

SUMMARY OF FRICTION AND WEAR DATA

Project Number: **723952**

September 24, 2004

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Test Parameters

LOAD	SPEED	TIME	TEMPERATURE	SPECIMENS
Newton's = 50	Disk = 5 rpm (A, B and D) and 25 rpm (C)	83 minutes	Ambient	Pin = 52100 steel (5" radius for A, B and C, 600 grit random finish. ¼" radius for D, cleaned) Disk = 52100 steel, 600 grit random finish

The 5" radius pin and the disk were both painted and air-dried for 24 hours prior to test A. Only the disk was painted and air-dried for 24 hours prior to running tests B, C and D.

Coefficient of Friction (f) Data

SAMPLE ID	SAMPLE DESCRIPTION	START (f)	MIDDLE (f)	END (f)	AVG. (f)	PIN SCAR DIAM. (mm)	DISK SCAR WIDTH. (mm)
723952A	ALT switch paint	0.13 – 0.14	0.10 – 0.14	0.10 – 0.16	0.13	No scar	No track
723952B	ALT switch paint	0.14 – 0.19	0.13 – 0.18	0.08 – 0.16	0.15	2.69	2.69
723952C	ALT switch paint	0.13 – 0.26	0.26 – 0.43	0.23 – 0.46	0.30	9.00	1.34
723952D	ALT switch paint	0.17 – 0.22	0.35 – 0.45	0.34 – 0.40	0.33	0.73	0.78

Wear Scar Appearance

SAMPLE ID	PIN	DISK	OVERALL
723952A	Paint coating in tact	Paint coating in tact	See Photo
723952B	Appears to be film layer over pin with no bare metal at contact site. Random 600 grit surface marks were visible below the directional marks in the film layer.	Impression in paint coating only	See Photo
723952C	Appears to be film layer over pin with no bare metal at contact site. Random 600 grit surface marks were visible below the directional marks in the film layer.	Some blotchy paint coating remained in the track after test run. After scraping off the remaining coating with a plastic scraper, the track was clean with some brown reactive film layer. Random 600 grit surface marks were still visible in the track.	See Photo
723952D	Polished with dark gray streaks	Cleaned with some gold-brown film. No furrows in track.	See Photo

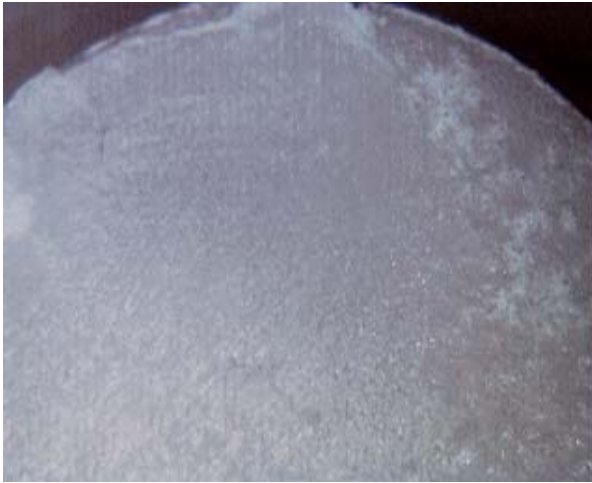
The scar on the ¼" pin of test D was bare metal. There appeared to be very little or no metal removal at all from the track on run D. The track disappeared simultaneously with the paint upon re-polishing the disk after analysis.



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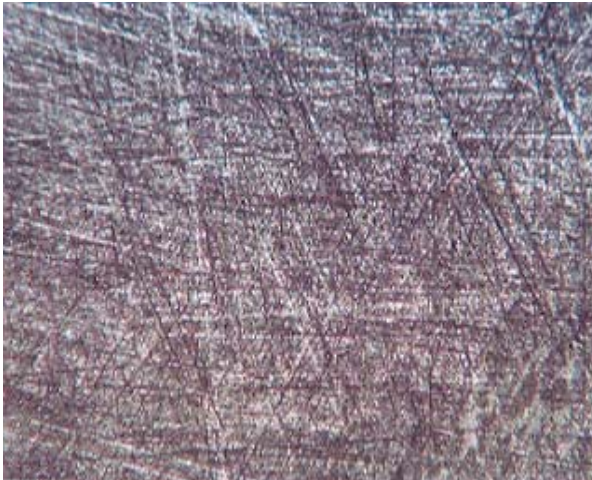
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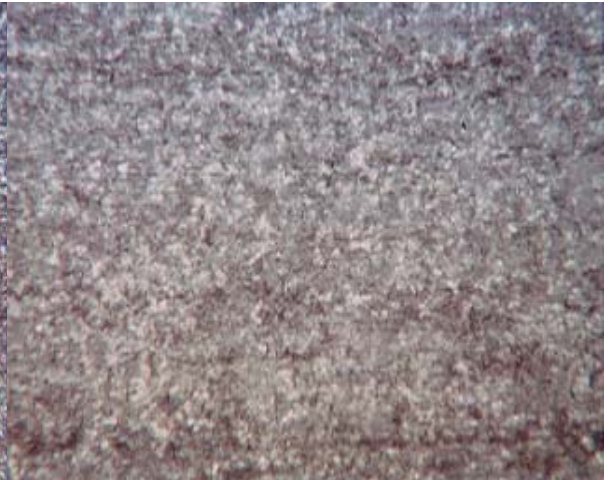
723952A pin at 50x
(painted prior to test)



723952A disk at 50x
(no mark in paint coating)



723952B pin at 50x
(direction of motion is horizontal-
random 600 pattern still visible)



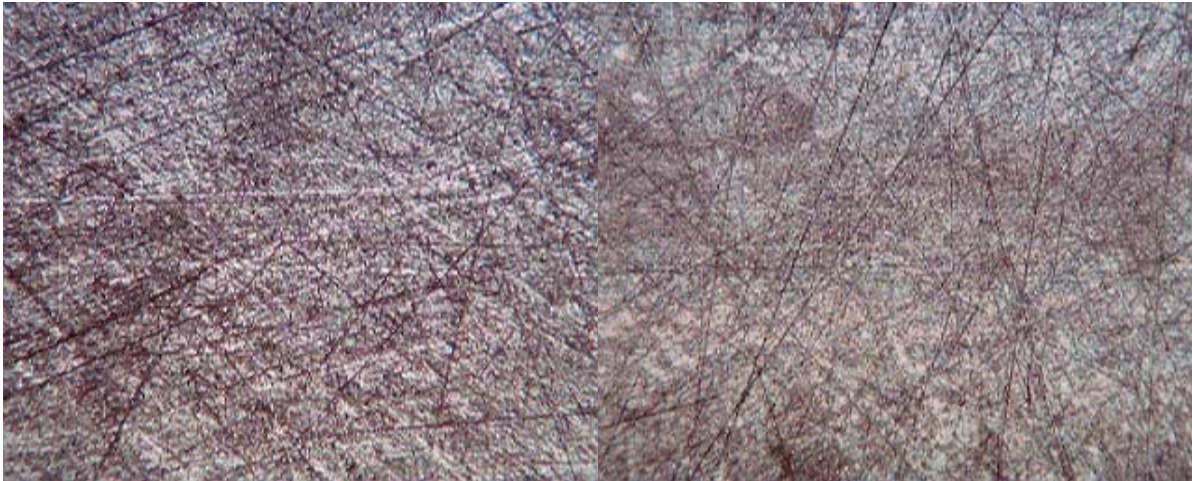
723952B disk at 50x
(lighter area is impression in paint coating)



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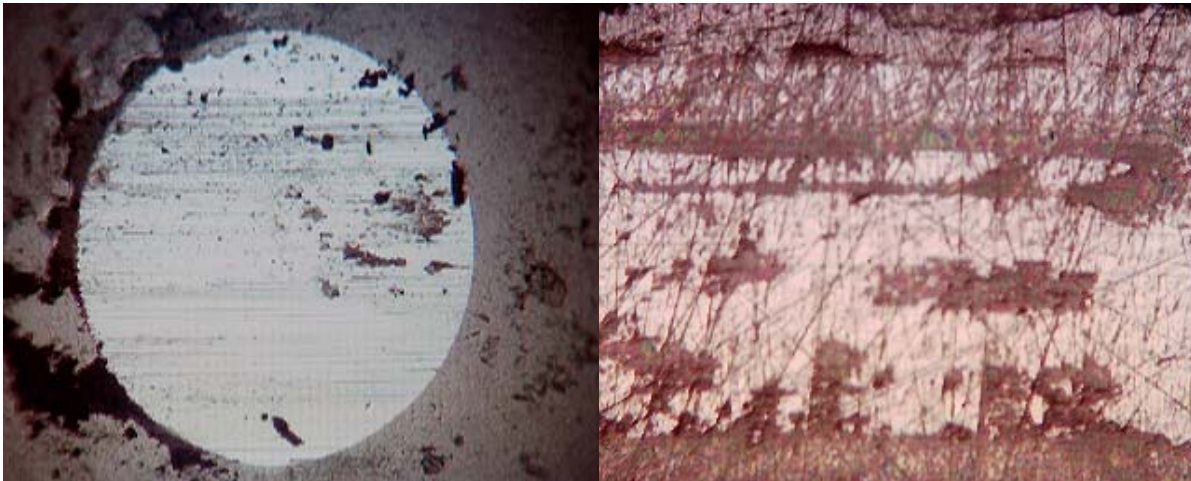
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723952C 5" radius pin at 50x
(direction of motion is horizontal –
scar contrast is barely visible)

723952C disk at 50x



723952D 1/4" radius pin at 100x

723952D disk at 100x
(gold-brown film is mostly at edges of track)

Respectfully Submitted,

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