





NATIONAL - OILWELL PS2-650 / 650 TOP DRIVE

LUBRICATION SPECIFICATIONS ALWAYS CONSULT THE OILWELL POWER SWIVEL AS INSTRUCTED BY THE NAME AND OPERATION MANUAL.

HYDRAULIC SYSTEM
RESERVOIR CAPACITY
260 TO 321 L (29 TO 35 US GALS)
FIRST CHOICE
EXXON MOBIL DELVIA 68 (SAE 68) OR EQUIVALENT
SECOND CHOICE
AGIP SAE 68 (SAE 68) OR EQUIVALENT
THIRD CHOICE
SHELL RAVENOL 68 (SAE 68) OR EQUIVALENT

SECOND CHOICE
AGIP SAE 68 (SAE 68) OR EQUIVALENT
THIRD CHOICE
SHELL RAVENOL 68 (SAE 68) OR EQUIVALENT

CAUTION
WHEN ADDING TO OR CHANGING THE HYDRAULIC FLUID, EXTREME
PRECAUTION SHOULD BE TAKEN TO PREVENT ANY CONTAMINATION OF
THE FLUID.

GEAR BOX & MAIN SWIVEL BEARING
OIL RESERVOIR CAPACITY
23 L (6 US GALS)

RECOMMENDED GRADE
AGIP SAE 150 (SAE 150) OR EQUIVALENT
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NOV NATION
P.O. BOX 15
OHM REFUR

EQPT: []
JOB #: []
DATE: []
SERIAL #: []
P.O. #: []

NOV NATION
WAR
THE LUBRICATING
FROM THIS MACHINE
FILL THE R
TO THE CORRECT LEVEL
THE MACHINE

LUBRICATION INSTRUCTIONS

FLUIDS AND LUBRICANTS MUST FOUR FULLY AT MINIMUM OPERATING TEMPERATURE. STARTING TEMPERATURE SHOULD BE AT LEAST 5°C (41°F) LOWER THAN THE EXPECTED MINIMUM AMBIENT STARTING TEMPERATURE. IF THE AMBIENT MAY BE REQUIRED TO FACILITATE STARTING AND INSURE PROPER LUBRICATION OF COMPONENTS.

CHANGE LUBRICANTS AND FLUIDS EVERY 50 MONTHS OR AS FREQUENTLY AS OPERATING CONDITIONS REQUIRE TO MAINTAIN A CLEAN, SLUDGE-FREE OIL (LUBRICANT) OF PROPER VISCOSITY.

INITIAL FILLINGS OF LUBRICANTS FLUIDS (BREAK-IN LUBRICANTS AND FLUIDS) SHOULD BE CHANGED AFTER THE FIRST THREE MONTHS OF OPERATION.

FOLLOWING THIS INITIAL CHANGE, THE LUBRICANTS AND FLUIDS ARE TO BE CHANGED AS RECOMMENDED ABOVE. THE FILTERS IN THE GEAR BOX LUBRICATION SYSTEM AND THE HYDRAULIC SYSTEM ARE TO BE CHANGED WHEN THE LUBRICANTS AND FLUIDS ARE CHANGED.





NOV NATIONAL OILWELL VARCO

P.O. BOX : 61490, JEBEL ALI, DUBAI, U.A.E.

OEM REFURBISHMENT TAG

EQPT :

NATIONAL PS2-650/650 TOPDRIVE

JOB #:

JW 1342

DATE :

24th JUNE-2013

SERIAL #:

PS2-191-H

P.O. #:

4500172511&4500166772

NOV NATIONAL OILWELL VARCO

WARNING

THE LUBRICATING OIL WAS DRAINED
FROM THIS MACHINE BEFORE SHIPMENT
FILL THE RESERVOIRS
TO THE CORRECT LEVEL BEFORE PUTTING
THE MACHINE INTO SERVICE

NOTE: FOR ADDITIONAL WEAR PROTECTION, THE USE OF AN OVERHAUL OIL M GEAR GUARD (5% TO 10% BY VOLUME IS RECOMMENDED)

HANDLING RING ROTATION DRIVE GEAR REDUCER

LITRES

7.6

U.S. GALS.

2

RESERVOIR CAPACITY

RECOMMENDED GRADE

TEMPERATURE

-20°F TO 125°F
-45°C TO 50°C

AGMA NO. 5 EP, ISO/ASTM VG 220
AGMA NO. 3 EP, ISO/ASTM VG 100

HANDLING RING

WARM WEATHER: NLGI GRADE NUMBER 2 LITHIUM BASE GENERAL PURPOSE GREASE.
COLD WEATHER: NLGI GRADE NUMBER 1 LITHIUM BASE GENERAL PURPOSE GREASE.

EXPOSED GEAR TEETH ON HANDLING RING ROTATION DRIVE

COAT THE TEETH WITH AN EXTREME PRESSURE LUBRICANT SUCH AS NATIONAL OILWELL COPPER TOP JET LUBE INC. 'KOPR-KOTE' COMPOUND OR EQUIVALENT.

CROWN TOOTH GEAR COUPLINGS

NLGI GRADE 1 LITHIUM BASE, GENERAL PURPOSE EP GREASE.
GREASE LUBRICATION IS RECOMMENDED FOR ALL STANDARD APPLICATIONS.

DRILLING MOTOR BEARINGS

NLGI GRADE NUMBER 2 LITHIUM SOAP BASE, GREASE PER MOTOR MANUFACTURER'S SPECIFICATIONS. GENERAL ELECTRIC SPECIFICATION IS GE-D6A2C10, BALL AND ROLLER BEARING GREASE.

GENERAL GREASE FITTINGS

WARM WEATHER: NLGI GRADE NUMBER 2 LITHIUM BASE GENERAL PURPOSE GREASE.
COLD WEATHER: NLGI GRADE NUMBER 1 LITHIUM BASE GENERAL PURPOSE GREASE.

AIR LUBRICATORS

MISTING TYPE OIL, 130-165 SUS, 100°F (29-35 CST, 40°C)). ISO VISCOSITY GRADE 32.

LUBRICATION INSTRUCTIONS

FLUIDS AND LUBRICANTS MUST POUR FREELY AT MINIMUM OPERATING TEMPERATURE. THE LUBRICANT POUR POINT SHOULD BE AT LEAST 90°F (50°C) LOWER THAN THE EXPECTED MINIMUM AMBIENT STARTING TEMPERATURE. STARTING TEMPERATURE APPROACHES THE LUBRICANT POUR POINT, HEATERS MAY BE REQUIRED TO FACILITATE STARTING AND INSURE PROPER LUBRICATION OF COMPONENTS.

CHANGE LUBRICANTS AND FLUIDS EVERY SIX MONTHS OR AS FREQUENTLY AS OPERATING CONDITIONS REQUIRE TO MAINTAIN A CLEAN, SLUDGE-FREE OIL (LUBRICANT) OF PROPER VISCOSITY.

INITIAL FILLINGS OF LUBRICANTS AND FLUIDS EVERY SIX MONTHS OR AS FREQUENTLY AS SHOULD BE CHANGED AFTER THE FIRST THREE MONTHS OF OPERATION.

FOLLOWING THIS INITIAL CHANGE, THE LUBRICANTS AND FLUID ARE TO BE CHANGED AS RECOMMENDED ABOVE, THE FILTERS IN THE GEAR BOX LUBRICATION SYSTEM AND THE HYDRAULIC SYSTEM ARE TO BE CHANGED WHEN THE LUBRICANTS AND FLUIDS ARE CHANGED.

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NATIONAL - OILWELL PS2-650 / 650 TOP DRIVE

LUBRICATION SPECIFICATIONS

SERVICE, MAINTAIN, AND INSPECT THE POWER SWIVEL AS INSTRUCTED IN THE CARE AND OPERATION MANUAL.

HYDRAULIC SYSTEM

RESERVOIR CAPACITY

-20°F TO 12°F / -29°C TO 52°C

U.S. GALS.

LITRES

FIRST CHOICE:

HYDRAULIC OIL PREMIUM GRADE WITH ANTI-WEAR AND ANTI-RUST ADDITIVES, 48-55 SUS @ 210°F (5.8-8.9 cSt @ 100°C) TYPICAL VISCOSITY INDEX OF 132. POUR POINT OF -30°F (-34°C) ISO VISCOSITY GRADE 46.

SECOND CHOICE:

AUTOMATIC TRANSMISSION FLUID, TYPE F MEETING FORD MOTOR COMPANY SPECIFICATION ESW-M2C33-F.

THIRD CHOICE:

HYDRAULIC TRANSMISSION OIL, TYPICAL 49 SUS @ 210°F (TYPICAL VISCOSITY OF 7 cSt @ 100°C) TYPICAL INDEX OF 100 MINIMUM, POUR POINT OF -35°F (-37°C), ISO VISCOSITY GRADE 46.

-50°F TO 0°F / -45°C TO -17°C

FIRST CHOICE:

HYDRAULIC OIL, PREMIUM SHEAR STABLE HIGH VI ANTI-WEAR HYDRAULIC OIL, 46.6 SUS, 210°F (6.1 cSt, 100°C) VISCOSITY INDEX OF 153, POUR POINT OF -58°F (-50°C) ISO VISCOSITY GRADE 32.

SECOND CHOICE:

AUTOMATIC TRANSMISSION FLUID-DEXRON II, 51 SUS, 210°F (7.5 cSt, 100°C) VISCOSITY INDEX OF 172. POUR POINT OF -54°F (-48°C).

CAUTION:

WHEN ADDING TO OR CHANGING THE HYDRAULIC FLUID, EVERY PRECAUTION SHOULD BE TAKEN TO PREVENT ANY CONTAMINATION OF

GEAR BOX & MAIN SWIVEL BEARING

GEAR BOX/MAIN THRUST BEARING RESERVOIR

U.S. GALS.

LITRES

USE AN INDUSTRIAL EXTREME PRESSURE GEAR OIL. THE FOLLOWING CHARTS GIVE THE RECOMMENDED GRADES FOR VARIOUS TEMPERATURES SURROUNDING THE

TEMPERATURE

50°F TO 125°F
75°F TO 80°F
20°F TO 25°F
-50°F TO 0°F

10°C TO 50°C
0°C TO 10°C
-20°C TO 4°C
-55°C TO -17°C

RECOMMENDED GRADE

AGMA NO. 7 EP ISO/ASTM VG 460
AGMA NO. 6 EP ISO/ASTM VG 320
AGMA NO. 4 EP ISO/ASTM VG 150
AGMA NO. 3 EP ISO/ASTM VG 100

NOTE: FOR ADDITIONAL WEAR PROTECTION, THE USE OF DOW CORNING MOLYKOTE M GEAR GUARD (5% TO 10% BY VOLUME) IS RECOMMENDED

HANDLING RING ROTATION DRIVE GEAR REDUCER

RESERVOIR CAPACITY

TEMPERATURE

-20°F TO 125°F
-50°F TO 0°F

U.S. GALS.

LITRES