

COCONINO COUNTY
DERRICK WILSON

COMPANY NAME : COCONINO COUNTY
CUSTOMER EQUIP NUM : 332
COMPARTMENT NAME : DIFFERENTIAL FRONT
SERIAL NUMBER : 9YJ01764
MANUFACTURER : CATERPILLAR
MODEL : 966F
JOB SITE :
CSA ACTIVE :
PHONE:
SAMPLE TYPE: OIL
SAMPLE SHIP TIME (days) : 4

SUOP JOB NUM :
COMP SERIAL NUM :
COMPARTMENT MODEL :
COMP MANUFACTURER :
SAMPLE LABEL NUM :
FLUID BRAND/WEIGHT : EXXONMOBIL/30
FLUID TYPE :
CSA EXPIRATION :



LAB CONTROL NUMBER	SAMPLE DATE	PROCESS DATE	EQUIPMENT METER	METER ON FLUID	FLUID CHANGED	MAKE UP FLUID	MAKE UP FLUID UNITS	FILTER CHANGED
H160-51071-0039	08-Mar-2021	12-Mar-2021	7417 HR	7417 HR	Yes			No
IRON IS ELEVATED. ELEVATED IRON MAY BE SOURCED TO WEAR OF GEARS, SPLINES, SHAFTS, BEARINGS... MAGNETIC DEBRIS FOUND IN SAMPLE. MONITOR COMPARTMENT.								
H160-50358-0105	18-Dec-2020	23-Dec-2020	7398 HR	7398 HR	No			No
MAGNETIC DEBRIS FOUND IN SAMPLE. INSPECT MAGNETIC PLUGS. SOME METALLIC FUZZ IS NORMAL. METALLIC CHIPS OR FLAKES INDICATE ABNORMAL WEAR. DATA FLAGGED FOR OBSERVATION. MONITOR COMPARTMENT.								
H160-48193-0294	11-Jul-2018	12-Jul-2018	7135 HR	447 HR	No			No
PARTICLE COUNT IS ELEVATED. INSPECT MAGNETIC PLUGS. SOME METALLIC FUZZ IS NORMAL. METALLIC CHIPS OR FLAKES INDICATE ABNORMAL WEAR. IRON HAS INCREASED. MONITOR COMPARTMENT.								
H160-45198-0195	15-Jul-2015	17-Jul-2015	6877 HR	189 HR	Unknown			No
NORMAL WEAR INDICATED. NO PROBLEMS PRESENTLY ASSOCIATED WITH THIS SAMPLE. CONTINUE SAMPLING AT THE NORMAL INTERVAL.								

Wear Metals (ppm)	Copper	Iron	Chrome	Alum	Silicon	Lead	Sodium	Tin	Nickel	Barium	Silver	Zinc	Boron	Calcium	Phosphor	Magnesium	Potassium	Molybdenum	Titanium	Vanadium
H160-51071-0039	9	178	0	2	11	1	17	0	0	0	0	1199	1	2965	1309	19	8	1	0	8
H160-50358-0105	8	160	1	0	10	1	19	0	0	0	0	1150	0	2813	1188	13	6	0	0	9
H160-48193-0294	7	136	0	3	11	0	20	0	1	0	0	1193	3	2528	1111	31	6	0	0	9
H160-45198-0195	21	12	0	2	7	1	9	0	1	0	0	1428	21	3394	1058	46	0	0	0	0

Oil Condition / Particle Count (c/ml)	ST	OXI	NIT	SUL	W	V400	ISO	4μ	6μ	10μ	14μ	18μ	21μ	76μ	PVI
H160-51071-0039	0	10	4	23	N	10.7	MAG								MAG
H160-50358-0105	3	9	4	20	N	11.2	MAG								MAG
H160-48193-0294	9	9	6	20	N	11.6	2523/21	72844	59337	30726	13218	4390	1851	5	43.26
H160-45198-0195	1	8	6	18	N	10.7	2220/16	36265	9711	1356	463	262	234	122	25.33

A = Antifreeze, F = Fuel, W = Water, P = Positive, N = Negative, T = Trace, E = Excessive, NIT = Nitration, OXI = Oxidation, ST = Soot, SUL = Sulfation, ISO = ISO Rating, POI = POI Index, TAN = Total Acid Number, TEN = Total Base Number, H2O = Karl Fisher result, V100 = Viscosity@100C, V40 = Viscosity@40C, ST_WT = %SOOT by Weight, PFC = Percent Fuel Content, PVI = Particle Volume Index

Notice: This analysis is intended as an aid in predicting mechanical wear. No guarantee, expressed or implied, is made against failure of this piece of equipment or a component thereof.

**COCONINO COUNTY
- DERRICK WILSON**

COMPANY NAME : COCONINO COUNTY
CUSTOMER EQUIP NUM : 332
COMPARTMENT NAME : ENGINE
SERIAL NUMBER : 9YJ01764
MANUFACTURER : CATERPILLAR
MODEL : 966F
JOB SITE :
CSA ACTIVE :
SHOP JOB NUM :
COMP SERIAL NUM :
COMPARTMENT MODEL :
COMP MANUFACTURER :
SAMPLE LABEL NUM :
FLUID BRAND/WEIGHT : Mobil Delvac 1300 Super/15W
FLUID TYPE :
CSA EXPIRATION :



1725 S. Country Club Drive
Mesa, AZ 85210
Telephone, (480) 633-4835
http://empire.cat.com
ISO 9001:2015 Registered

FAX :
PHONE :
SAMPLE TYPE: OIL
SAMPLE SHIP TIME (days) : 4

LAB CONTROL NUMBER	SAMPLE DATE	PROCESS DATE	EQUIPMENT METER	METER ON FLUID	FLUID CHANGED	MAKE UP FLUID	MAKE UP FLUID UNITS	FILTER CHANGED
H160-51071-0036	08-Mar-2021	12-Mar-2021	7417 HR	19 HR	Yes			Yes
No Action Required	NO PROBLEMS PRESENTLY ASSOCIATED WITH THIS SAMPLE. CONTINUE SAMPLING AT THE NORMAL INTERVAL.							
H160-50358-0102	18-Dec-2020	23-Dec-2020	7398 HR	108 HR	Yes			Yes
No Action Required	NO PROBLEMS PRESENTLY ASSOCIATED WITH THIS SAMPLE. CONTINUE SAMPLING AT THE NORMAL INTERVAL. NO ACTION REQUIRED.							
H160-50107-0273	10-Apr-2020	16-Apr-2020	7290 HR	240 HR	Yes			Yes
No Action Required	NO PROBLEMS PRESENTLY ASSOCIATED WITH THIS SAMPLE. CONTINUE SAMPLING AT THE NORMAL INTERVAL.							
H160-48193-0291	11-Jul-2018	12-Jul-2018	7135 HR	166 HR	Yes			Yes
No Action Required	NO PROBLEMS PRESENTLY ASSOCIATED WITH THIS SAMPLE. CONTINUE SAMPLING AT THE NORMAL INTERVAL.							

Wear Metals (ppm)	Copper	Iron	Chromium	Alum	Silicon	Lead	Sodium	Tin	Nickel	Barium	Silver	Zinc	Boron	Calcium	Phosphor	Magnesium	Potassium	Molybdenum	Titanium	Vanadium
H160-51071-0036	0	4	0	0	5	0	3	0	0	0	0	831	113	1297	723	750	0	0	0	0
H160-50358-0102	0	6	1	0	5	0	5	0	0	0	0	841	76	1363	798	721	0	0	0	0
H160-50107-0273	1	13	0	0	6	3	2	0	0	0	0	905	55	1502	801	586	1	45	0	0
H160-48193-0291	2	14	1	1	3	1	9	1	1	0	0	1180	2	997	1015	1037	2	65	0	0

Oil Condition / Particle Count (c/uml)	ST	OXI	NIT	SUL	W	A	F	V100
H160-51071-0036	1	13	7	20	N	N	N	13.5
H160-50358-0102	24	14	8	20	N	N	N	13.5
H160-50107-0273	43	21	9	26	N	N	N	11.8
H160-48193-0291	40	11	7	18	N	N	N	12.8

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COCONINO COUNTY
*** DERRICK WILSON**

COMPANY NAME : COCONINO COUNTY

CUSTOMER EQUIP NUM : 332

COMPARTMENT NAME : TRANSMISSION POWER SHIFT

SERIAL NUMBER : 9YJ01764

MANUFACTURER : CATERPILLAR

MODEL : 966F

JOB SITE :

CSA ACTIVE :

SHOP JOB NUM :

COMP SERIAL NUM :

COMPARTMENT MODEL :

COMP MANUFACTURER :

SAMPLE LABEL NUM :

FLUID BRAND/WEIGHT : EXXONMOBIL/30

FLUID TYPE :

CSA EXPIRATION :

1725 S. Country Club Drive

Mesa, AZ 85210

Telephone, (480) 633-4835

http://empire.cat.com

ISO 9001:2015 Registered



FAX:

PHONE:

SAMPLE TYPE: OIL

SAMPLE SHIP TIME (days): 4

LAB CONTROL NUMBER	SAMPLE DATE	PROCESS DATE	EQUIPMENT METER	METER ON FLUID	FLUID CHANGED	MAKE UP FLUID	MAKE UP FLUID UNITS	FILTER CHANGED
H160-51071-0038	08-Mar-2021	12-Mar-2021	7417 HR	7417 HR	Yes			Yes

No Action Required

NO PROBLEMS PRESENTLY ASSOCIATED WITH THIS SAMPLE. CONTINUE SAMPLING AT THE NORMAL INTERVAL.

H160-50358-0104	18-Dec-2020	23-Dec-2020	7398 HR	7398 HR	No			Yes
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No Action Required

NO PROBLEMS PRESENTLY ASSOCIATED WITH THIS SAMPLE. CONTINUE SAMPLING AT THE NORMAL INTERVAL. NO ACTION REQUIRED.

H160-48193-0292	11-Jul-2018	12-Jul-2018	7135 HR	447 HR	No			Yes
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No Action Required

NO PROBLEMS PRESENTLY ASSOCIATED WITH THIS SAMPLE. CONTINUE SAMPLING AT THE NORMAL INTERVAL.

Wear Metals (ppm)	Copper	Iron	Chrome	Alum	Silicon	Lead	Sodium	Tin	Nickel	Barium	Silver	Zinc	Boron	Calcium	Phosphor	Magnesium	Potassium	Molybdenum	Titanium	Vanadium
H160-51071-0038	4	7	0	0	3	1	7	0	1	0	0	1224	1	3955	1055	20	1	0	0	0
H160-50358-0104	3	7	1	0	4	1	12	0	1	0	0	1192	0	3018	558	18	1	0	0	0
H160-48193-0292	2	7	0	1	4	1	14	0	1	0	0	1255	1	3079	1126	34	1	1	0	0

Oil Condition / Particle Count (cfm)	ST	OXI	NIT	SUL	W	A	V100	ISO	4μ	6μ	10μ	14μ	18μ	21μ	70μ	PVI
H160-51071-0038	0	4	4	18	N	N	10.8	21/16/12	17118	527	84	32	16	11	1	0.50
H160-50358-0104	1	3	4	18	N	N	11.7	22/17/12	22488	1034	86	27	15	10	0	0.52
H160-48193-0292	0	3	4	19	N	N	11.1	20/17/15	9072	889	341	170	96	63	1	1.17

A = Antifreeze, F = Fuel, W = Water, P = Positive, N = Negative, T = Trace, E = Excessive, NIT = Nitration, OXI = Oxidation, ST = Soot, SUL = Sulfation, ISO = ISO Rating, POI = POI Index, TAN = Total Acid Number, TBN = Total Base Number, H2O = Karl Fisher result, V100 = Viscosity@100C, V40 = Viscosity@40C, ST_WT = %SOOT by Weight, PFC = Percent Fuel Content, PVI = Particle Volume Index

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**COCONINO COUNTY
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COMPANY NAME : COCONINO COUNTY
CUSTOMER EQUIP NUM : 332

SHOP JOB NUM :



1725 S. Country Club Drive
Mesa, AZ 85210
Telephone, (480) 633-4835
http://empire-cat.com
ISO 9001:2015 Registered

SERIAL NUMBER : 9YJ01764
MANUFACTURER : CATERPILLAR
MODEL : 966F
JOB SITE :
CSA ACTIVE :
FLUID BRAND/WEIGHT : MOBIL/10W
FLUID TYPE :
CSA EXPIRATION :

FAX :
PHONE :
SAMPLE TYPE : OIL
SAMPLE SHIP TIME (days) : 4

LAB CONTROL NUMBER	SAMPLE DATE	PROCESS DATE	EQUIPMENT METER	METER ON FLUID	FLUID CHANGED	MAKE UP FLUID	MAKE UP FLUID UNITS	FILTER CHANGED										
H160-51071-0037	08-Mar-2021	12-Mar-2021	7417 HR	7417 HR	No			Yes										
COPPER IS ELEVATED. COPPER ALONE USUALLY INDICATES COOLER CORE LEACHING AND IS NOT NORMALLY WEAR OF BRONZE / BRASS PARTS. NO ACTION REQUIRED.																		
H160-50358-0103	18-Dec-2020	23-Dec-2020	7398 HR	7398 HR	No			Yes										
COPPER IS ELEVATED. COPPER ALONE USUALLY INDICATES COOLER CORE LEACHING AND IS NOT NORMALLY WEAR OF BRONZE / BRASS PARTS. NO PROBLEMS PRESENTLY ASSOCIATED WITH THIS SAMPLE. CONTINUE SAMPLING AT THE NORMAL INTERVAL. NO ACTION REQUIRED.																		
H160-48193-0293	11-Jul-2018	12-Jul-2018	7135 HR	1409 HR	No			Yes										
COPPER IS ELEVATED. COPPER ALONE USUALLY INDICATES COOLER CORE LEACHING AND IS NOT NORMALLY WEAR OF BRONZE / BRASS PARTS. NO ACTION REQUIRED.																		
Wear Metals (ppm)																		
Copper	Iron	Chrome	Alum	Silicon	Lead	Sodium	Nickel	Barium	Silver	Zinc	Boron	Calcium	Phosphor	Magnesium	Potassium	Molybdenum	Titanium	Vanadium
106	2	0	0	8	1	6	0	0	0	1446	64	3132	1232	173	1	2	0	0
H160-51071-0037																		
117	3	1	0	0	0	11	0	0	0	1469	34	3204	1222	171	0	0	0	0
H160-50358-0103																		
85	3	0	1	10	3	10	0	0	0	1435	58	2590	1254	195	1	2	0	0
H160-48193-0293																		

Oil Condition / Particle Count (cf/ml)															
ST	OXI	NIT	SUL	W	A	V100	ISO	4μ	6μ	10μ	14μ	18μ	21μ	70μ	PVI
0	12	5	18	N	N	9.7	18/16/13	2280	474	122	47	20	14	1	0.44
H160-51071-0037															
2	11	4	16	N	N	10.6	21/18/14	10641	1820	370	141	63	39	1	1.17
H160-50358-0103															
0	11	5	17	N	N	10.5	19/15/12	2527	271	74	33	20	15	1	0.45
H160-48193-0293															

Oil Condition / Particle Count (ct/ml)															
ST	OXI	NIT	SUL	W	A	V100	ISO	4μ	6μ	10μ	14μ	18μ	21μ	70μ	PVI
0	12	5	18	N	N	9.7	18/16/13	2280	474	122	47	20	14	1	0.44
H160-51071-0037															
2	11	4	16	N	N	10.6	21/15/14	10641	1820	370	141	63	39	1	1.17
H160-50358-0103															
0	11	5	17	N	N	10.5	19/15/12	2527	271	74	33	20	15	1	0.45
H160-48193-0293															

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**COCONINO COUNTY
DERRICK WILSON**

COMPANY NAME : COCONINO COUNTY
CUSTOMER EQUIP NUM : 332
COMPARTMENT NAME : DIFFERENTIAL REAR
SERIAL NUMBER : 9YJ01764
MANUFACTURER : CATERPILLAR
MODEL : 966F
JOB SITE :
CSA ACTIVE :
PHONE:
SAMPLE TYPE: OIL
SAMPLE SHIP TIME (days) : 4

SILOP JOB NUM :
COMP SERIAL NUM :
COMPARTMENT MODEL :
COMP MANUFACTURER :
SAMPLE LABEL NUM :
FLUID BRAND/WEIGHT : EXXONMOBIL30
FLUID TYPE :
CSA EXPIRATION :



LAB CONTROL NUMBER	SAMPLE DATE	PROCESS DATE	EQUIPMENT METER	METER ON FLUID	FLUID CHANGED	MAKE UP FLUID	MAKE UP FLUID UNITS	FILTER CHANGED
H160-51071-0040	08-Mar-2021	12-Mar-2021	7417 HR	7417 HR	Yes			No
NO PROBLEMS PRESENTLY ASSOCIATED WITH THIS SAMPLE. CONTINUE SAMPLING AT THE NORMAL INTERVAL.								
H160-50355-0106	16-Dec-2020	23-Dec-2020	7398 HR	7398 HR	No			No
NO PROBLEMS PRESENTLY ASSOCIATED WITH THIS SAMPLE. CONTINUE SAMPLING AT THE NORMAL INTERVAL. NO ACTION REQUIRED.								
H160-48193-0295	11-Jul-2018	12-Jul-2018	7135 HR	447 HR	No			No
NO PROBLEMS PRESENTLY ASSOCIATED WITH THIS SAMPLE. CONTINUE SAMPLING AT THE NORMAL INTERVAL.								
H160-45198-0196	15-Jul-2015	17-Jul-2015	6877 HR	189 HR	Unknown			No
NORMAL WEAR INDICATED. NO PROBLEMS PRESENTLY ASSOCIATED WITH THIS SAMPLE. CONTINUE SAMPLING AT THE NORMAL INTERVAL.								

Wear Metals (ppm)	Copper	Iron	Chrome	Alum	Silicon	Lead	Sodium	Tin	Nickel	Barium	Silver	Zinc	Boron	Calcium	Phosphor	Magnesium	Potassium	Molybdenum	Titanium	Vanadium
H160-51071-0040	16	103	1	1	9	1	4	0	0	0	0	1158	1	2827	1521	23	1	1	0	0
H160-50355-0106	16	97	1	0	15	2	8	0	0	0	0	1164	0	2323	1604	23	0	0	0	0
H160-48193-0295	13	84	1	3	9	1	9	0	0	0	0	1183	1	2814	1603	26	2	2	0	0
H160-45198-0196	7	44	0	3	7	1	5	0	0	0	0	1104	1	2790	1392	22	1	2	0	0

Oil Condition / Particle Count (ct/ml)	ST	OXI	NIT	SUL	W	V100	ISO	4μ	6μ	10μ	14μ	18μ	21μ	70μ	PVI
H160-51071-0040	0	11	4	23	N	10.9	2322/19	76179	45522	12634	3239	1298	725	8	13.64
H160-50355-0106	1	10	4	22	N	11.9	2423/17	91127	50029	7508	983	313	167	1	11.52
H160-48193-0295	0	4	4	19	N	11.9	2323/18	68567	41406	9614	1977	557	303	4	13.44
H160-45198-0198	4	3	4	1	N	11.4	2322/16	51306	27820	4407	414	69	30	2	6.45

A = Antifreeze, F = Fuel, W = Water, P = Positive, N = Negative, T = Trace, E = Excessive, NIT = Nitration, OXI = Oxidation, ST = Soot, SUL = Sulfation, ISO = ISO Rating, PQI = PQI Index, TAN = Total Acid Number, TBN = Total Base Number, H2O = Karl Fisher result, V100 = Viscosity@100C, V40 = Viscosity@40C, ST_WT = %SOOT by Weight, PFC = Percent Fuel Content, PVI = Particle Volume Index

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