

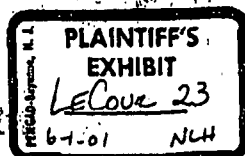
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REFERENCE
1946
INFORMATION

NEWSBRAKE

ASBESTOS-FREE BONDING SEGMENTS

- We are now able to offer a range of flexible, non-asbestos brake linings for bonding to shoes.
- A new formulation based on years of experience as an OE-supplier in Europe and North and South America. Its history can be traced back to the 1940's where wartime shortages dictated the development of alternatives to asbestos.
- Similar formulas are OE at Volvo, Ford, and Volkswagen.
- This is a first class material.
- Several months of successful testing to SAE standards for Original Equipment complemented by thousands of miles of normal driving allow us to offer this to you with complete confidence.
- Competitively priced.
- Quiet.
- Low wear rates.
- Everything you could ask for. Don't miss out.
- Suitable for U.S. cars and imports.
- Duo Servo or leading/trailing brakes.
- All four wheels, or rears only.
- Call us now for more information.

Abex



NAPA 029

NOVO30955

SCF-NAPA-2204

SCF-ALLF-09673

ASBESTOS-FREE BONDED SEGMENTS

DURING WORLD WAR II GERMANY WAS CUT OFF FROM THE MAJOR SOURCES OF ASBESTOS AT TIME -- CANADA, RHODESIA AND RUSSIA. THEY DEVELOPED FORMULATIONS WITH STEEL WOOL IN PLACE OF ASBESTOS. THIS TYPE OF MATERIAL FOUND USE NOT ONLY IN CARS AND TRUCKS, BUT ALSO IN AIRCRAFT.

THIS TYPE OF FORMULA STILL PERSISTS. A TYPICAL EXAMPLE IS ABEX 717-39 STILL FITTED O.E. ON THE VOLKSWAGEN BEETLES MADE IN MEXICO.

AN IMPROVED VERSION IS ABEX 553 WHICH IS ALSO O.E. ON THE RABBIT IN NORTH AMERICA AS WELL AS SEVERAL OTHER VOLKSWAGEN MODELS AROUND THE WORLD.

IT WAS NOT A BIG STEP TO COMPLETELY REMOVE THE REMAINING ASBESTOS FROM THIS TYPE OF FORMULA AND PRODUCE THE ASBESTOS FREE FORMULATIONS WHICH HAVE BEEN O.E. AT VOLKSWAGEN IN EUROPE AND SOUTH AMERICA, AND AT FORD FOR THE ESCORT AND OTHER VEHICLES.

FROM THIS BACKGROUND COMES NA27 WHICH ABEX IS NOW OFFERING FOR THE NORTH AMERICAN AFTERMARKET. A SIMILAR PROGRAM IS IN HAND IN EUROPE WHERE ABEX-FRANCE IS OFFERING FORMULA 322.

NA27 IS SPECIALLY TAILORED FOR U.S. CONDITIONS AND CAN BE COMPARED DIRECTLY WITH OUR VERY POPULAR 261-1 AND 261-2.

UNLIKE EUROPE. A GREAT MAJORITY OF VEHICLES IN NORTH AMERICA USE DUO SERVO BRAKES. FOR THIS WE NEED A LOWER FRICTION. NA27 IS IN THE E-F RANGE -- LIKE 261-1 AND 261-2.

NOVO30956

WE ALSO HAVE TO RECOGNIZE THERE IS A LOT OF DO-IT-YOURSELF CAR MAINTENANCE DONE AND IT CANNOT BE GUARANTEED THAT PROPER MATCHING OF FRONT DISCS AND REAR DRUM LININGS TAKES PLACE. SO THAT THE REAR BRAKES DO NOT TAKE OVER FROM AN INFERIOR FRONT BRAKE, NA27 CONTAINS SOME DEGREE OF BUILT-IN FADE.

NA27 HAS ALL INDICATIONS OF BEING A GOOD WEARING MATERIAL; BUT MORE OF THAT LATER.

HISTORY TELLS US TO HAVE DIFFERENT CHARACTERISTICS BETWEEN PRIMARY AND SECONDARY SHOES. HISTORY ALSO TELLS US THAT PRIMARIES SHOULD BE LIGHT COLOR AND SECONDARIES DARK. HOWEVER, THERE IS ALSO ENOUGH HISTORY TO TELL US THERE ARE DEVIATIONS -- AND HAVE BEEN DEVIATIONS FOR SEVERAL DECADES.

CURRENT O.E. AT FORD USES SINGLE FRICTION PRIMARY AND SECONDARY -- THE ONLY DIFFERENCE BETWEEN THE LININGS ON THE TWO SHOES IS DIMENSIONAL. TRYING TO JUSTIFY DUAL FRICTION BECOMES MORE DIFFICULT WITH THE TREND TO FRONT-WHEEL DRIVE, FRONT DISCS AND SO ON.

OUR PROPOSALS ARE FOR A SINGLE FRICTION SET.

THE OPPORTUNITY HAS BEEN TAKEN TO INTRODUCE MANY FEATURES WHICH HAVE BEEN ON OUR WISH LIST FOR AS LONG AS CAN BE REMEMBERED.

THERE HAS ALWAYS BEEN A NEED FOR A FULLY FLEXIBLE MATERIAL FOR SEVERAL REASONS:

ELIMINATE COSTLY FORMING TOOLS
CONFORMABILITY TO ANY RADIUS
REDUCTION IN PART SIZES -- REDUCED INVENTORY
ABILITY TO SELL IN COIL FORM -- ESPECIALLY FOR THE
OVERSEAS MARKET

OIL-BASED LININGS SATISFIED SOME OF THESE NEEDS OVER THE YEARS
BUT SUFFERED FROM SEVERAL DISADVANTAGES:

LIMITED SHELF LIFE
POOR STRENGTH -- NEEDS WIRE MESH
REINFORCEMENT FOR RIVETTING
EXCESSIVE FADE

ABEX STILL MAKES THIS TYPE OF MATERIAL AND IT HAS BEEN ADEQUATE
FOR MANY -- PERHAPS MOST -- APPLICATIONS OVER THE LAST 50 YEARS. BUT
TODAY'S CARS AND TODAY'S DRIVING CONDITIONS DEMAND SOMETHING BETTER.

A BETTER FLEXIBLE MATERIAL USES RUBBER AS A BASE. BUT RUBBER
COSTS ARE HIGH AND PROCESSING IS NOT CHEAP. IT HAS ALWAYS BEEN
DIFFICULT (IF NOT IMPOSSIBLE) TO BE COMPETITIVE WITH A RUBBER-BASED
MATERIAL ON THE NORTH AMERICAN MARKET.

UNTIL NOW.

NOVO30958

SEVERAL MONTHS AGO ABEX DISCOVERED A BREAKTHROUGH. THIS IS NOT THE COMPLETE ANSWER, BUT GOES A LONG WAY TO HELP. BY INTEGRATING OPERATIONS, WE ARE ABLE TO COMPENSATE FOR HIGHER MATERIAL COSTS. OUR END PRODUCT, THEN, IS GOING TO BE COMPETITIVELY PRICED WITH WHAT YOU ARE BUYING TODAY.

BECAUSE OF THE SOUND BACKGROUND UPON WHICH THIS NA27 HAS BEEN BUILT, WE EXPECT NO PROBLEMS IN ITS INTRODUCTION. OUR JOB HAS BEEN TO FINE TUNE WELL-TRIED FORMULATIONS TO BE ACCEPTABLE FOR BOTH DUO SERVO AND LEADING--TRAILING APPLICATIONS AND TO CONFIRM THERE ARE NO NOISE PROBLEMS. THIS LATTER HAS MEANT TESTING ON A WIDE RANGE OF VEHICLES.

FIRST, WE PUT IT ON OUR OWN PERSONAL CARS TO GET AS MUCH RUNNING TIME UNDER NORMAL CONDITIONS:

FORD ESCORT	LEADING/TRAILING
CHEVETTE	DUO SERVO
X CAR	SAME
CENTURY	SAME
AND OTHERS.	

NEXT, FOLLOWED PROPER SCHEDULED TESTING OUT OF OUR TOMS RIVER, NJ, TEST GARAGE:

TOYOTA	SAE AND SLAT
FIREBIRD	SAE
CROWN VICTORIA	SLAT

IT HAS BEEN TESTED WET AND DRY.

EVERYTHING LOOKS GOOD.

SO FAR THERE IS ONE PREDOMINANT FEATURE -- EXCEPTIONALLY GOOD WEAR. AFTER 2,000 MILES (700 IN TRAFFIC), LININGS ON THE CHEVETTE HAD NO MEASURABLE WEAR -- HAD NOT EVEN BEDDED IN.

THIS HAS SERIOUS IMPLICATIONS. YOU WILL FIT A SET OF LININGS AND THEY WILL OUTLAST THE CAR -- PERHAPS THE DRIVER!

IMAGINE A NEW SLOGAN:

CHANGE THE CAR: KEEP THE BRAKE SHOES!

OUR PROPOSAL IS TO SUPPLY THIS NEW MATERIAL GROOVED. THIS HAS BEEN A FEATURE WITH PREMIUM LININGS IN THE PAST -- CADILLAC PRIMARY HAS ALWAYS BEEN GROOVED. YOU KNOW FROM YOUR OWN EXPERIENCE A SIGNIFICANT NUMBER OF PARTS SOLD IN THE REPLACEMENT MARKET ARE GROOVED FOR VARIOUS REASONS. FORTY-THREE (43) DIFFERENT PARTS IN ABEX-LINDSAY PLANT RETURNED SHOE INVENTORY WERE FOUND TO BE GROOVED DURING A RECENT CHECK.

GROOVING HAS SEVERAL FEATURES:

- A) REDUCES HIGH PRESSURE AREA ABOVE THE WEB
- B) ALLOWS PRODUCTS OF WEAR TO ESCAPE
- C) BRAKE RUNS COOLER?
- D) DRIES OUT QUICKER WHEN WET?

BUT FROM OUR POINT OF VIEW:

- E) ALLOWS COMPLETE BEDDING IN SOONER, AN IMPORTANT FEATURE WITH A SLOW-WEARING MATERIAL.

THIS NA27 IS AVAILABLE IN THE FULL RANGE THAT YOU ARE PURCHASING AT PRESENT. IT CAN BE GROUND OR UNGROUND ON THE SURFACE. IT IS RECOMMENDED THE BONDING SURFACE BE UNGROUND. TESTS SHOW BOND STRENGTH TO BE SEVERAL PERCENTAGE POINTS HIGHER WITH AN UNGROUND SURFACE.

WIDTHS OVER 1 3/4" WILL BE GROOVED.

A PARALLEL PROGRAM WILL INTRODUCE THIS MATERIAL INTO THE CANADIAN MARKET AT THE BEGINNING OF 1986 -- THE SAME AS WE PROPOSE IN THE U.S. OUR PROPOSALS ARE TO FULLY GRIND THE MATERIAL TO THE THICKNESS QUOTED IN THE FMSI CATALOG BEFORE BONDING. THIS IS THE PRACTICE IN EUROPE AND ENSURES CROWN CONTACT -- AND, WE FIND, IS MORE ECONOMICAL IN THE LONG RUN. YOU MAY WANT TO CONSIDER THIS SAME APPROACH.

NOVO30961

ASBESTOS-FREE SEGMENTS FOR RIVETTING

FOLLOWING ON IMMEDIATELY AFTER THE NON-ASBESTOS BONDED SEGMENT INTRODUCTION, THERE ARE PLANS FOR A RIVETTED VERSION.

THE FORMULATION WILL BE ESSENTIALLY THE SAME. THE PROCESS IS BEING FINE TUNED TO ACHIEVE THE ACCURACY AND STRENGTH NECESSARY TO BE COMPETITIVE WITH WHAT YOU ARE BUYING TODAY.

SAMPLES ARE ALREADY BEING CAR TESTED WITH POSITIVE RESULTS.

OUR GUIDELINES FOR DIMENSIONAL ACCURACY ARE WELL DEFINED. LININGS SHOULD FIT SHOES SO THAT A FEELER GAUGE WILL NOT ENTER, ETC.

STRENGTH IS A DIFFERENT MATTER. ASBESTOS IS WELL KNOWN FOR ITS REINFORCING QUALITIES. INDUSTRIAL PLASTICS USING ASBESTOS FIBER HAVE ALWAYS BEEN STRONGER THAN THOSE BASED ON COTTON, GLASS, RAYON, ETC. FORD LOOKS AT TENSILE STRENGTH -- A TEST WHICH DETERMINES THE TENDENCY TO DELAMINATE. TRADITIONALLY, THE INDUSTRY HAS USED TRANSVERSE RUPTURE, BREAKING SAMPLES IN SUCH A WAY THE TENSILE STRENGTH OF THE INSIDE SURFACE IS MEASURED. WE ALSO EMPLOY A STRAIGHTFORWARD SHEAR TEST. NONE OF THESE TESTS REALLY SIMULATE THE CONDITIONS ENCOUNTERED DURING BRAKING.

NOVO30962

DURING BRAKING THE FRICTION MATERIAL IS SANDWICHED BETWEEN THE MOVING DRUM AND THE STATIONARY SHOE. AGAINST THE DRUM WE SEE DYNAMIC FRICTION FORCES WHICH ARE ALWAYS LOWER THAN THE STATIC FRICTION WHICH OCCURS BETWEEN THE SHOE AND THE LINING. THEORETICALLY, THERE SHOULD BE NO FORCE ON THE RIVETS!! THE STATIC FRICTION OF NA27 IS HIGHER THAN THAT FOR, SAY, 261-1 AND THEREFORE NA27 SHOULD NOT NEED TO BE AS PHYSICALLY STRONG.

BUT WE ALL KNOW THAT LININGS CAN BREAK AWAY AT THE RIVET HOLES! SO THE RIVETS MUST BE DOING SOMETHING.

IN MY EXPERIENCE, RIVET HOLDING PROBLEMS HAVE ALWAYS OCCURRED WITH LININGS, RECENTLY FITTED, WHERE END CONTACT ONLY IS IN EFFECT. IN THIS CASE, THE WHOLE OF THE BRAKING FORCE IS BEING TAKEN ON TWO -- OR AT THE MOST, FOUR RIVETS. YOU NEVER SEE A RIVET HOLDING PROBLEM WITH A CROWN CONTACT! THE IMPORTANCE OF USING A LINING GROUND TO FMSI THICKNESSES CANNOT BE DISMISSED.

THE POSITION WE ARE IN TODAY IS THAT NA27 IS EQUIVALENT STRENGTH TO THE SIMILAR MATERIAL FITTED O.E. TO THE MEXICAN BEETLE. THIS MATERIAL MEETS THE RIVET HOLDING CONDITIONS SPECIFIED BY VOLKSWAGEN-WOLFSBURG. TRS AND TENSILE STRENGTHS ARE WITHIN 15% OF NORMAL O.E. PASSENGER CAR ACCEPTABLE FIGURES. BUT WE NEED SOMETHING BETTER.

NOVO30963

IT HAS TO BE RECOGNIZED THIS MATERIAL COULD BE FITTED TO A PICKUP TRUCK OR A STATION WAGON WITH FRONT DRUM BRAKES, WHICH COULD BE TOWING A BOAT OR A TRAILER HOME, AND THE DRIVER NEEDS TO DO A PANIC STOP. A FRONT SECONDARY SHOE WITH HEEL CONTACT ONLY MIGHT BE A PROBLEM.

OUR AIM IS TO OFFER A MATERIAL THAT WILL BE SATISFACTORY FOR ALL CONCEIVABLE APPLICATIONS.

IN CONCLUSION, BEFORE WE OFFER A FULL RANGE RIVETTED VERSION WE MUST ASSURE OURSELVES OF UTMOST SAFETY. THIS SHOULD NOT TAKE LONG.

THE INCLUSION OF THE GROOVE IS GOING TO MEAN SOME MODIFICATIONS TO OUR DRILLING EQUIPMENT -- AT PRESENT DRILL FIXTURES USE A BAND THAT CLAMPS THE LINING DOWN THE CENTER. NOW WE HAVE NOTHING IN THE CENTER TO CLAMP TO! NEW DRILL FIXTURES ARE BEING MADE AND SHOULD BE READY FOR TESTING NEXT WEEK.

PLEASE BE PATIENT. YOUR SHORT WAIT WILL BE WELL WORTH YOUR WHILE.

NOVO30964