LUBRICATION ORDER
11 May 1992

LO 5-3820-241-12

(Supersedes LO 5-3820-241-12, 26 April 1984)

DRILL, PNEUMATIC, DRIFTER: BOOM-TYPE;
CRAWLER-MOUNTED, SELF-PROPELLED
JOY MODEL RAM-MS-5/450A DR
NSN 3820-00-445-3766

References TM 5-3820-241-12, FM 9-207, and C9100-1L

REPORTING OF ERRORS

You can improve this publication by calling attention to errors and by recommending improvements and by stating your reasons for the recommendation Your letter or DA Form 2028, Recommended Changes to Publications and Forms, should be mailed directly Commander, U.S. Army Tank-Automotive Command, ATTN AMSTA-MB, Warren, Ml 48397-5000 A reply will be furnished directly to you

NOTES

This LO is for crew (C) or unit (0) maintenance. Lube intervals (on-condition or hard time) are based on normal operation. Lube more during constant use, and less during inactive periods. Use correct grade of lubricant for seasonal temperature expected.

On the pictures, a dashed line (-----) means Lube points on both sides.

This drill is not enrolled in the Army Oil Analysis Program. HARDTIME INTERVALS APPLY.

WARNING

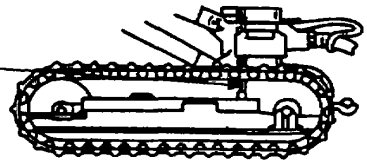
Dry cleaning solvent P-D-680 is toxic and flammable. Wear protective gloves and use in a well ventilated area Avoid contact with skin, eyes, and clothes and do not breathe vapors. Do not use near open flame or excessive heat. The flash point is 100-138 degrees F (38-50 degrees C). If you become dizzy while using cleaning solvent, get fresh air immediately and get medical aid. If contact with eyes is made, wash your eyes with water and get medical aid Immediately.

Clean parts or fittings with dry cleaning solvent (SD), Type II or equivalent. Dry before lubricating. Re-lubricate all items found contaminated after fording or washing.

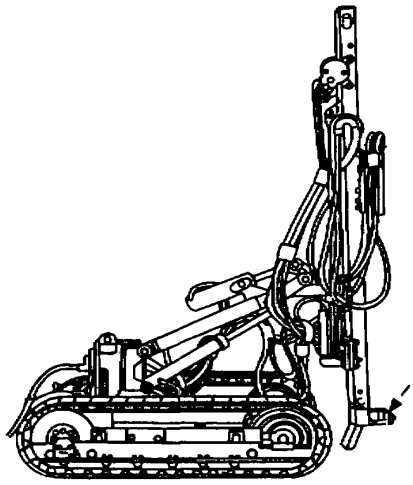
If your crawler is equipped with the retrofit kit, see Card 8. Card 8 contains the only lubrication authorized for the retrofit kit. The Instructions on Card 9 superseded all other lubrication instructions for the feed-shell assembly. To determine if your crawler Is equipped with the retrofit kit, check the part number stamped on the gearbox mounting plate. If the part number Is "20010," your unit is equipped with the retrofit kit.

DISTRIBUTION STATEMENT A. Approved for public release, distribution is unlimited.

LUBRICANT	INTERVAL		INTERVAL	LUBRICANT
Drill Engine Oil Tank (O) (Notes 5 and 6)	10			

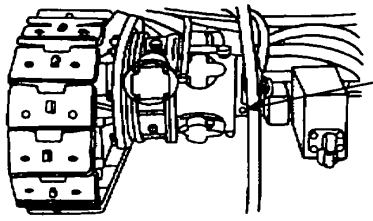


LEFT SIDE



10	GAA	Centralizer (O) (2 fittings)

RIGHT SIDE



10		Tram Motor Level Petcock (O) (Check level)

TRANSMISSION AND TRAM MOTOR

Figure 1. Lubrication performed at 10-hour intervals

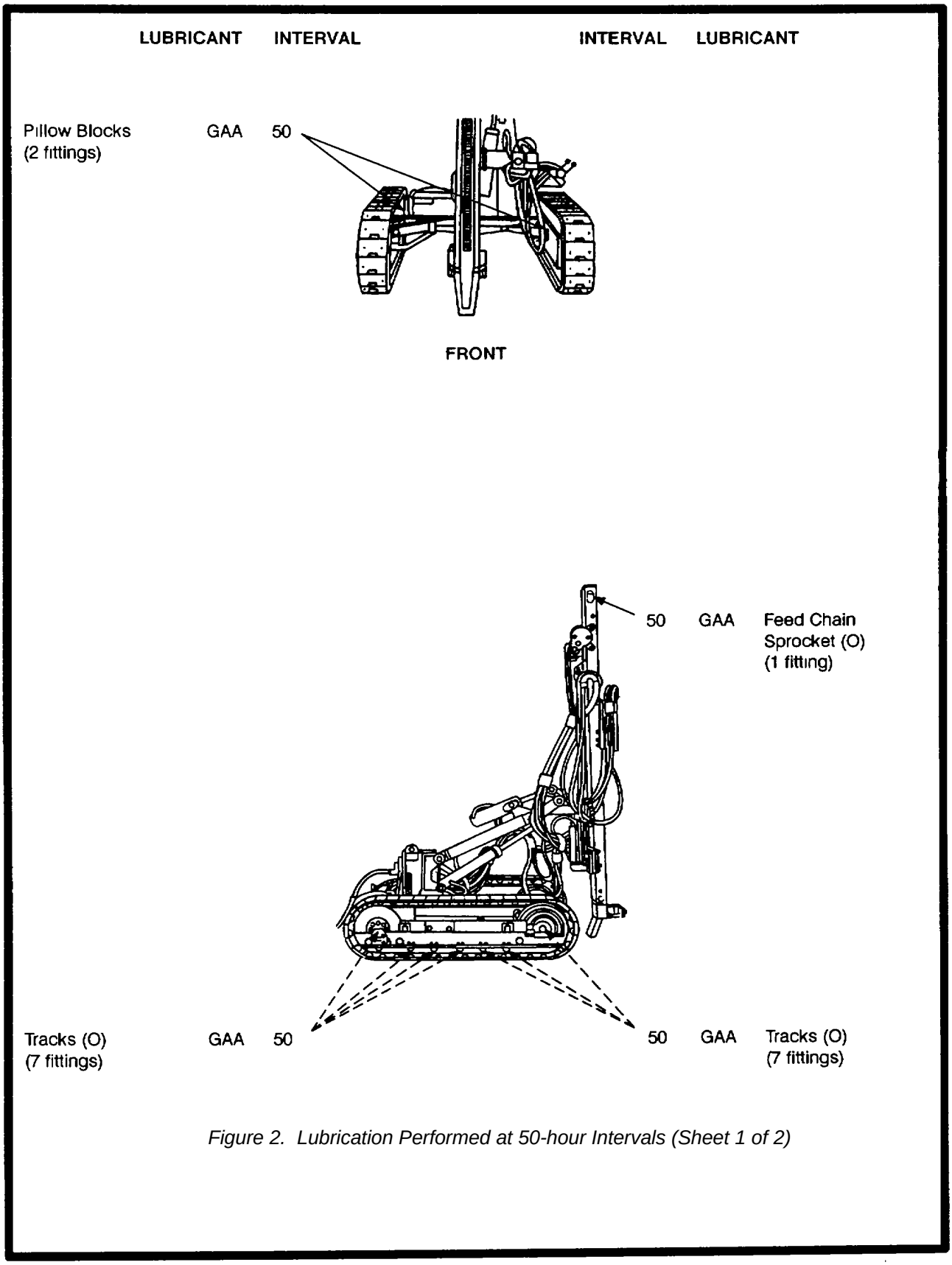


Figure 2. Lubrication Performed at 50-hour Intervals (Sheet 1 of 2)

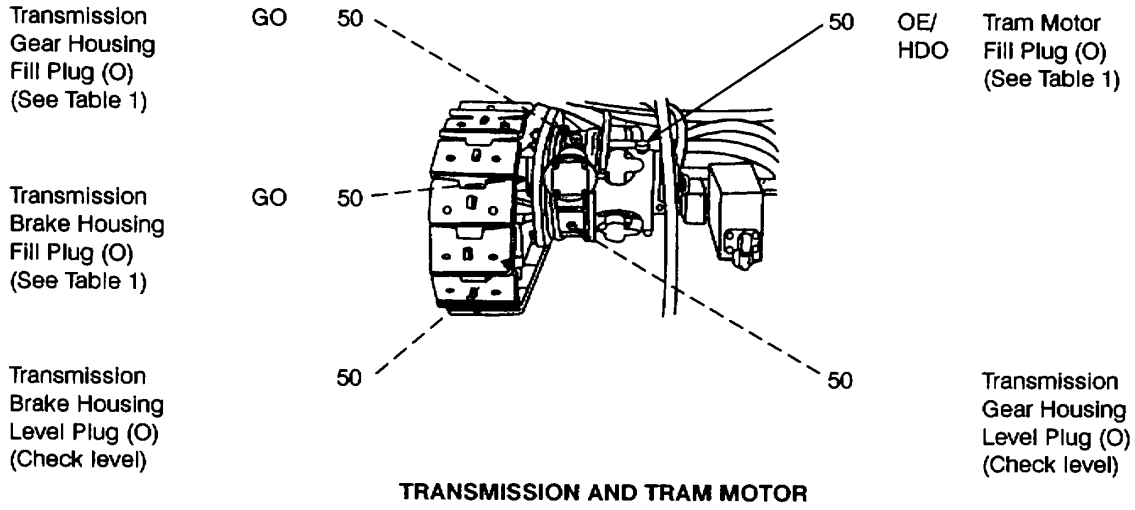


Figure 2. Lubrication Performed at 50-hour Intervals (Sheet 2 of 2)

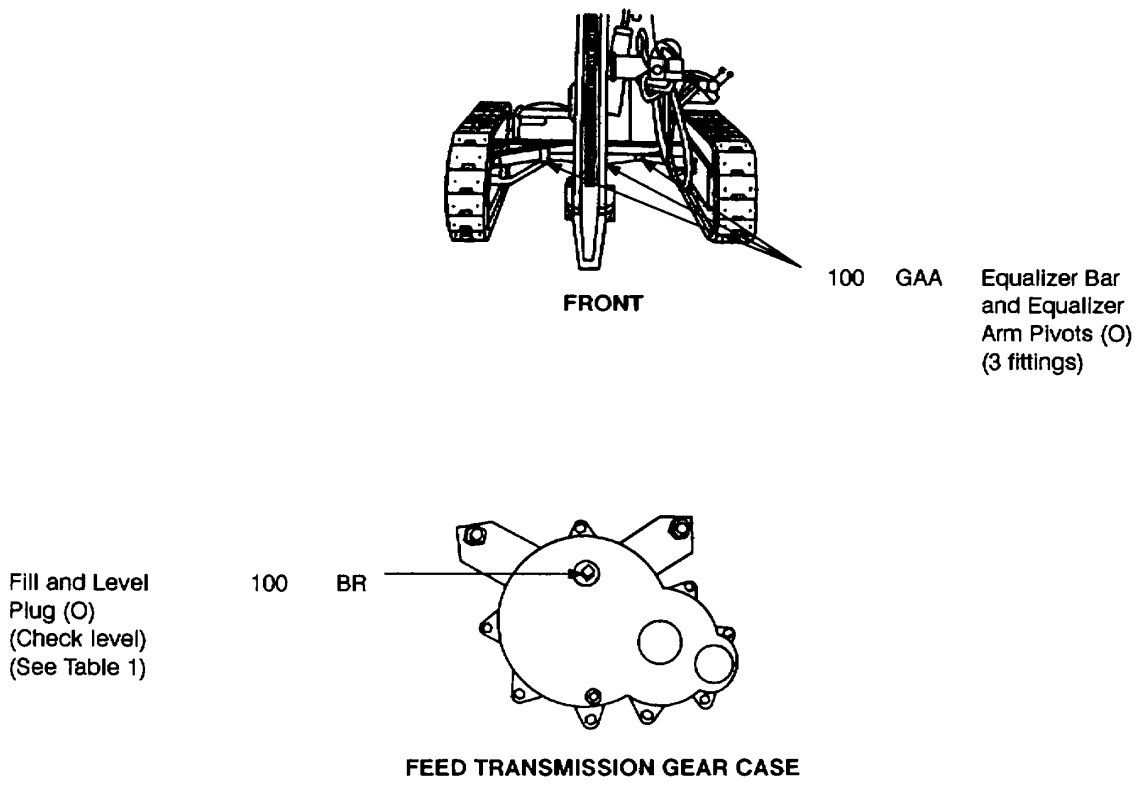


Figure 3. Lubrication Performed at 100-hour Intervals (Sheet 1 of 3)

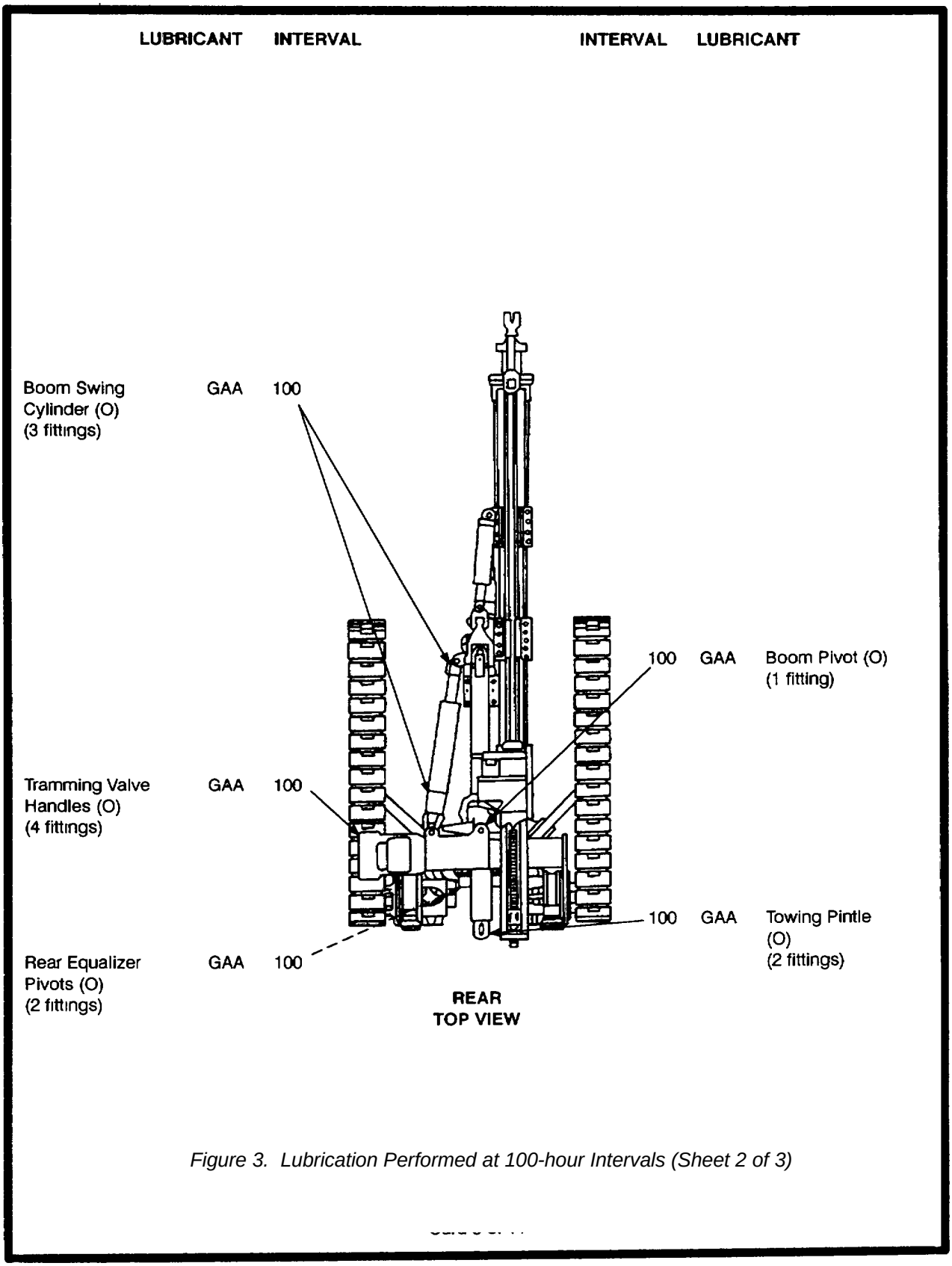


Figure 3. Lubrication Performed at 100-hour Intervals (Sheet 2 of 3)

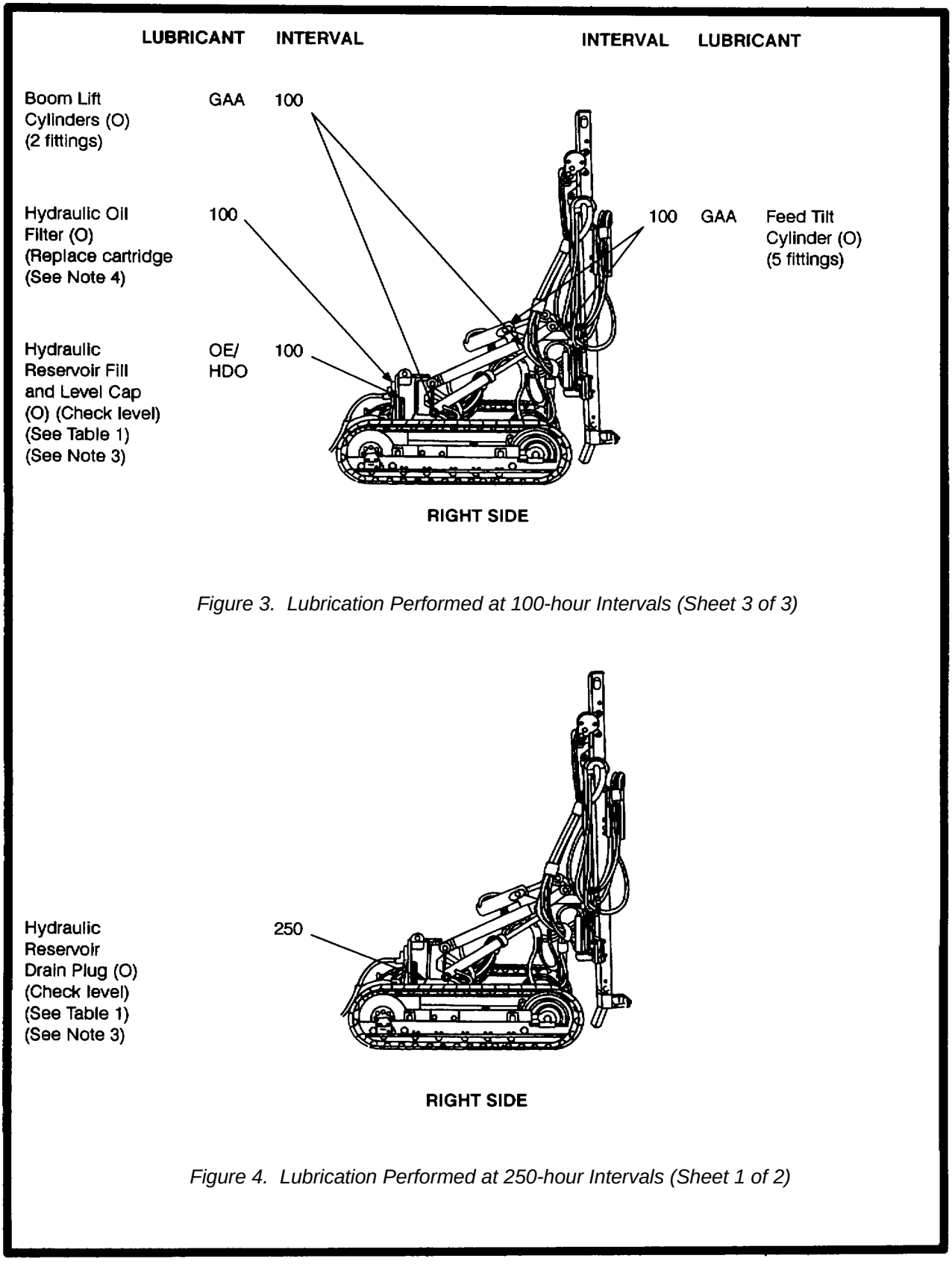
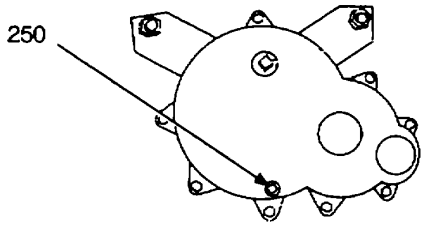


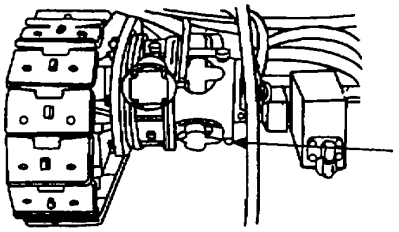
Figure 3. Lubrication Performed at 100-hour Intervals (Sheet 3 of 3)

Figure 4. Lubrication Performed at 250-hour Intervals (Sheet 1 of 2)

LUBRICANT	INTERVAL	INTERVAL	LUBRICANT
Drain Plug (O) (Drain and refill)	250		



FEED TRANSMISSION AND GEAR CASE

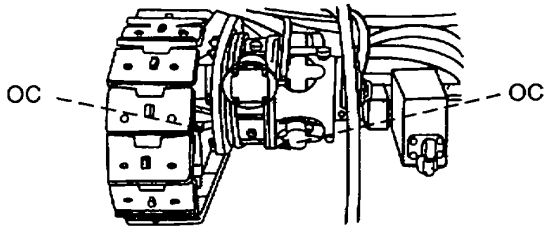


Tram Motor Drain Plug (O)

TRANSMISSION AND TRAM MOTOR

Figure 4. Lubrication Performed at 250-hour Intervals (Sheet 2 of 2)

Transmission Brake Housing Drain Plug (O) (Drain and refill) (See Note 7)



Transmission Gear Housing Drain Plug (O) (See Note 7)

TRANSMISSION AND TRAM MOTOR

Figure 5. Lubrication Performed as a Result of Condition Monitoring

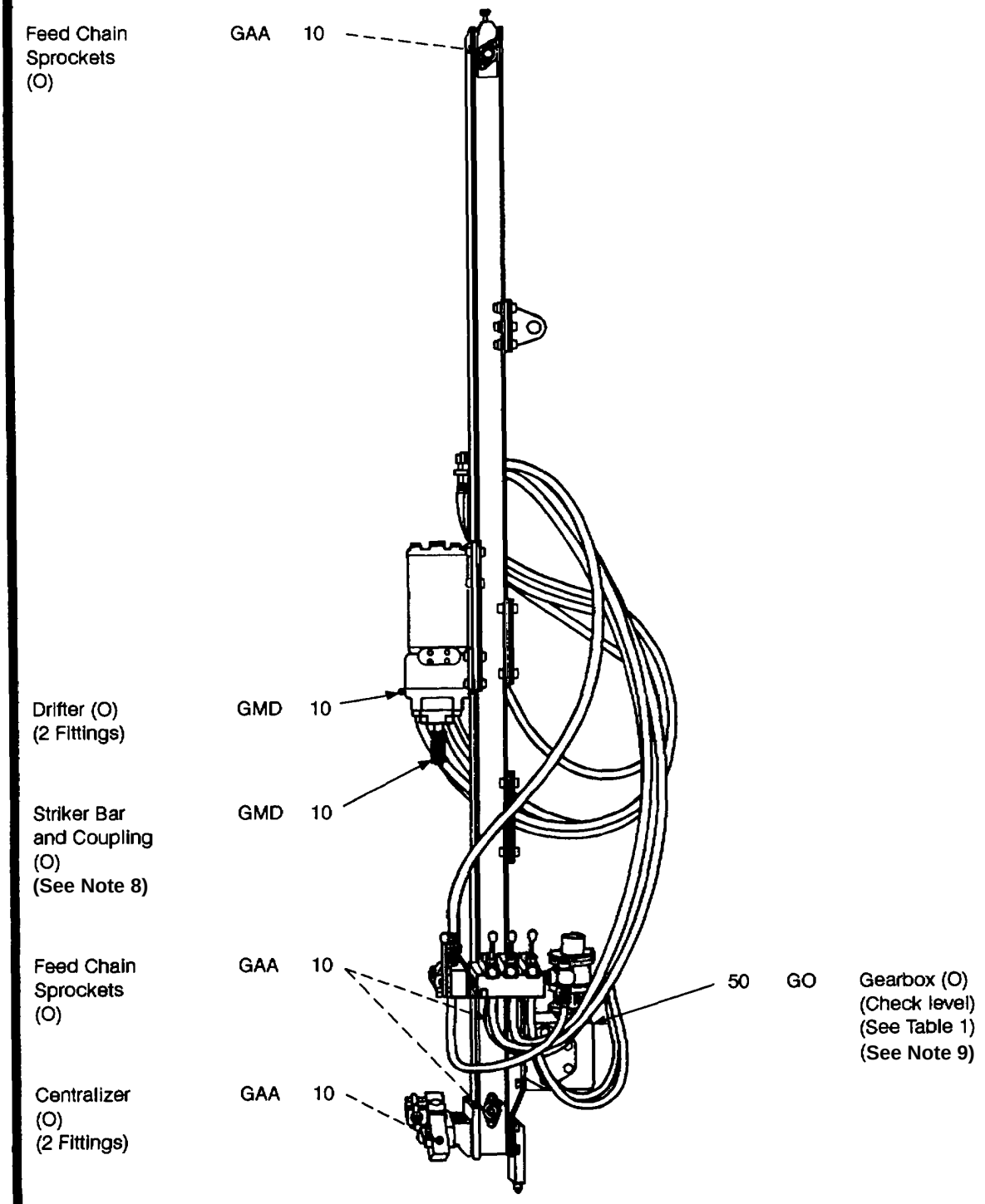


Figure 8. Lubrication Requirements for Retrofit Kit

Table 1. Lubricant Table For Pneumatic Drill

Temperature Range	Lubricant Mil. Symbol Specification	Capacity	Interval	Man-hour
Above + 15• F (-9°C)	OE/HDO 30 MIL-L-2104	2 qt (1 89 l) (tram motor)	50 H	
	GO 8OW/90 MIL-L-2105	1 qt (0 95 l) (transmission gear housing)	50 H	
		1 qt (0.95 l) (transmission brake housing)	50 H	
+40• to -15• F (-4• to -26• C)	OE/HDO 10 MIL-L-2104	2 qt (1.89 l) (tram motor)	10 H	
	GO 8OW/90 MIL-L-2105	1 qt (0.95 l) (transmission gear housing)	50 H	
		1 qt(0 95 l) (transmission brake housing)	50 H	
+40• to -65• F (+4• to -54• C)	OEA	2 qt (1.89 l) (tram motor) MIL-L-46167	10 H	
	GO 75W MIL-L-2105	1 qt (0.95 l) (transmission gear housing)	50 H	
		1 qt (0 95 l) (transmission brake housing)	50H	
All	GAA MIL-G-10924			
All	GMD MIL-G-21164			
All	B R MIL-B-1 8709			

NOTES:

1. FOR OPERATION OF EQUIPMENT IN PROTRACTED COLD TEMPERATURES BELOW -15• F (-26°C). Remove lubricants prescribed in Table 1 for temperatures above -15• F (-26°C). Re-lubricate with lubricants specified in Table 1 for temperatures below -15°F (-26 “C). If OEA lubricant is required to meet the temperature ranges prescribed in Table 1, OEA lubricant is to be used in place of OE/HDO-10 lubricant for all temperature ranges where OE/HDO-10 is specified. For arctic operation, see FM 9-207.

2 OIL CAN POINTS. Each 50 hours lubricate shift linkage, control valve linkage, control shaft slip joints, and all exposed adjusting threads with OE/HDO.

3 HYDRAULIC RESERVOIR. Each 100 hours check level. Each 250 hours remove the 2 inch drain plug in bottom of the reservoir, drain, flush, and refill with OE/HDO

4 HYDRAULIC OIL FILTER. Each 100 hours remove element, clean filter shell, and Install new element. After replacement, operate hydraulic system for 5 minutes, check for leaks, check level, and bring to “FULL” mark.

5. DRILL ENGINE.

WARNING

Oilier system Is pressurized to 90 psi. Do not open until air pressure has been completely eliminated from the air system.

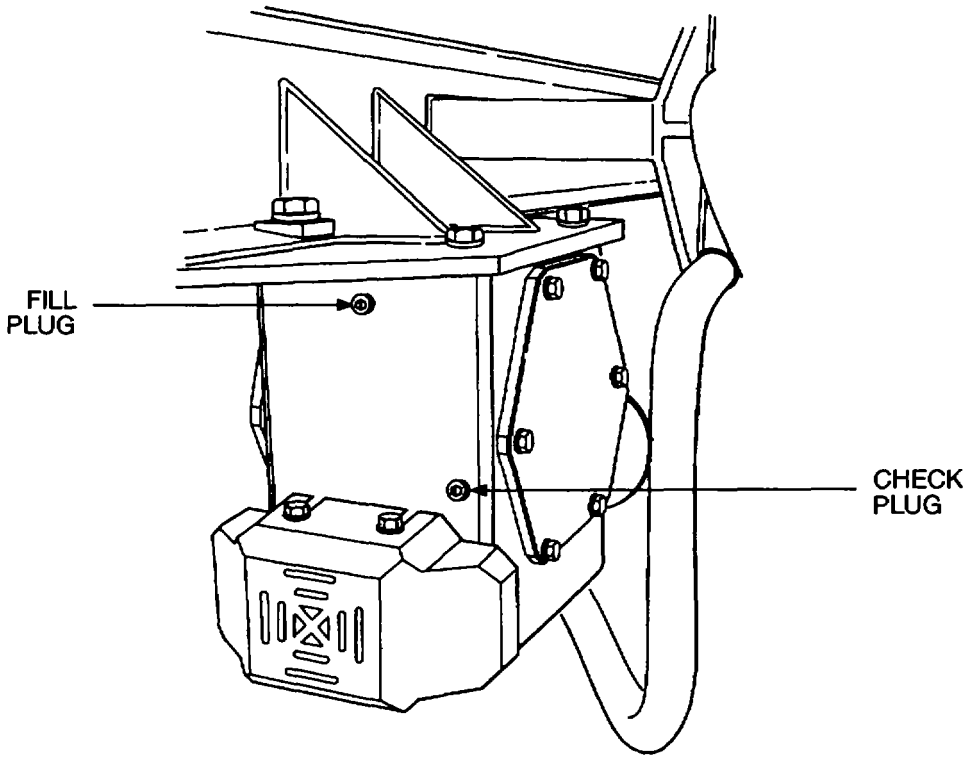
Fill to "FULL" mark on dipstick. Each 250 hours remove the 2 inch pipe plug located at bottom of the tank, drain, flush, and refill.

6. Lubricating oil NSN 9150-00-142-9556, 5 gallon pail, is a rock drill oil for lubrication of drifter drill. If this oil Is used in temperatures below 32°F (0°C) it should be diluted with kerosene at the ratio of 1 qt of kerosene to 3 qt of oil.

7. TRANSMISSION GEAR HOUSING/TRANSMISSION BRAKE HOUSING. Each 50 hours check level. Change gear lubricant only when required by maintenance action or contamination by water or other foreign material. After refill, operate for 5 minutes, check for leaks, and bring oil level to level plug opening.

8. STRIKER BAR AND COUPUNG. Lubricate striker bar, coupling, and drill steel threads whenever drill steel is changed.

9 GEARBOX. With feed shell positioned horizontally, remove check plug. Oil should be at same level as check plug opening. If oil level is low, remove fill plug and add oil until it comes out of check plug opening. Install both plugs and clean up any spilled oil. Change gear oil annually.



Copy of this lubrication order will remain with the equipment at all times; instructions contained herein are mandatory.

By Order of the Secretary of the Army:

GORDON R. SULLIVAN
General, United States Army
Chief of Staff

Official:

MILTON H HAMILTON
Administrative Assistant to the
Secretary of the Army
01877

Distribution:

To be distributed in accordance with DA Form 12-25-E, Block 4147, Operator, Unit maintenance requirements for LO 5-2350-241-12.

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TM 11-5825-270-10	23 Jul 81	Radio Frequency R-2176/FRN

BE EXACT. . .PIN-POINT WHERE IT IS

PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

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DA FORM 1 JUL 79 2028-2

PREVIOUS EDITIONS ARE OBSOLETE.

P.S.—IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

THE METRIC SYSTEM AND EQUIVALENTS

'NEAR MEASURE

. Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

'VEIGHTS

Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 lb.
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inches
1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Feet
1 Sq. Kilometer = 1,000,000 Sq. Meters = 0.386 Sq. Miles

CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches
1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

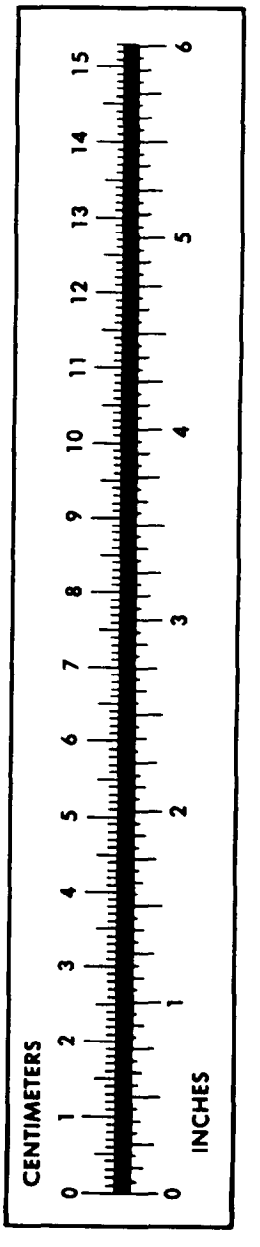
TEMPERATURE

5/9(°F - 32) = °C
212° Fahrenheit is evuivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5C° + 32 =°F

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
ıts	Liters	0.473
arts	Liters	0.946
allons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
ers	Gallons	0.264
ms	Ounces	0.035
ograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pounds-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
lometers per Liter	Miles per Gallon	2.354
meters per Hour	Miles per Hour	0.621



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