, and a No. 12 shade (EBY 4101-273-44-01), when using over 200 amps.

Your welder has a automatic controller. If it works wrong it might give off poisonous smoke, which is dangerous. Should this happen, don't breathe the fumes coming from the "burned-out" controller. Report to person.

You'll want to have a copy of TM 1-5411-200-13 (Aug 61) handy if you have a Worthington MIG, or TM 1-5411-200-11 (Jul 61) if you have the Lincoln.



LOOK, MAN! NO EYES

BE CAREFUL
OF THE
HOT
WATER
TAP
ON THE
FAUCET...



Flying blind—even on the ground—is not for the birds. It's for nobody, man, nobody.

And you're flying blind with dear Old Wood-cresteded M-20A(F) or M-20B if your instrument panel is not of choice.

Here're some parts that're available to supply to you those on-the-birds instrument built into service—even tho they're not yet listed in the TM 7-2810-205 SOP (20 Feb 59).

Switch, power (the best)
TM 7-2810-205 SOP

Exp. inspection,
TM 7-2810-205 SOP
Exp. inspection,
TM 7-2810-205 SOP



Exp. oil pressure,
TM 7-2810-205 SOP

Inspection, oil exp.,
TM 7-2810-205 SOP

And, if you need the electrical lead for connecting the engine light to the panel, you ask for Lead, electrical, PWS 4220-015-4104.

These'll help you to "see" what's going on.

WHAT'S COOKIN'?

Dear Editor,

We've noticed a problem we had with the M-20(F) field range.

In order to remove the parking gland from the valve stem body of the fuel valve, here's what we do:



Take the air input valve stem and screw it into the parking gland as far as it will go. Then back it off enough to be sure the threads don't engage with valve stem threads. Pull the old parking gland out with the T-bolt end of the valve.

When the jacks, jackscrews, etc., are used for this job, they can slip and cause an injury and they can also damage the equipment.

SM Robert L. Fowles
Sgt. Knox, Ky

(Ed Note—Good idea.)

should not need any 1/2 inch x 1/2 inch

NOW HERE'S A SWITCH



You say you're not exactly getting what you want when you order the engine start and stop switch for your FUEL-LAR Model GE 160AC/160P 16-KW generator set?

So OK. Relax. With a little more it's yours.



Like you know, the old switch was like an on/off switch. FOL 9054-710-7017, Part No. 040001 00514008, Arrow-Hart & Hightman. You can't hardly get that kind no more for your engine control panel.



But—there's a ready-made substitute, which has screws for the wire instead of slip-on-clamps. It does the job fine. You gotta look further in with the new A-10 & 11 part number, 9054-001. It costs \$8 each.

FIGHTING FUEL

Dear Self-Start,

Where can I pick up some quick info on "combat gasoline?" And just how does it differ from the Mil-Spec-Gas variety?

Capt H. E. B.

Dear Captain H. E. B.,

Supply info on both "combat" and non-combat gasoline can be found in Federal Supply Catalogs GS100-1 (1 Dec 64) and GS100-101 (1 Dec 64).

Briefly, the "combat" type gasoline is made by a different formula. This is spelled out in specification MIL-G-2045. This formula gives it those distinctive characteristics. It makes your



ing motor over a wider temperature range; it's uniform in volatility; and it has additives to retard gum deposits and provide long-term storage.

Self-Start

Connie Rodd's BRIEFS



WIE? LOAD LIMIT

Your M352 1½-ton maintenance trailer's Gross-Weight and Highway total (gross) weight is 18800 pounds. Your Gross (payload) should never be more than 7000 pounds.

It says this on the M352's data plate . . . it's correct. Actual loads of 5000 pounds and maximum loads of 7000 and 8000 pounds are too much.

Remember, Gross payload should not be more than 3000 pounds; the trailer's weight is more than 440 pounds and the trailer's total gross weight should not exceed 18800 pounds.

Stick to the M352's data plate regardless of what's been said before . . . even in PG issue 128.

CARBON FETS' GONE

The Army's no longer using carbon tetrachloride, so forget about using it in your maintenance work. It's just plain dangerous. See those tech bulletins

about other solvents and cleaners to use. TM 11-424-24, TM 11g 103 and TM 11-4-248. The most distributable one of carbon tet is in AR 575 34000 (23 Mar 67).

HARK, YOU BAWKMAN!

Hold it on that last "Take The Lead" on page 58 of PG 141—scratch out the last three paragraphs. Forget all about crinkling jacks on the voltage regulator

or you might end up with checks you'll be making with the same equipment. The drops in the last two paragraphs is OK, too.



WIE? POSTERS

If your outfit needs those Army posters (AR 600-400) readiness and maintenance, here's what to do. Write out a memo DA Form 12-4 and fill in all the blanks your poster 12-4 has. Then, do one more thing—fill in one again box with "2B Series Posters" and the ques-

tion your unit needs. Send the revised 12-4 off to the Army Publications Center, 2400 Eastern Blvd., Baltimore, Md., 21208. They'll mail you direct to you. DA Circular 720-17 (Aug 66) gives the word.

YOU CAN MIX 'EM

On your M17 field protection mask use inlet valves (M9 4240-49-1-040) with the 1000-piece filter box is based around the collar, or use inlet valves (M9 4240-49-1-040) with the 1000-piece filter box is based on the outside.

Mixing the two won't cause apnea.

Inside. Any air that gets around the inlet valve cap comes through the filter screens, but it might cause fogging of the lenses at sub-zero temperatures. So, please wear our Army's well-ventilated comments under the job on Page 29 in PG 120.

HOW YOU GET RUBS

The handout pamphlet these days is DA Pamphlet 25-10, "Guide for Publications Supply Personnel" (May 66). It gives the steps on how the publications

supply system works. It was distributed according to DA Form 12-8, so if you didn't get yours you'll want to order it on DA Form 17.

THE REPORTABLES

Now you see the new AR 711-140 (Set of reportable items) dated June 67

It's distributed all the way down to company and battery.

Would You Stake Your Life, ^{right now} on

the Condition of Your Equipment?

'To Ere is Human ...'



SO ... DON'T TRUST
YOUR MEMORY ...

USE YOUR LATEST
LUBE ORDER*

*DON'T HAVE THE LATEST? ORDER AS MANY AS YOU NEED ON
DA FORM 17