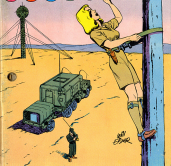


Issue 70

PS

ISS Series

THE PREVENTIVE MAINTENANCE MONTHLY



SIGNAL CORPS JOINS PS



1. **THESE**
 2. **THESE**
 3. **THESE**
 4. **THESE**
 5. **THESE**
 6. **THESE**
 7. **THESE**
 8. **THESE**
 9. **THESE**
 10. **THESE**
 11. **THESE**
 12. **THESE**
 13. **THESE**
 14. **THESE**
 15. **THESE**
 16. **THESE**
 17. **THESE**
 18. **THESE**
 19. **THESE**
 20. **THESE**
 21. **THESE**
 22. **THESE**
 23. **THESE**
 24. **THESE**
 25. **THESE**
 26. **THESE**
 27. **THESE**
 28. **THESE**
 29. **THESE**
 30. **THESE**
 31. **THESE**
 32. **THESE**
 33. **THESE**
 34. **THESE**
 35. **THESE**
 36. **THESE**
 37. **THESE**
 38. **THESE**
 39. **THESE**
 40. **THESE**
 41. **THESE**
 42. **THESE**
 43. **THESE**
 44. **THESE**
 45. **THESE**
 46. **THESE**
 47. **THESE**
 48. **THESE**
 49. **THESE**
 50. **THESE**
 51. **THESE**
 52. **THESE**
 53. **THESE**
 54. **THESE**
 55. **THESE**
 56. **THESE**
 57. **THESE**
 58. **THESE**
 59. **THESE**
 60. **THESE**
 61. **THESE**
 62. **THESE**
 63. **THESE**
 64. **THESE**
 65. **THESE**
 66. **THESE**
 67. **THESE**
 68. **THESE**
 69. **THESE**
 70. **THESE**
 71. **THESE**
 72. **THESE**
 73. **THESE**
 74. **THESE**
 75. **THESE**
 76. **THESE**
 77. **THESE**
 78. **THESE**
 79. **THESE**
 80. **THESE**
 81. **THESE**
 82. **THESE**
 83. **THESE**
 84. **THESE**
 85. **THESE**
 86. **THESE**
 87. **THESE**
 88. **THESE**
 89. **THESE**
 90. **THESE**
 91. **THESE**
 92. **THESE**
 93. **THESE**
 94. **THESE**
 95. **THESE**
 96. **THESE**
 97. **THESE**
 98. **THESE**
 99. **THESE**
 100. **THESE**

1000



THE 100 BEST SELLING BOOKS IN THE U.S. IN 1997

The new magazine is aimed to be able to join the day's news flow, to report on progress in science and technology and to bring together and comment on new research in biology.

There can be three different interpretations of the word "training" in the above sentence. In the professional literature, "training" is used in two different senses. The first sense is to mean "to teach" or "to instruct" and the second sense is to mean "to prepare" or "to develop". The first sense is the one that is used in the sentence above. The second sense is the one that is used in the sentence below.

[illegible]

1. *Journal of the American Medical Association*, 2000; 283: 2689-2695.



THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION
PUBLISHED WEEKLY
535 N. Dearborn Ave., Chicago, Ill. 60610
Subscription price: \$5.00 per year in advance.
Single copies: 15¢.
Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917. Authorized by Act of October 3, 1917. Postage paid at Chicago, Ill., and at additional mailing offices.
Postmaster: Send address changes in this journal to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 535 N. Dearborn Ave., Chicago, Ill. 60610.
Second-class postage paid at Chicago, Ill., and at additional mailing offices.
Copyright © 1978 by American Medical Association
All rights reserved. Reproduction by any means of any part of this publication without permission is prohibited.
Printed in the U.S.A.



THE
PREVENTIVE
MAINTENANCE
MANUAL



*Published by the Department of the Army for the information of participating institutions and used as personnel. Participation is made through special volunteer channels rather than listing of volunteers otherwise may be obtained direct from American Volunteer Agency, War Relocation Authority, National Youth Council.

IN THIS ISSUE

[illegible]

100

Carolee Hadd	18
Thompson and Rogers	27
Waldman	27
Carolee Hadd's Book	27

❖ We want your ideas and contributions, and it's glad to answer any questions. Just write to: Ted Koppel, 60 Minutes, 60 Minutes Building, 1000 Avenue of the Americas, New York, NY 10020. All letters are kept in confidence.



You'll find out if a battery is leaking electrolyte by using the multimeter TR-502/20 (0-50 V AC), Model A connection between the battery's positive terminal and its caseplate—and then between its negative terminal and the caseplate. If there's any voltage reading in either hookup you know electrolyte is leaking—and you take that battery out of line service.



While you're making that weekly check for leaks, check for one more thing. Electrolyte level. Maybe the 300-401 needs a detail. The level of electrolyte should never sink higher than the red line on the side of each battery cell, and shouldn't disappear from sight below the bottom of the inspection window. Anywhere in between is legal.

If a cell's needed, of course, a few drops of distilled water'll do the job. Your outfit has the springs for the job. No electrolyte, please . . . just distilled water.

Incidentally, electrolyte you slip off the plastic battery cover is where you're adding liquid to the cells or testing voltage. Keep 'em covered otherwise.



So now there's only one more check to wind up the weekly maintenance round of the "Battery Boycott" day that's sweeping mobile alloy. It's a test of the voltage in each cell. One check a month will do it.

AND MAKE THIS CHECK ONLY WHEN THE BATTERY IS ON FULCH-CORRUM . . . ON THE BATTERY STAND, NOT CHARGING.



Use the battery test set TR-502/20



Make sure the test lead is fitted across the terminals of the cell right the red prong on the positive terminal and the black prong on the negative terminal.



The tops of the cell terminal posts should snugly fit into the holes in the side of the lead group.

The reading should be at least 1.22 volts. A little higher is all right. Anything lower spells trouble. If one or more cells read less than 1.22 volts—out the battery aisle.

There might be something built around parked at the condition of the battery leads and lugs to see that they're in good condition. And when the word comes down that the battery is needed in a minute, it has to pass a quick 3-point check:



1. BATTERY OK.



2. BATTERY HAS EXCESS SMOKE. BANG!



3. BATTERY OK. THANKS!

Your **BB-4011** just isn't ready for its minute unless it passes this last-minute check before you hook it from the rack to the minute. And as long as it's in your possession ... keep it on the charging console as **POCKET-CHARGE**.

UNUSUAL MAINTENANCE

There's a familiar chorus here, guys. Every battery in every minute must be on **POCKET-CHARGE** constantly. Whether the minute is on the bench or at the car window ... **POCKET-CHARGE 24 HOURS A DAY, 7 DAYS A WEEK.**

And even though that goes to, **POCKET-CHARGE** is feeding into the battery all the time, you still have to check to be sure the battery will do its job right.

Once a week, then, walk over to every minute (on bench or test) and go to work with the battery test set **TS-107/AL**. Disconnect the minute first, and then disconnect the battery from the minute terminals. And you're ready to give them an "a minute" check.



Connect over the hookup—which is pretty much the same as when you use the test set to check a cell. With one slight difference. You have to hook the battery to the binding post at the back of the test set. The red (positive) battery lead goes on the positive post (which has a red line

NEW DOPE: NO SOAP

Best to keep about rinsing your **BB-4011** batteries with anything—least of all electrical insulating compound. Gotta be real up with a simple wash if the potassium hydroxide electrolyte tangles with the compound. Besides, the hardware on these batteries is corrosion. Water is pushed on a stream. And watch that tap on page 37 of **PS-45**.

latter weaker and the black (negative) battery lead hooks on to the negative post.

You're ready to read. Throw the lead switch. For about 15 seconds, you should have a reading of 28.0 volts. It should stay at 28.0 volts for as long as the switch is thrown. If a battery thinks this check—make like a doctor and yank it.



And when you've got the battery exposed, why not give it a quick eyeball check. Are the terminal lugs straight and clean? Are the battery leads tight or suffering from cracked insulation? If the answer to either question is yes—you're good. If not, correct the battery. Recharge it with one from standby.

OK. If your test shows 28.0 volts and lugs and leads are clean and straight, you've got a good battery. Unhook it from the test set and reconnect it to the vehicle—positive (red) to positive and negative (black) to negative.

And then hook up the vehicle to the test station or bench. Look for a glow on the charging light on the bench—operating panel—which tells you know that the vehicle is connected right and ready for use.

So what's left to check? Only the battery charger in the benching power cabinet and the accuracy of its battery charge meter. That meter, of course, you'll find on the control panel of the benching station.

Use the test lead from your multimeter TS-112/U for diagnostic operations. Use 'em to hook up the battery test set TS-117/U with the battery charge meter (on the benching station control panel). The usual arrangement. The positive (red) lead connects the positive terminal on the back of the test set with the plus terminal on the front of the meter. Then hook the test set negative terminal with the meter's negative terminal.

Both meters should read 28.0 volts, $\pm$.5 volts. That's a order limit. If the reading falls outside that allowance, simply make an adjustment. Turn the adjusting screw on the back of the meter to read exactly the same as the meter of the test set.

But if the voltage reading is above or below the limits of 28.0 $\pm$.5 volts—the battery charger in the benching station power cabinet needs checking and adjusting.

Of course, no battery test is a vehicle owner's JO-joy. Regardless. At the end of that day, it's got to be replaced with one from standby.

So ends the "Battery Bummer." The meter will come if the lead battery has to be pushed. Preventive and Stand-by Maintenance will make sure those BB-200's are ready to ring on out.



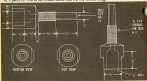
You can pin your hopes on this SPECIAL NIKE-AJAX MISSILE TOOL



Some time or another you're going to try to remove the aluminum hinge pin from your Nike-Ajax missile. . . . and it won't be about to budge.

Worse of that . . . the less you may do it, the less you'll be able to get the pin out of the missile's spot that right. The pin is positioned in the head so you can see it doesn't take but a few easy minutes for the pin and head to part company. Then you're in a jam.

What you need is a tool that'll remove the pin. And, if you take these drawings to your support unit, you'll come away with the tool. Otherwise you make it out of a piece of 1/4-in. brass round stock that's 2 1/2 inches long.



1. Insert it into the sleeve—letting the top of the sleeve pin against the nut until you've got it snug tight.



2. Heat a soldering iron against the nut until the nut is hot enough to melt solder.



3. Heat enough molten solder in the nut so it flows over the top of the sleeve pin when the solder sets.



4. After the solder hardens, remove the nut with a 5/16-in. spanner wrench and the pin will come with it.



5. Once this pin is out, heat the nut enough to melt the solder and allow the pin to slip out.



Get a new pin under FM 1-420-400-1-475. Before installing it... spread a real light coat of aircraft grease (FM 91-56-285-4555) on the pin. Remove the pin every three months and apply some more grease. That little treatment ought to keep the pin in good shape.

By the way—your supporting sleeve gets the grease from the Air Force through a Military Interdepartment Purchase Request.



GET THE RIGHT OIL.

There's electrical insulating oil and there's electrical insulating oil—but for you guys at a Nike-Ajax site, there's only one kind to use in your powerhouses.

You want Royal D, which comes to you in a 1-gal can, FM 91-56-400-1-1-500... 1-gal can, FM 91-56-400-5843... and 5-gal can, FM 91-56-400-5857. It's a Quarter Master deal.

Now 1B or 5B 40-1-2 125 Amp 571 tells you Royal D is to be used in place of the other insulating oils.



You know how those fuel and oxidizer stoppers get stuck in your Nike-Ajax missile near and again.

It can happen when you stick the stopper in the filler and then screw in the fill plug. The plug presses the stopper back. Might also happen when you move the missile around with the plug removed. The jarring can do it.

What you need is a tool that can be screwed into the stopper and then pulled—carrying the stopper along.



Your support unit can whip one up for you in no time. All it takes is a 4-in piece of $1/4$ -in dia steel rod that's threaded on one end and bent at a 90-degree angle at the other. Tell the man to use a 10-32 NF die for the threads and to run on about eight full threads.

The other end should be bent so's you get a 1-in finger grip.

Oh, you can back on to a 10-32 NF machine screw run at about fifteen long and have a piece of rod stuck in for a handle.

Next time you have a stuck stopper, screw in the tool and pull. No sweat.



THE RIGHT ANGLE

Next time the support unit man drops around to your Nike-Ajax or MIM-104, give him this as a heads-up: the blower assembly that's used to cool things off—like the power supplies in the computer.

The word is that there are some blowers around with wrong blade angles on the impeller. The impeller spins around counter-clockwise all right, but it doesn't do the cooling job it should.

Have your support unit get a good impeller (FOM 4410-340-1014) and make a note.

The blade angle on the **good** impeller looks like this: **DIRECTION OF ROTATION**



and so the **wrong** impeller looks like this: **DIRECTION OF ROTATION**



TORQUE RIGHT?



Torque wrenches that read right down to the pound are mighty important pieces of equipment—especially for a Nike-Ajax guy.

We'll tell you the whole amount of safe work—stuff that won't mess up an overtorquing. What a wrench is reading: how close the actual pounds you're putting into your work, is means you're overtorquing when the pointer hits the figure called for.

And undertorquing is bad, too, especially when you're way off in the pounds you think you have.

In pairs, then, to have your support unit check the accuracy of your wrenches now and again—say every two months. They have a torque wrench and wrench-correct scales for the job.

Roll your finger down page 46 of *Good TUNE*, V4-1 and you'll come across Lubricant, Midec Root.

You Mike-A-Jax men ought to get to know the stuff because it's a good deal for keeping the invariable driver assembly in your working condition in shape.

What you do is remove the drivers ... clean the steel with a burnishing tool ... file 'em light-like with some of the lube that's been dabbed on the end of a good finger ... and then replace the drivers. Clean the steel once a month.

Be careful with the lube, too ... you don't want to get it in your natural sensitivity. And, don't do anything to foul up the motion of the springs holding the drivers.

You'll see that the supply manual shows you **FDX 513A-058-0120** gets you a 14-in tube of the lube.

FORGET...

AIR LINE REMINDER



When you're filling your Corporal with air, the stuff should go through the high pressure hose—from the air service to the nozzle—with no detours on the way.

If the 1500-PSI of air finds a weak spot in the hose ... and it comes through ... it'll really be on the move.

It'll pay to keep checking your air hoses for leaks, too, the spot and sign that the wire braid in the hose is breaking through. Your support unit'll prove and kick-out the 14-in hose every three months and smaller hoses every six months.

If you run into a bad section of hose, replace it. And replace all the hose once a year—even tho it looks good.

You don't have to change permanent hose-like the kind you have in your equipment.

CORPORAL CHERRYPICKER PM TIPS



BEFORE HITTING THE ROAD

One of the most important things you'll do with the selection platform on the K500 or K507 truck-mounted aerial working platform.

First, check shifting lever on the gear box want to be down—in the road travel position—when you take to the highway, nothing else.

When it's up—in the operating position—and you're on the road, you wouldn't be able to move the lower main shaft. The gear in the gear box are engaged and they get to grinding and grinding on the lower main—sometimes enough to stop you around the output shaft in the box.

So, ... make with the lever like the arrow say—down for road travel, nothing for operating the boom.



IN A HURRY

UP'S AND DOWN'S

Fast and easy like that's the way the outriggers should swing on your platform.

And, that's how they'll do if you put a few drops of oil on the oleos you about once a week.



You want to keep your good eye and eye aimed in the direction of the shot chosen when you're using the boom on your working platform.

That way you can tell when the chosen isn't turning right—like when it's right and is turning. When you're in that kind of head, tell it your support unit. They'll set things right.



1. *What is the main purpose of the study?*

11/11/2011 11:11:11 AM

FIVE-FOR-ONE DEAL



It's the same old story—you always need the right tool for the right job. That's why your ordinary mechanics now have one of five different tool sets based on your schedule or your IIC.

Up to now, there was only one military tool set—Tool Set, Auxiliary Mine Maintenance, FPM 5000-754-04(1) (1st & 2nd Edition, Section 14). This contained all the work needed to make mine repairs on all military. This tool set has now been broken down for different use. Here they are:

[Home](#)
[About Us](#)
[Contact Us](#)
[Privacy Policy](#)

THE

[Home](#)
[About Us](#)
[Contact Us](#)
[Privacy Policy](#)

THE UNIVERSITY OF CHICAGO PRESS

1990-1991, 1991-1992, 1992-1993, 1993-1994, 1994-1995, 1995-1996, 1996-1997, 1997-1998, 1998-1999, 1999-2000, 2000-2001, 2001-2002, 2002-2003, 2003-2004, 2004-2005, 2005-2006, 2006-2007, 2007-2008, 2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, 2017-2018, 2018-2019, 2019-2020, 2020-2021, 2021-2022, 2022-2023, 2023-2024, 2024-2025, 2025-2026, 2026-2027, 2027-2028, 2028-2029, 2029-2030, 2030-2031, 2031-2032, 2032-2033, 2033-2034, 2034-2035, 2035-2036, 2036-2037, 2037-2038, 2038-2039, 2039-2040, 2040-2041, 2041-2042, 2042-2043, 2043-2044, 2044-2045, 2045-2046, 2046-2047, 2047-2048, 2048-2049, 2049-2050, 2050-2051, 2051-2052, 2052-2053, 2053-2054, 2054-2055, 2055-2056, 2056-2057, 2057-2058, 2058-2059, 2059-2060, 2060-2061, 2061-2062, 2062-2063, 2063-2064, 2064-2065, 2065-2066, 2066-2067, 2067-2068, 2068-2069, 2069-2070, 2070-2071, 2071-2072, 2072-2073, 2073-2074, 2074-2075, 2075-2076, 2076-2077, 2077-2078, 2078-2079, 2079-2080, 2080-2081, 2081-2082, 2082-2083, 2083-2084, 2084-2085, 2085-2086, 2086-2087, 2087-2088, 2088-2089, 2089-2090, 2090-2091, 2091-2092, 2092-2093, 2093-2094, 2094-2095, 2095-2096, 2096-2097, 2097-2098, 2098-2099, 2099-2100, 2100-2101, 2101-2102, 2102-2103, 2103-2104, 2104-2105, 2105-2106, 2106-2107, 2107-2108, 2108-2109, 2109-2110, 2110-2111, 2111-2112, 2112-2113, 2113-2114, 2114-2115, 2115-2116, 2116-2117, 2117-2118, 2118-2119, 2119-2120, 2120-2121, 2121-2122, 2122-2123, 2123-2124, 2124-2125, 2125-2126, 2126-2127, 2127-2128, 2128-2129, 2129-2130, 2130-2131, 2131-2132, 2132-2133, 2133-2134, 2134-2135, 2135-2136, 2136-2137, 2137-2138, 2138-2139, 2139-2140, 2140-2141, 2141-2142, 2142-2143, 2143-2144, 2144-2145, 2145-2146, 2146-2147, 2147-2148, 2148-2149, 2149-2150, 2150-2151, 2151-2152, 2152-2153, 2153-2154, 2154-2155, 2155-2156, 2156-2157, 2157-2158, 2158-2159, 2159-2160, 2160-2161, 2161-2162, 2162-2163, 2163-2164, 2164-2165, 2165-2166, 2166-2167, 2167-2168, 2168-2169, 2169-2170, 2170-2171, 2171-2172, 2172-2173, 2173-2174, 2174-2175, 2175-2176, 2176-2177, 2177-2178, 2178-2179, 2179-2180, 2180-2181, 2181-2182, 2182-2183, 2183-2184, 2184-2185, 2185-2186, 2186-2187, 2187-2188, 2188-2189, 2189-2190, 2190-2191, 2191-2192, 2192-2193, 2193-2194, 2194-2195, 2195-2196, 2196-2197, 2197-2198, 2198-2199, 2199-2200, 2200-2201, 2201-2202, 2202-2203, 2203-2204, 2204-2205, 2205-2206, 2206-2207, 2207-2208, 2208-2209, 2209-2210, 2210-2211, 2211-2212, 2212-2213, 2213-2214, 2214-2215, 2215-2216, 2216-2217, 2217-2218, 2218-2219, 2219-2220, 2220-2221, 2221-2222, 2222-2223, 2223-2224, 2224-2225, 2225-2226, 2226-2227, 2227-2228, 2228-2229, 2229-2230, 2230-2231, 2231-2232, 2232-2233, 2233-2234, 2234-2235, 2235-2236, 2236-2237, 2237-2238, 2238-2239, 2239-2240, 2240-2241, 2241-2242, 2242-2243, 2243-2244, 2244-2245, 2245-2246, 2246-2247, 2247-2248, 2248-2249, 2249-2250, 2250-2251, 2251-2252, 2252-2253, 2253-2254, 2254-2255, 2255-2256, 2256-2257, 2257-2258, 2258-2259, 2259-2260, 2260-2261, 2261-2262, 2262-2263, 2263-2264, 2264-2265, 2265-2266, 2266-2267, 2267-2268, 2268-2269, 2269-2270, 2270-2271, 2271-2272, 2272-2273, 2273-2274, 2274-2275, 2275-2276, 2276-2277, 2277-2278, 2278-2279, 2279-2280, 2280-2281, 2281-2282, 2282-2283, 2283-2284, 2284-2285, 2285-2286, 2286-2287, 2287-2288, 2288-2289, 2289-2290, 2290-2291, 2291-2292, 2292-2293, 2293-2294, 2294-2295, 2295-2296, 2296-2297, 2297-2298, 2298-2299, 2299-2300, 2300-2301, 2301-2302, 2302-2303, 2303-2304, 2304-2305, 2305-2306, 2306-2307, 2307-2308, 2308-2309, 2309-2310, 2310-2311, 2311-2312, 2312-2313, 2313-2314, 2314-2315, 2315-2316, 2316-2317, 2317-2318, 2318-2319, 2319-2320, 2320-2321, 2321-2322, 2322-2323, 2323-2324, 2324-2325, 2325-2326, 2326-2327, 2327-2328, 2328-2329, 2329-2330, 2330-2331, 2331-2332, 2332-2333, 2333-2334, 2334-2335, 2335-2336, 2336-2337, 2337-2338, 2338-2339, 2339-2340, 2340-2341, 2341-2342, 2342-2343, 2343-2344, 2344-2345, 2345-2346, 2346-2347, 2347-2348, 2348-2349, 2349-2350, 2350-2351, 2351-2352, 2352-2353, 2353-2354, 2354-2355, 2355-2356, 2356-2357, 2357-2358, 2358-2359, 2359-2360, 2360-2361, 2361-2362, 23

100% OF APPLICANTS ACCEPTED | [View More](#) and [Join Now](#)

DOI: 10.1002/for

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, 26

DOI: 10.1002/for

© 1999 by John Wiley & Sons, Inc. All rights reserved. This journal is registered at the Copyright Clearance Center, Inc., 222 Rosewood Drive, Danvers, MA 01923. Organizations in the U.S. who are also registered with C.C.C. may therefore copy material (beyond the limits permitted by sections 107 and 108 of U.S. copyright law) subject to payment to C.C.C. of the per copy fee of \$0.50. This consent does not extend to multiple copying for promotional or commercial purposes. ISI Tear Sheet Service, 3501 Market Street, Philadelphia, PA 19104, USA, is authorized to supply single copies of separate articles for private use only. Organizations authorized by the Copyright Licensing Agency may also copy material subject to the usual conditions. For all other use, permission should be sought from John Wiley & Sons, Inc. 0890-0604/99/0005-0000\$05.00

© 2014 Pearson Education, Inc. All rights reserved. Printed in the United States of America. This publication is protected by copyright. Any unauthorized reproduction or distribution of this work in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without permission in writing from the publisher is prohibited. All rights reserved.

† Available with Auxiliary Game Module(s), game play Sep 1 1994-09/01/95.

If you have **2000-10000** (Military Standard), you'll get either an **1000-500** (**1000-1000-5000**) or a **1000-500-1000**, depending on what weapons you bought.

The chart shows you what the work looks like. The tools are listed in alphabetical order. You can tell what we or you need belongs to by looking at the two right-hand columns. The first mail, for example, which is an adapter, is found only in No. 1185-000-0110. You can order it from there.

The more things that your tools may look a little different from those shown here. That's because hardware may be made by different manufacturers.

THE UNIVERSITY OF CHICAGO

ALPINE, MOUNT
 (MOUNTAIN) from 10 to 15
 miles, 10 to 15 miles
 and, 10 to 15 miles
 and

11

100% POWER RATED
FOR 10 HOURS
IN 10 MINUTES
WITH NO OVERHEATING

Abstract

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, 26

1000

[illegible]

1000



BRUCE, ARTHUR: award
long service, a national
award, the first 1st award,
17th in 1917, 17th in 1917

Explain, clearly, using the line on wall, that the dog is not.

1999

DATE, TIME, NAME,
NAME OF LONG-
EST

1000

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



SHIRT TAIL: right hand,
14 in longest rib, 1 in
lg. round.

FOR 12 BONES ONLY



SHIRT TAIL: right hand,
16 in longest rib, 4 in
lg. round.

FOR 12 BONES ONLY



SHIRT TAIL: right hand,
16 in longest rib, 4 in
lg. round.

FOR 12 BONES ONLY



SHIRT TAIL: right hand,
16 in longest rib, 11 in
lg. round.

FOR 12 BONES ONLY



EXTENSION, SHIRT
TIE: right hand, 14 in
longest rib in lg. forearm
BONE, round in each
end.

FOR 12 BONES ONLY



EXTENSION, SHIRT
TIE: right hand, 14 in
longest rib in lg.

FOR 12 BONES ONLY



FOUL, BONE, American
pat., 3 in lg. rib, 1 in
lg. rib, 1 in lg. rib.

FOR 12 BONES ONLY



FOUL, BONE, AL, 14 in
lg. rib, 1 in lg. rib.

FOR 12 BONES ONLY



FOUL, BONE, AL, 14 in
lg. rib, 1 in lg. rib.

FOR 12 BONES ONLY



FOUL, BONE, American
pat., 3 in lg. rib, 1 in
lg. rib, 1 in lg. rib.

FOR 12 BONES ONLY



FOUL, BONE, American
pat., 3 in lg. rib, 1 in
lg. rib, 1 in lg. rib.

FOR 12 BONES ONLY



FOUL, BONE, American
pat., 3 in lg. rib, 1 in
lg. rib, 1 in lg. rib.

FOR 12 BONES ONLY



FOUL, BONE, American
pat., 3 in lg. rib, 1 in
lg. rib, 1 in lg. rib.

FOR 12 BONES ONLY



FOUL, BONE, American
pat., 3 in lg. rib, 1 in
lg. rib, 1 in lg. rib.

FOR 12 BONES ONLY



FOUL, BONE, American
pat., 3 in lg. rib, 1 in
lg. rib, 1 in lg. rib.

FOR 12 BONES ONLY



FOUL, BONE, American
pat., 3 in lg. rib, 1 in
lg. rib, 1 in lg. rib.

FOR 12 BONES ONLY



re-orientation, 1982-83 11
PACB, planarian, 7 see feeding
ring, 20th instar fly, 22 see
re-orientation, 1982-83, 1983-84
and water, 1982-83

100

[illegible]

100



RECEIVED: FEBRUARY 1999
 ACCEPTED: MAY 1999

11



referred to as "the
most famous, the
most famous"



WILLIAM SHAW, 35, 1000 N. 10th St., Minneapolis, is a graduate of the University of Minnesota, where he received his degree in 1964. He is currently employed as a sales manager for the Minneapolis-based company.

[illegible]

REMARK 1.1. The term $\mathcal{H}^1$ is used in the literature to denote the Hausdorff measure of dimension 1. The set $\mathcal{H}^1$ is a subset of $\mathcal{H}^1$ and is denoted by $\mathcal{H}^1$.



DATE: _____
PAGE: _____



100



Q138, Q139: I am happy that by the 2000, Iraq will spend the oil, the money that it has spent, because that will be good. I'd be all in the oil, as long as it's



PHOTO: JAMES HARRISON
 PHOTO: JAMES HARRISON
 PHOTO: JAMES HARRISON

100



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

[illegible]

Abstract. *Staphylococcus aureus* is a common cause of nosocomial infection and is often resistant to multiple antibiotics. The purpose of this study was to determine the prevalence of *S. aureus* in the nasal cavity of patients in a tertiary care hospital. A total of 100 patients were screened for *S. aureus* in the nasal cavity. The results showed that 60% of the patients were positive for *S. aureus*. The study also found that the prevalence of *S. aureus* was significantly higher in patients who had been in the hospital for more than 48 hours. These findings suggest that *S. aureus* is a common pathogen in the nasal cavity of patients in a tertiary care hospital and that the prevalence of *S. aureus* is higher in patients who have been in the hospital for a longer period of time.

100



PLATE 100. *See text.*



NEVER
 RECOVER FROM
 A BAD INVESTMENT



THE HATCHBACK	
A pickup, 40 mpg, \$22,400. It is available in two of four trims. It is over six ft. tall, 4 ft. wide to wheels.	
THE HATCHBACK	I I I
PICKUP, 2000-1994. It is over six ft. tall, 4 ft. wide to wheels.	
THE HATCHBACK	I I I
PICKUP, 2000-1994. It is over six ft. tall, 4 ft. wide to wheels.	
THE HATCHBACK	I I I I
PICKUP, 2000-1994. It is over six ft. tall, 4 ft. wide to wheels.	
THE HATCHBACK	I
PICKUP, 2000-1994. It is over six ft. tall, 4 ft. wide to wheels.	
THE HATCHBACK	I I I I
PICKUP, 2000-1994. It is over six ft. tall, 4 ft. wide to wheels.	
THE HATCHBACK	I



THE HATCHBACK	
PICKUP, 2000-1994. It is over six ft. tall, 4 ft. wide to wheels.	
THE HATCHBACK	I I
PICKUP, 2000-1994. It is over six ft. tall, 4 ft. wide to wheels.	
THE HATCHBACK	I
PICKUP, 2000-1994. It is over six ft. tall, 4 ft. wide to wheels.	
THE HATCHBACK	I
PICKUP, 2000-1994. It is over six ft. tall, 4 ft. wide to wheels.	
THE HATCHBACK	I
PICKUP, 2000-1994. It is over six ft. tall, 4 ft. wide to wheels.	
THE HATCHBACK	I I
PICKUP, 2000-1994. It is over six ft. tall, 4 ft. wide to wheels.	
THE HATCHBACK	I I
PICKUP, 2000-1994. It is over six ft. tall, 4 ft. wide to wheels.	
THE HATCHBACK	I I I
PICKUP, 2000-1994. It is over six ft. tall, 4 ft. wide to wheels.	
THE HATCHBACK	I I I

SCREWDRIVER, THE TALL



...AND THE TALL



When you're using a screwdriver, you should use the right one.



THE SCREWDRIVER



SCREWDRIVER, FLAT
The head is flat, the shaft is round, the handle is flat.

THE SCREWDRIVER

SCREWDRIVER, FLAT
The head is flat, the shaft is round, the handle is flat.

THE SCREWDRIVER

SCREWDRIVER, FLAT
The head is flat, the shaft is round, the handle is flat.

THE SCREWDRIVER



SCREWDRIVER, FLAT
The head is flat, the shaft is round, the handle is flat.

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER



THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER

THE SCREWDRIVER



ON THE OTHER

1 1 1 1 1
2 2 2 2 2

WRENCH, BOLT AND
OPEN END, COMBINATION
effect top, 15 in
wing, 12 in 1/2

FOR THE OTHER



WRENCH, BOLT AND
OPEN END, COMBINATION
effect top, 15 in
wing, 12 in 1/2
angle of open end
and wing, 15 in 1/2
is normal.

FOR THE OTHER



WRENCH, BOLT AND
OPEN END, COMBINATION
effect top, 15 in
wing, 12 in 1/2
angle of open end
and wing, 15 in 1/2
is normal.

FOR THE OTHER



WRENCH, BOLT AND
OPEN END, COMBINATION
effect top, 15 in
wing, 12 in 1/2
angle of open end
and wing, 15 in 1/2
is normal.

FOR THE OTHER



WRENCH, BOLT AND
OPEN END, COMBINATION
effect top, 15 in
wing, 12 in 1/2
angle of open end
and wing, 15 in 1/2
is normal.

FOR THE OTHER



ON THE OTHER

1 1 1 1 1
2 2 2 2 2

WRENCH, BOLT AND
OPEN END, COMBINATION
effect top, 15 in
wing, 12 in 1/2
angle of open end
and wing, 15 in 1/2
is normal.

FOR THE OTHER



WRENCH, BOLT AND
OPEN END, COMBINATION
effect top, 15 in
wing, 12 in 1/2
angle of open end
and wing, 15 in 1/2
is normal.

FOR THE OTHER



WRENCH, BOLT AND
OPEN END, COMBINATION
effect top, 15 in
wing, 12 in 1/2
angle of open end
and wing, 15 in 1/2
is normal.

FOR THE OTHER



WRENCH, BOLT AND
OPEN END, COMBINATION
effect top, 15 in
wing, 12 in 1/2
angle of open end
and wing, 15 in 1/2
is normal.

FOR THE OTHER



WRENCH, BOLT AND
OPEN END, COMBINATION
effect top, 15 in
wing, 12 in 1/2
angle of open end
and wing, 15 in 1/2
is normal.

FOR THE OTHER



WRENCH, BOLT AND
OPEN END, COMBINATION
effect top, 15 in
wing, 12 in 1/2
angle of open end
and wing, 15 in 1/2
is normal.

FOR THE OTHER





FOR 100-100-100 1



FOR 100-100-100 1



FOR 100-100-100 1



FOR 100-100-100 1



FOR 100-100-100 1



FOR 100-100-100 1



FOR 100-100-100 1



FOR 100-100-100 1



FOR 100-100-100 1



FOR 100-100-100 1



FOR 100-100-100 1



FOR 100-100-100 1

BE YOUR OWN INSPECTOR

You have an MS or MMAT (total protective mask) around so you do you'll have protection for your face, eyes, and respiratory tract in case of a CBR (Chemical, Biological, Radiological) attack.

Those masks won't be worth a sticker's claim if you don't keep it in top-notch working condition at all times.

To do this you ought to give your mask an inspection that runs around. Because there's more than one way to do it, we've broken it back for—here's a number.



STRAP—Inspect all parts which fit, strap, band or little else to make being able to wear by its own holes, and after inspection check, or less dirt, pores.



THE STRAP—Inspect lower metal parts, metal, metal damaged, holes, or closed or damaged.



STRAP—Inspect all parts which fit, strap, band or little else to make being able to wear by its own holes, and after inspection check, or less dirt, pores.



STRAP—Inspect all parts which fit, strap, band or little else to make being able to wear by its own holes, and after inspection check, or less dirt, pores.



There's nothing around in a bag when you've cleaned your protective (gas) mask?

Maybe you're not been using your MS or MMAT on the basis of your mask. It's easy to see. Right? It's a good idea to clean the mask before you use your mask when clean. When all you have



FACEPIECE



STRAP—Inspect all parts which fit, strap, band or little else to make being able to wear by its own holes, and after inspection check, or less dirt, pores.



STRAP—Inspect all parts which fit, strap, band or little else to make being able to wear by its own holes, and after inspection check, or less dirt, pores.



STRAP—Inspect all parts which fit, strap, band or little else to make being able to wear by its own holes, and after inspection check, or less dirt, pores.



STRAP—Inspect all parts which fit, strap, band or little else to make being able to wear by its own holes, and after inspection check, or less dirt, pores.



FACEPIECE—Inspect all parts which fit, strap, band or little else to make being able to wear by its own holes, and after inspection check, or less dirt, pores.



FOG LIFTERS

It's in it too, your fingerprints and moisture the inside of your lenses. Most, take the mask-dishcloth and rub. I Don't open the other glass.

Once the cloth doesn't do its job, get a new one—no washing your old one.

When you get your mask clean and dry, spread the cloth on a sunny but not too sunny. The cloth gets dry before you put it back in the case or it'll start out the bottom.



Covault Road's

1981-82



TANK
PARK



Tubes in a tangle?

I'd sure keep a sharp sniffer in the engine compartment of my 1984.2 tank if I were you. Some thousand lire juicer tubes on the AVE 1700.8 engines wear through real easy, and you can even drip.

These tubes, which go from the fuel injection pump to the injectors, can vibrate and rub against other parts of the engine if they're not seated right and right, sooner or later a tube wears through, and you've got yourself one easy fire hazard.

The only way you can really inspect these tubes is by pulling the engine—does the seal line on the engine and you make sure things are in the manifold. The only tip-off without pulling the engine is a strong gas smell from the compartment. If you have any inkling of this, deadline the tank and pull the engine—fast. Look for worn spots and replace the tubes if you find any. If it's a little slack, make sure these tubes are lying in their support clamps the right way and are tight.

One last tip: these fuel injector tubes have been known to start rubbing through with just 90 miles on a tank. So, keep a sharp eye—and a keen sniffer.

Check out the throttle

If you're heading a wailing and a grinding from the transmission of your 1984 or 1987 Chevy vehicle, could be the after-gear throat-washer has broken apart, and the bits are getting between the gears. Take



leave, though, because you can still do something about the trouble, although it may be past the warranty period.

HERE THE WORKS ON WHICH YOU SHOULD NOT SUFFER—

Model	Age Vehicle	Year	MSRP
1993	Jeep	1994.07	\$120
1993	Jeep Range	1994.07	\$120
1993	Jeep & 1/2-ton	1994.07	\$120
1993	Jeep	1994.07	\$120

If you'll have your support with take the vehicle in the nearest Chevy dealer, he'll be the transmission. The usual 4,000-mile or one-year warranty agreement has been extended for this purpose.

The word has gone out to the manufacturer's central office. So, if the dealer hasn't heard of the extension, have him contact the central office nearest his place of business.

The light touch

What happens when the lights go out and you're left in the dark?



Could be a good deal with the right time, place and company. But not if you're browsing somewhere out there with nothing but interest to show the way.

A new TM-published in new parties has introduced the line for the lanterns,

gasoline, loaded fuel, 1994 4300-170-8150.

FourLine is TM 18-0208-1-120 which has repair parts and special tools, then go with the lantern as well as those you need for support. The other part, TM 18-0208-1-12, gives the word on operating and maintaining the lantern.

Both are mighty helpful.



But when a real fish a while back, found this device found the air pressure warning lantern on his work was making him nervous, as he understood it.

That's like trying to run a gas tank by spraying the small with cholesterol. Or discussing a rancher by coming off in action. Attaching the problem from the wrong end, you might say.

Anyway, this joke found things real quiet and powerful for a while—until his air pressure went out on him without warning. He made these points as his

brake pedal and fused too. More about the only thing he can hear is the rumble of a through-the-pipe-whistle coming up for the truck.

He was still lucky, though. He could be heading home.

That farmer's a real healthy gudge. It lets you know when the pressure in your air tanks is dangerously low—when there's not enough air for your brakes to operate at their peak. It's a foolish man who would short-circuit his own safety—and everyone else's—by tampering with it.

Flash in the pan

Seems like there're two ways to set off your M-16 gun-and-ops IBC M-16s under pan. You can do it by hand or by electricity.

When you do it by hand you've got no problem. All you do is pull back the rear strip, strike the scratcher block against the match head and poof! Smoke!



But, when you're using the electricity method, watch it. Your T-100s you can do it either by using an exploder box

lighting your pan by remote control from a distance, or by getting up close to the pan and attaching a flashlight box.

ATTACHING FLASHLIGHT BOX TO LIGHTEN UP A PAN (SEE PAGE 100)



any to the pan's lighting pan. Here's the rule... if you light your pan this way, the air may fly up in



your face when the pan lights, making you the cat-up-of-the pan.

So, play it safe and either do the job by hand with the scratcher block or electrically by using the exploder box connected to remote control... and make sure you're at least 30 yards away when you use the electrical method. This method may also send the rear strip flying.

Forget about the close-up battery method.

A false start(er)

Lights can be deceiving, but don't be fooled next time you open up your till for money and see the match head all gummy with glue. Don't mind out around the top. You're in for a surprise, 'cause that big motor might be good and will be mighty handy when you need a light to turn.

Some old things, like hot weather or keeping 'em in storage for a long time, could cause your motor to look like jelly. But don't turn it back in or throw it away 'til you've tried it out.

You'll sometimes find gummy stuff just doing up the match head when you've pulled the new tape and removed the cap. All you have to do is get your motor working in enough of the glue so you have a fairly clean surface around the match head. You can even remove a lot of it by using the little scratch block.



When you're ready to light up, just make the match head against the scratch block and presto! Fire!

Going up?



When any of your equipment goes up for higher-velocity work, make sure it's got all its papers.

Make sure, too, that all the fire and manual solution maintenance has been paid. This way you won't have it to do if the equipment breaks.

The Form 475 (Organizational Equipment File) should be on top of the heap, too. In fact, also, that every organizational AFPO has been applied and recorded.

One other little thing. But a mighty important one. Clean the vehicle. Make a buggy has bounced back 'cause it was dirty and gummy. Nobody likes working on a messy piece of equipment—especially if it's not his own.

Star-coupled sprayer

Starlin has been told about the M-1000 back water that dried up.

The reason: The coupling where the shaver hose joins the water bladder got plenty tough to hook up. Those two brass metal ends on the coupling (which provide the only "hold" you can get on it) have been snapped, bent and powdered off there's nothing left to grip.



There's a sprayer designed just for star-coupler-based in: QM 7-8, MPT 23 and Change 1 to TM 10-1-600. A quick twist with the sprayer and you're coupled or uncoupled. No sweat.

Pipe's a snake

Next time you go to adjust the brakes on your M44 150-mm self-propelled howitzer, here's a couple of numbers you'll need to know:

The brake pedal free travel is 7/8 inch.



The clearance between the piston pin and the pin on the brake cylinder is 1/4 inch. Makes for good brakes—it does.

Name and number



Caution the time when you have to replace the 4-1/2-cup FSC-type hose in your M44-A100 M11 vehicle electrical system into it. The hose was put in the area set by MPTC-Def Y 10-100 05 Jan 145, unless its make number.

Fig. 1, FSC-Group 10, Class 1000 (24 Oct 145) is the supply manual that gives the hose size (diameter) for M44 M11. 25, FSC 1000-100-400? gives you the same data.

Hit the wall



Hey, now... don't go pounding nails through damage into armor steel to keep the armor marked right.

When a casualty is found upon that way, markers go in... the armor doesn't hold up as long, and it won't be like it should when it's fixed.

Besides... a nail could trigger off a mine, followed by a rock over the head.



HOW TO PACK AND ADJUST A WHEEL BEARINGS

LOOKING FOR ALL THE STEPS TO BE DONE TO GET THE WHEEL BEARINGS TO RUN SMOOTHLY AND QUIETLY. AND HERE'S HOW TO DO IT.



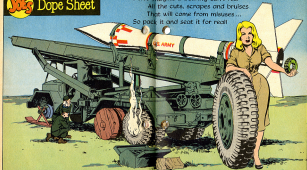






Dope Sheet

Though its rollers are made out of steel,
Don't imagine a bearing can't feel
All the cuts, scrapes and bruises
That will come from misuses ...
So pack it and seat it for real!



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



18



Put on blindfold.



Run our course up trail.



THEN
TIGHTEN
THEM
TIGHT.
EVENLY.

19



20





Dear Half-Buck,

DD S-7002 calls us to change the oil in the hydraulic pump (which is used for lifting the ramp on the M1P/MPL) every 3,000 miles.

Why is this necessary? That oil is not used in any engine and does not get dirty.

Sgt M. F. M



Dear Sgt M. F. M.,

I think you're going by the lubrication chart printed in your TM 5-7002 (March 54), aren't you?

On screens the new lubrication order, DD S-7002 (28 Jan 58), deletes the requirement for changing that oil at 3000-mile intervals and only calls for checking the oil level. Get a copy of the new L3 and read it over.

SHIELD SHY

Dear Half-Buck,

How do we get rid of the mud and sand shields on our M41 tanks? The road-wheel mud shields collect water and then corrode—and the sand shields are more of a hindrance than a help.

Sgt A. E. H.

Dear Sgt A. E. H.,

Use TR Ord 408 (23 Jan 54) and its Change 1 (24 Sept 54) to get rid of those mud shields. It tells you how to remove those shields off and clean the road wheels of any rust and corrosion that may have formed.



As far as sand shields go, you can take 'em off and get rid of 'em under the shop lat (shown in TR Ord 418 (2 Nov 54)).

TENTING TONIGHT



Dear Combs,

Is there any maintenance tent available that'll shelter tools and other large vehicles? I know she thinks my vehicles that she will be worked on in buildings or other permanent or semi-permanent shelters. But we just don't have anything like that handy to keep bad weather off or when it comes time to pull maintenance on the vehicles. So what do we do?

Ag C. C. C.

Dear Ag C. C. C.,

As things stand now, the maintenance shelter with QPM1 is the largest available in the Army supply system for maintenance work. And you can hardly expect a small tent, into one of them . . . without scrapping canvas.



No, unless you can "midnight requisition" a side show tent from a nearby command, you're going to have to dig something with whatever canvas is handy. For instance . . .

Every tank carries a big tarpaulin—canvas covers for its QPM. On the M48, I'm sure, it's 11 x 11 feet. The four of these folded together and you've got a real spread of canvas . . . more than enough to cover the subject. Prop' 'em up like an awning or with poles or whichever way suits you best.

And, of course, lock the whole works down good 'n' tight . . . otherwise, one quick, strong updraft will leave the whole setup gone with the wind.



Combs

NOZZLE DRIPPING?

Dear Connie,

Some of our boys are getting their feet, hands and everything else wet with gasoline. Slippery, mighty messy—and dangerous. And there's only one reason for it, our faulty nozzle on those 5-gal Jerry cans.



A few looked as bad there for a while that we had to run 'em aside. After getting crawling up on the ground is splattered over equipment that was going into battle.

The whole trouble, as we see it, comes on the rubber washer where the spray fits into the collar of the can. That washer stays wet and finally goes down upon the way for leaks. What more the whole spray is no good. And it seems a waste to double the spray just because a 1-cent washer needs up.



What do we do? Order a whole new nozzle assembly, or can we patch up the washer by itself?

YIP! F. M. M.

Dear YIP! F. M. M.,

Know what you want? Flexible* washer and stiffer than-chipping gasoline. But hang on to those washers, because the washers are available by themselves. Here's the famous number: WASHER, non-metallic, synthetic rubber, 1 1/2 in. I.D., P/N 7146-112-013-0 (Q00).



While you're at it, you might check the bushing to see if it needs replacing. If so, y'all have BUSHING, for tube, flexible nozzle, cone type, 1 1/2 in. O.D., P/N 7146-112-014-1 (Q00). Also, the CAP AND SCREEN ASSEMBLY, P/N 7146-112-015-0 (Q00).

This ought to send up your trouble pronto. All of these items are listed in the OM 16-1 series (for Supply Manual).

Connie

GIVE 'EM

SOME BACKING



Dear Sgt. Dwyer,

Our rig is called upon to do a lot of general construction work. We use our HELI tractor to push our earth-movers when they're struggling with a payload and the going just rough. This is when we can be handy.

Sometimes the rig rides on one side of the pushplate of the HELI and breaks off large chunks of the side panels. Then we've got a repair job on our hands. We have to pick up the pieces, or arrange a piece of metal and weld it in place.



Is there any way we can stop the side panels from breaking?

Sgt. A. M.

Dear Sgt. A. M.,

Give the tractor the steer you right, mate. Reinforcing the pushplate on your HELI is just a morning's work.



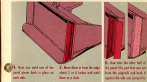
1. First you weld side panels of both sides.



2. Then you get them in line, straighten.



3. If they're bending and you can't see them, get a piece of steel pipe or bar 1/2 to 1 inch thick and weld to it.



1. First you weld one of the panel pieces back in place on each side.

2. Then there is from the edge about 12 or 14 inches and weld them on each.

3. First take the other half of the panel (the part that was cut from the original) and weld it against the side you just repaired.

This will not only help with the earth-movers you're pushing from jumping off or sliding off the sides, but it will take a whole lot more push-plates than the original.

You can also use various or bent-down and grade blades for repairing the plates. But, even with these bent-up push-plates, the operator of the rig doing the shoving can't go too far or he'll push his way into trouble. The operators of both pieces of equipment go, work together so that the chains of the push sliding off the side of the plate is kept out line.

This pushing job should be part of the training course that every operator receives.

Sgt. Dwyer

FIFTY-NINE FUEL SYSTEMS



Some confusion has cropped up over the three variations in the fuel systems of the M551 armored personnel carrier. Since let's see how these different fuel systems change the way you work.

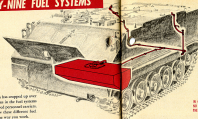
Here's the setup on the three types:



1. The early vehicles have one electric fuel pump in the tank. This pump is powered by the 24" turret and runs whenever either or both engine valves are turned on. They have a fuel shut off valve in each engine compartment.



2. Most of the vehicles with serial numbers between 1-1 and 1-100 have their fuel valves moved up inside the driver's seat where you can reach 'em in a hurry if you have to. (If you have the original fuel lines, but there are being changed in the field. The groups of vehicles who have fuel pump failure alteration system could instead do.



3. Starting with vehicle 1-101 there's no fuel valve. Instead there's a separate fuel pump for each engine with its own gauge and lines. The electrical connections are not apart from the fuel pump will only run when the engine is on for the engine that pump serves.

IN OTHER WORDS, TURNING ON ONE ENGINE STARTS AN ENGINE STARTS YOU GOT TO BOTH ENGINES, THAT IS THE NEW FUEL SYSTEM TURNING ON.



HYDROSTATIC LOCK

As you know, sometimes dirty gas, oil or water will get into the cylinders of an engine, and when liquids can't be compressed, they bring everything to a halt where the piston comes up against them. This is called hydrostatic lock.

It sometimes happens in your M551's if the fuel pump has been left on and is still trying to supply fuel to an engine that's not running.

Gasoline can be forced past the automatic fuel valve, through the carburetor into the intake manifold, and on into one or more cylinders.



OK, remember:
Left, On, Off
Right, On, Off
Left, On, Off
Right, On, Off
Left, On, Off
Right, On, Off

So, before starting the vehicle, you should always check and be sure that both engines are in the same area. Then you'll know that you won't have one dead cylinder firing and driving the piston up into a liquid-filled cylinder head enough to heat things up.

CHECK BEFORE STARTING VM

- ✓ To check the #30 for locked engines, first turn on the master switch, then turn on the right ignition switch. The wiring in all these vehicles is hooked up so that either starter will work when you do this, but you only get ignition on the right engine. So you can turn the left one over with no chance of its starting.



- ✓ You hold the left starter button a couple of split-second jobs and listen to be sure the engine doesn't come with a "clunk" or high starter whine while being turned over a couple of times. If it should (and you probably have hydraulic lock).



- ✓ If your left engine turns freely, you then turn your right ignition switch off, turn the left ignition switch on, and hold the right starter button.



- ✓ Once again you're turning the ignition switch on for one engine while you check the opposite one, to be sure the engine won't start while you check it.



- ✓ Now, if the right engine also turns freely, you can then reach over and hit the left starter button again. This will check the left engine, which has its ignition switch on, so it'll start.



✓ You always start the left engine first in an MS29, so the AC charging system will be working to help you start the second engine. It's a simple little idea that'll help keep your batteries up to 100%.



Next, of course, you turn on the right ignition switch and start your right engine. But remember to check both engines for free running before you start either of them—that way you can hear 'em both over.



OK, that's a routine check, which only takes a few seconds, and should always be made before starting the vehicle.



IF THEY WON'T TURN OVER

Now let's see what to do if either engine won't turn over (if your model has even a mechanical 1).

First, and for goodness, never keep hitting the starter trying to force it to turn.



✓ And don't try any other brain-burn ideas like moving the vehicle or running one one engine to force the other one over.

Sometimes you can misdiagnose a hydraulically locked engine first, but while it may seem to run all right, most times there's a bent rod or cracked piston to show up later on, perhaps when you need a good engine right now.

TO CLEAR AN ENGINE

The only safe thing to do with a locked engine is to take out the spark plugs and then crank her over until whatever caused the lock-up can run over the plug holes.

If only gasoline runs, see you look for a fuel pump kick running by mistake, or perhaps a sticking or broken fuel valve.





Now to get back to these different fuel systems. When you're clearing a locked engine you normally don't want any more gasoline coming to the carburetor, since it may be that a stuck float valve is causing your trouble. And you don't want the ignition on, what with the spark plugs out of the engine and raw gasoline flying around.

On the other hand, it doesn't take but a couple-three seconds of cranking to clear the engine once you get the plugs out.



This adds up to you shutting off the fuel valve for the engine you're working on, and then when you're ready to crank it over, you turn on the ignition switch for the other engine to reenergize your starter circuit.

Since you'll only be cranking for a few seconds, you don't need to open the compartment to get to the fuel valve on your good engine if you have the flip-type of system—with the valves back at the engine. And you don't need to disconnect the fuel pump leads on the newest type of system. But, since it's an extra effort, you might as well shut both fuel valves on the middle section—the one with the valves right beside the driver's seat—for added safety.

Once again, you see, you're turning on the ignition switch for one engine as you can crank the other one with no chance to its fail.

So much for clearing a locked engine, after which you'll be home in up and out the vehicle, or perhaps need to back to the shop, according to what seemed to cause the lock-up.



THE LITTLE THAT ABOUT COMPRESSION TESTING



Then there's another thing when you want to crank over an engine with neither fuel nor ignition supplied to it. This is while you make your compression run-on the University or any other time you suspect a weak run engine or bad valves.

The compression test differs from cranking a locked engine in that you'll have to crank the engine a lot longer. First, of course, you'll be going down the line checking each cylinder.

Then perhaps you'll have to recheck one or more low cylinders to be sure you read low right, and then you'll want to put in a little oil and check again to see if the compression loss is due to bad rings or to leaking valves. That adds up to quite a bit of cranking.

So, you can't say you'll have the fuel pump running as an open line to the engine you're not testing. You might possibly run enough gasoline past the carburetor to lock it up while you were testing the other one.

OK, so for compression testing, you'll close both fuel valves on either of the two-pump systems. This close is'll pay you to open up the engine compartments to get at both valves. Besides, chances are you'll not have engines—run right about the other.)

In this case, if you're working on one of the latest models—the type with two fuel-pumps and no shut-off valves—you'd better reach around behind the instrument panel and disconnect the No. 12 lead from the left ignition switch and the No. 112 lead from the right ignition switch.

In the later make these leads control both the ignition and the fuel pumps for their engine, while the No. 77 leads supply the master solenoids.

You'll find the number stamped on the little aluminum tag clipped around the lead at the connectors. Put a little tape over the last lead before you turn on the switch to prevent any chance of wiring.

Then, of course, with the fuel valves shut, or the leads disconnected, you must make use each ignition switch to supply enough run-on to crank the other engine.

STEEL LANYARD

(For Your BEAT'S)



Dear Editor,

Sometimes you add us about rigging the lanyard between the footings and the wing of our BEAT'S to keep them together and give better flotation for the footings when a water landing.

This was a fair deal, except that up here in the Chicago Flying Range we've found a couple of extra problems. First of all, all our footings are in the water, and we frequently found that the impact was enough to put that parachute first lanyard. Either the lanyard parted where the surge hit the water, or the surge itself was enough to snap it loose in, like, 15 minutes or so before any landing.

Then, too, our "I" team even who pick up our surplus of old land things enough that they have to go the wing loose from the footings right quick. This



is being the surge about the recovery team, and they have to do it while landing one of the wing systems of a boat that's dunking a hole in, naturally, they were caught the lanyards. Which was OK, except that we spent a few days and a lotta time re-rigging 'em.



In our water work up with a steel cable instead of the nylon cord, we used a short length of wire parachute first lanyard and fastened it to one of the forward parachute first lanyards with the attaching swivel which is secured from an exploded aerial target.



In the wing we've used a specialized spring hook and a cable clamp which we got from a parachute supply house in New York. They cost \$1.25 per target.



The cable is fed back parallel to the parachute line and the wing hook is inserted into the wing, giving you a rough water run recovery even if you get it right left. I hope that they could not do the old line. Since we need to have that lanyard and hook I am happy to have them.



Keep going
with ALL the BEAT'S
Chicago Flying Range, N. Y.

ARMY AIRCRAFT

HAVE A HAPPY HANGAR



Here's a list of hazards that have been pulled from close to home in our hangars or runways. Each one has made somebody mean unhappy.

Of course, you'd never be guilty of any of these, but let's run through 'em so you just how silly somebody else can be.

First, and perhaps silliest of all was the chap who was checking the cockpit gauges and carelessly left the magnet switch on. He later found out about this when he pulled the prop through. Fortunately, he was close enough to the hub that it didn't slice him; it just threw him across the hangar.



Then there are several cases of men forgetting that gasoline fumes are heavier than air, and will flow to the low spots. The hottest example is the case of a gas bucket left out on the ramp on a hot winter day. Somebody came in the afternoon smoking area dropped a match and the whole hangar was covered with flame. Didn't hurt anybody, but it sure pointed out the unexpected dangers fumes can cause. (And they shouldn't have been using gasoline to wash paint to begin with.)

In this same line, there have been people who used electric drills inside aircraft. Now good manufacturers give off sparks. Air drills are the only safe thing you can around any aircraft once the fuel tanks have been filled.

Loose tank baffles and leaking gas tanks have been caused by men supporting the weight of the gas beam when filling the wing tanks on an E-15. The

long blue muscle reaches the buffer and pins on it, lifting onto the loop of the hose.

Pipes and tool-men don't make any points with the maintenance gang if they get confused with their prop-walk or crane down-walk around aircraft which are speeded up for maintenance. The source of dust is based on the aircraft and the mechanics. Kill the engine and wheel your ship that has been dust-bath in the tie-down line.



Then there are the thoughtless types who park an aircraft just inside the hangar doors and start a landing gear repair job. The thought never enters their empty noggin that a fire may make it essential to evacuate the other aircraft in the hangar, or at least call for fire equipment to run inside. Aircraft that can't be moved, and that should be parked to-consider, will keep the hangar.

And speaking of landing gear jobs, there's the fellow who was replacing a landing gear on an L-19. He had both springs off and was working under the aircraft while it was suspended from a hoist. Happened that the hoist held, that time, but it would have been so much safer to slip some blocking under the fuselage before removing the landing gear.

Edgie never can know for you can think when a rubber shoe sole hits an oil spot on smooth concrete! It's painful, too. Drip pans are nice to have, and use.

Another thing about prop-walks: Only a knock-kneed will kick his tail around toward parked helicopters without checking to be sure their blades are tied. This can be real expensive.



Now and again you see some muscle man lifting an L-19 by the horizontal stabilizer. His muscles must also run from ear to ear, because he'll be standing right beside the hole marked LEFT-TAIL. Can't read?

Heard about an aircraft engine that came out of the shipping case, got there free off the floor, fell and was smashed, and went right back into the case for another shipment overhead. It seems the guy lifting it didn't know all about how to use his hoist. He's training while he pays for the engine.

And then, of course, there's the maintenance welder who is also huckster. He didn't read and follow TO 1-1-1 exactly when preparing a gas tank for welding. Gave too much water filling with water he's enough. Tanks have to be pumped all day with the largest hole down so he sure the fumes are all out. And then you gotta be extremely careful. And don't forget that you can build up an explosive mixture of welding gases inside any closed tank if you get careless.

Well, like would, none of you will do any of these bad tricks, but keep an eye on the other guy.

Well, like would, none of you will do any of these bad tricks, but keep an eye on the other guy.

ON THE MECHANICAL MULE



Your MULE is—our starter, light weapons, infantry (Mechanical Mule) can do a lot of things for you, and all it asks in good care, a little patting and love and then, and it'll do more anything you wish.

The guide below is for you to help you keep the Mule in the kind of shape a modern mule is. When using this guide, keep these up with your mind in big type.

Remembering that makes the vehicle ready to operate or which can lead to real and bad damage are the major ones—the ones that need be fixed before taking the vehicle on the road. In the guide below, these are shown in bold face type.

Alright, now—BE YOUR OWN INSPECTOR.

FRONT VIEW OF VEHICLE



GENERAL WHEEL ASSEMBLY
WHEEL—Tire, rim, axle, hub, light cover, brake and to wheel.

WHEEL (WHEEL) ASSEMBLY
WHEEL—Tire, rim, axle, hub, light cover, brake and to wheel.

WHEEL AND WHEEL ASSEMBLY
WHEEL—Tire, rim, axle, hub, light cover, brake and to wheel.



WHEEL (WHEEL) ASSEMBLY
WHEEL—Tire, rim, axle, hub, light cover, brake and to wheel.



WHEEL (WHEEL) ASSEMBLY
WHEEL—Tire, rim, axle, hub, light cover, brake and to wheel.

WHEEL (WHEEL) ASSEMBLY
WHEEL—Tire, rim, axle, hub, light cover, brake and to wheel.

WHEEL (WHEEL) ASSEMBLY
WHEEL—Tire, rim, axle, hub, light cover, brake and to wheel.



WHEEL (WHEEL) ASSEMBLY
WHEEL—Tire, rim, axle, hub, light cover, brake and to wheel.



WHEEL (WHEEL) ASSEMBLY
WHEEL—Tire, rim, axle, hub, light cover, brake and to wheel.



WHEEL (WHEEL) ASSEMBLY
WHEEL—Tire, rim, axle, hub, light cover, brake and to wheel.

WHEEL (WHEEL) ASSEMBLY
WHEEL—Tire, rim, axle, hub, light cover, brake and to wheel.

WHEEL (WHEEL) ASSEMBLY
WHEEL—Tire, rim, axle, hub, light cover, brake and to wheel.

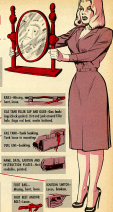
WHEEL (WHEEL) ASSEMBLY
WHEEL—Tire, rim, axle, hub, light cover, brake and to wheel.

WHEEL (WHEEL) ASSEMBLY
WHEEL—Tire, rim, axle, hub, light cover, brake and to wheel.

WHEEL (WHEEL) ASSEMBLY
WHEEL—Tire, rim, axle, hub, light cover, brake and to wheel.

WHEEL (WHEEL) ASSEMBLY
WHEEL—Tire, rim, axle, hub, light cover, brake and to wheel.

WHEEL (WHEEL) ASSEMBLY
WHEEL—Tire, rim, axle, hub, light cover, brake and to wheel.



REAR VIEW OF VEHICLE



MUFFLER—Muffs the engine exhaust noise.



CHOPPED FRS—Chopped, notched, cracked flange frame.



WHEEL HUB—Like looking.



WHEEL—Broken, bent.

FRS—Front wheel assembly (for swap, pull) of a tire, wheel, wheel, located for proper (normal) pressure. If FRS, wheel has "like" sign missing.



FRS AND WHEEL HUB—Missing, loose, bent, bent.

OPERATING CONTROLS

WHEEL HUB—Like looking, bent, bent, bent.

ACCELERATOR—Like, loose.

WHEEL HUB—Like looking, bent, bent, bent.



WHEEL HUB—Like looking, bent, bent, bent.

WHEEL HUB—Like looking, bent, bent, bent.

WHEEL HUB—Like looking, bent, bent, bent.

WHEEL HUB—Like looking, bent, bent, bent.

WHEEL HUB—Like looking, bent, bent, bent.



UNDERNEATH THE VEHICLE



WHEEL HUB—Like looking, bent, bent, bent.



WHEEL HUB—Like looking, bent, bent, bent.



WHEEL HUB—Like looking, bent, bent, bent.



WHEEL HUB—Like looking, bent, bent, bent.



WHEEL HUB—Like looking, bent, bent, bent.



WHEEL HUB—Like looking, bent, bent, bent.





10. **Answer: A**—The passage states that the author is "not a fan of the 'new' music."



no. 2012-0013—Not needed. Reorganized.
Repeal or amended. Increased effectiveness.

1875 1876—Oyster fishing,
pig fishing, better known



STARTER-MAGIC FOR MULETEERS

A talking mule's reassuring, but a talking mule's downright embarrassing, especially if it's the MTM Mechanical Mule. If the mule's sure you want her to, an amount of magic will clear up the situation. But, like any mule, she can be coaxed to believe if you treat her right.

Next time you go to start the engine, go easy on the master rope. Just give it



a couple of short tugs, until the dog ear pages, or when you're ready for the long pull, you won't tear things up.



When you're ready to give the final pull, make it steady—not jerky—and remember to keep the pull while you're ready, so the rope can stretch easy-like.



Another tip is to keep hold of the rope when it's winding—keep just enough tension on it so it won't kink up, or slip free of the quick-disconnect and get pulled back into the flywheel housing.



If you find it does kink enough so you can't pull it again, all you have to do is unspool the two rope clamps near the quick-disconnect at the rear of the vehicle, reach in, and "unkink" it by hand.

To keep your rope in shape, always be sure the idler wheel is in place—this'll keep dirt and dust from getting at it. You can take a look-see when you're doing your other before-operation checks.

Every so often, like whenever the engine's pulled for maintenance, give the rope a dose of powdered graphite to keep it moving freely. You can order graphite by using this maintenance Graphite, dry Lubricating, powdered (5011-0711).

Part No. 5011-0711 (50#)	50#
Part No. 5011-3001 (50#)	75#
Part No. 5011-0711 (50#)	1 lb.



Keep your eye peeled for wear, too, especially at the front end of the vehicle where the rope rubs against the metal. When you see any fraying, order a new tractor rope by asking for Rops, master, engine, RSM 1090-056-0517.

WATCH THE PAINT



Weren't you still running from a head-enveloping paint-dripper? Nope not. That can get you in trouble with your favorite piece of equipment. Paint can get a good solid bind on parts that are supposed to bend or move ... and there's no give in paint. Even more important, careless brush work can send your wage home dry high on loss of parts.

Rubber parts, like the wiring in your ignition and lighting systems, are among the most paint-shy parts of any piece of equipment.

Then, there're glass parts that can easily get backed up by a sticky film of paint ... like in dials, gauges and windows. You can't say that paint unless you've got X-ray vision like Superman.

Paint doesn't mix with grease, either ... so a heavy coat of oil can say of your grease fittings isn't going to make your vehicle and other lubricated gear equipment feel too well. Grease has still trouble.

Getting down to brass tacks (don't paint 'em), it takes plain old sense to know what's meant for painting and what isn't. The way the Army deals about paint drippers is pretty obvious. Just check parts in in TR 5-5715.1 (10 Jul 51). In caps.

*Protect rubber, leather and related parts during the application of paint and/or preservatives by masking or covering with suitable material. Included are



drive belts, conveyor belts, brake bands, hydraulic lines, tires, grease fittings and other similar items. Protect exposed machine surfaces, roller chains, lubricated leaf springs, grease fittings, cone and information plates, and other exposed surfaces during the application of paint and/or preservatives by masking or covering with suitable material."

Might as well add ball joints and reflector lenses to this list. If they're not masked, paint can drop on them. Then, they're wide open to damage, not only from the paint, but from trying to get it off.

No getting sloppy with a spray gun, either. Paragraph of TM 9-1850 (Dec 47) tells you that "When spraying it is necessary to cover all parts such as wheels, doors, gages, lubrication fittings, instruments and other parts which are not to be painted."

Now, the last part of this sentence refers to a wide area—that's for sure. So, you've got to figure the Army wants to give you a hint of parts it doesn't expect to see painted, without giving your hands by giving you particulars.



Further along in the same paragraph of TM 9-1850, near on page 82, there's a mention of using handbags and coats as "protect subject hose, ignition wires, and flexible wiring."

The reason the Army's so touchy about rubber items, in particular, can

best be explained by referring to Ordinance Technical Instruction (PTO) 2-50 (1 Mar 50), which warns against painting vehicle radio harnesses. The reason: Painting "causes the deterioration of rubber." Makes sense, when you remember that most paints have an oil base in them.

Of course, all the parts mentioned need some sort of protection when the equipment they belong to goes into storage. Here's where the different coating compounds or preservatives come in.

You could say the difference between preservatives and paints is that preservatives usually protect equipment that's not being used. But when something needs paint, it should have it all the time.

So there's no over-all listing of parts that don't get painted—you just have to put the old manual to work. In other words, just because you can't pick it up, don't paint it. It may deserve a rubout instead.



CONTRIBUTIONS



DRY GULCHED

Dear Fellow,

You know, in this damp country, our drivers like to keep their vehicles spot and squeak—and that goes for the engines. So, every so often, they clean the engine down with water and solvent. Only trouble is—some of the engine parts get wet, and the vehicle's stall up for awhile till they dry out.

So, with the help of some salvage here and a few fix-and-its you may have we've tried to stop this. Here's what we use—



Now, when we use water and cleaning solvent we don't have to worry about our engine parts and clogged air cleaners. Nice and clean.

Ltj. Thomas R. Murphy
Post 214, M. J.

(Ed Note—Right you are. But, of course, you don't have to use this gimmick in your Marine vehicle. After all, they are waterproofed. Come to think, this, on your non-waterproofed commercial vehicles.)



Dear Editor,

A torque arm bolt under the frame of our 20-ton truck-mounted crane shored ribs against the propeller shaft of the rig when it's running. The crane is mounted on a PWD Model 88.00 flat car.

When the crane's not operating it looks like the bolt has enough clearance, but when we run the crane the bolt vibrates against the prop shaft—and we've got a groove in the shaft to prove it.



The bolt's snug like it should be—it's just that it's not long, and won't allow any clearance. We fixed it by cutting just enough off the end of the bolt to make sure it won't rub against the shaft. The nut will have plenty of room to grab and hold the bolt in place. We haven't had any trouble since.

184 Austin McKee
Fort Dix, N. J.

(Ed Note: Before you go slipping off the bolt, there are a few things you should check out first. Look for looseness in the coupling frame (sometimes) bearings and saddle shims, and looseness of the coupling frame-bolt sockets. That could allow the axle assembly to slide enough for the bolt to ride against the shaft. There should be only 1/2-in. free play at these points.

While you're at it, take a gander at the pillow block mountings and bearings. If they're worn, they could let the shaft move while the rig's operating. One more thing—wear on the tapered portion of the torque arm bolt and not enough shims in the torque arm bolt will also let the threaded portion ride out too far.

Better check out all your FWD Model GMC flat services for the same trouble. (If it looks like you're going to have prop shaft trouble, call in your Engineer right away pronto. Let them take it from there.)

At the same time, you want to follow through with a LEX, Old Form F10. That's real important, there, your rig has had the best of engineering, but a failure happens to it in the field. It's your suggestion that lead to improved models.)

JAMMY TIRE HANGER

Dear Editor,

We saw your warning about keeping the GMC Model 434 2½-ton stake truck away the corner right in PS 60, but in spite of our getting on 'em real quick, we find that the rear axle still break in the corner.



After one of our close-cuts cut right in heavy traffic, we decided something had to be done. Fortunately it didn't hit anybody, but think what could have happened.

So we welded a piece of 1½-gage steel across the bottom of the chassis, making it a box section, and also welded big washers on the both ends at each end.

This doesn't change the loads or dimension of the bar enough to speak of, but none of ours have broken since we fixed 'em up.

Edward W. Hayes
East Weymouth, N. Y.



Old Man—Don, see if your support unit can get you a new one from the local dealer. If not, you're OK to shut up the dust too. And always always always be sure they're installed right, real right.)

NEED SUPPORT?

Dear Editors,

That idea for a log wreath got for the G41 and G42-series trucks in P5 told gave us the idea for this support which is used on the heavier vehicles—L-series, H-series and the like.

All it takes is two pieces of pipe—one 1-in. and one 1½-in. It can be made to any height. Once, when the inner pipe is fully extended, comes to 28 inches—which we had OK for any of the trucks we have.

The 1-in. pipe, of course, goes inside the 1½-in. pipe. Drill 11 1/2-in. holes, 1 inch apart, in the inner pipe. The outer pipe takes just one 1½-in. hole near the top. Fit the holes with a locking pin. The base for the support, by the way, is 15 inches long by 1 inch wide.

With this set up, the end of the log wreath is placed on the convex shape given for support. That the guy removing or putting a tire back on can really put his weight behind his effort. The support'll hold all and give him plenty of leverage.

Whoopee, huh?

Ernie Wilson



YOUR GOOD
NAME COMPANY?



YES - WE ARE
LOOKING FOR
A GOOD FIRM

(Old Note—Until that new wheel-and-axle set, P/N 3189-118-4112, is issued to you as part of your 2d vehicle organizational maintenance and set, P/N 1 Common, you'll have to use the old and wheel set, P/N 3189-117-0226. Your support, then, will really come in handy around the motor park.)

OIL AND **GREASE**
ARE



POISON
FOR
RUBBER

**KEEP OIL AND GREASE
OFF RUBBER PARTS!**