Internal Letter

Rockwell International

Date: NOVEMBER 10, 1986

No:

TO: (Name, Organization, Internal Address)

G. DANNER

FROM: (Name, Organization, Internal Address, Phone)

K. JEFFERIES

Subject: REPORT ON OVEN TEST RUN ON SAMPLES OF SELF-ADHESIVE LABELS

CC: W. GREEN
L. BOWMAN
B. Boroughf
W. ROBISON - YORK
G. YOAK - ASHTABULA

OBJECTIVE:

TO EVALUATE THE EFFECTS TEMPERATURE UP TO ~~380°F~~ 300°F. HAS ON SELF-ADHESIVE LABELS ATTACHED TO UNMACHINED CAST IRON SURFACES.

TEST DATES:

TESTS WERE CARRIED OUT USING THE CHEMISTRY LAB.'S T-O-M. 136-G OVEN BETWEEN OCTOBER 24 AND NOVEMBER 4, 1986.

CONCLUSIONS:

- LABELS ADHERED SATISFACTORILY TO CAST SURFACES BUT NOT AS WELL AS TO PAINTED SURFACES ON FABRICATED SHOES.
- THERE WAS NO SIGNIFICANT DETERIORATION IN ADHESIVE QUALITY OF LABELS AFTER 72 HOURS IN OVEN AT 300°F.
- THERE WAS NO SIGNIFICANT DIFFERENCE IN RESULTS FOR "AS IS" CAST SURFACE RELATIVE TO "CLEANED" SURFACES.
- BETTER EDGE ADHESION OCCURRED WHEN LABELS WERE ATTACHED TO FLAT CAST SURFACE, AND WERE PRESSED DOWN WITH CONTACT OVER WHOLE OF LABEL AREA.
- THERE WAS NO SIGNIFICANT DIFFERENCE BETWEEN LABEL MATERIAL APPROVED BY ON-HIGHWAY AND A LIGHTER GAGE MATERIAL PROVIDED BY THE SAME VENDOR.

TEST MATERIAL:

- STANDARD, UNUSED 20-1/4 X 4" RS CAST BRAKE SHOES, PART #3722-Z-442, WERE USED FOR ALL TESTS, AND VARIOUS SAMPLES WERE PRETREATED IN THE FOLLOWING WAYS:
  - NO PRETREATMENT. SHOES IN "AS-IS" CONDITION RECEIVED FROM YORK AFTER MACHINING. SURFACE DUST WAS BLOWN OFF BY AIR.
  - SURFACE WAS BRUSHED VIGOROUSLY WITH CLEAN WIRE BRUSH.
  - SURFACE WAS CLEANED WITH "NAPTHA" SOLVENT AND AIR DRIED.
  - SURFACE WAS WASHED WITH VANTROL 291 CUTTING FLUID AND AIR DRIED.

EXHIBIT
Plaintiff's
22
6/25/08 KM

- TWO KINDS OF LABEL WERE USED, BOTH PROVIDED BY MEAD MERCHANTS:
  - STANDARD GAGE POLYESTER LABEL WITH SILICON ADHESIVE. THIS LABEL WAS TESTED AND APPROVED BY ON-HIGHWAY BRAKE DIVISION ON FABRICATED SHOES (REF.: TE 9035).
  - LIGHTER GAGE POLYESTER LABEL WITH SILICON ADHESIVE.

- CONTROL TESTS WERE RUN USING CAST SHOE 3722-Z-442 AT AMBIENT TEMPERATURE AND WITH A 16-1/2 X 10" CAM FABRICATED SHOE, PART #A-3222-K-1155, AT SAME TEMPERATURES AS THE OVEN TESTS.

- IN MOST CASES LABELS WERE APPLIED TO SURFACE AND WELL PRESSED DOWN BY RUBBING WITH THUMB. THE EXCEPTION WAS ON ONE CAST SHOE WITH NO PRE-TREATMENT: THE LABELS WERE "SLAPPED ON" USING FINGER AND THUMB, WHICH MEANT THAT ONLY THE CENTER OF THE LABEL WAS PRESSED HOME.

TEST PROCEDURE:

- SEE ATTACHMENT, REF. JKJ5.

TEST RESULTS:

- CONTROL CAST SHOE AT AMBIENT:
  AFTER 72 HOURS, ADHESION FOUND TO BE ADEQUATE BUT NOT AS GOOD AS ON PAINTED, FABRICATED SHOES, PROVIDING NOT "PICKED AT".

- "AS-IS" CAST SHOES:
  AFTER 72 HRS. AT 200°F. PLUS 72 HRS. AT 300°F., ADHESION WAS ADEQUATE BUT NOT SO GOOD AS PAINTED, FABRICATED SHOES. EVEN THE "SLAPPED ON" LABELS HAD GOOD ADHESION IN THEIR CENTER AREAS AND REQUIRED A POSITIVE PULL TO BECOME UNATTACHED.

- WIRE-BRUSHED SURFACE:
  NO SIGNIFICANT DIFFERENCE TO "AS-IS" SURFACE.

- "NAPTHA" SOLVENT CLEANED SURFACE:
  NO SIGNIFICANT DIFFERENCE TO "AS-IS" SURFACE.

- SURFACE CLEANED WITH VANTROL 291 FLUID
  NO SIGNIFICANT DIFFERENCE TO "AS-IS" SURFACE.

- FABRICATED "ON-HIGHWAY" SHOE:
  VERY MUCH BETTER ADHESION ONTO THE SMOOTH PAINTED SURFACE THAN ON ANY OF THE CAST SURFACES. DIFFICULT TO "PICK AT" IF EDGES PRESSED DOWN WHEN FITTING.

DISCUSSION OF RESULTS:

- THE STANDARD LABELS AS APPROVED BY ON-HIGHWAY BRAKE DIVISION HAVE ADEQUATE ADHESIVE QUALITIES TO WITHSTAND EXPOSURE TO 300°F. FOR EXTENDED TIME PERIOD. BETTER ADHESION CAN BE ACHIEVED BY PRESSING THE LABEL DOWN FIRMLY OVER ITS WHOLE AREA WHEN FITTING. HOWEVER IF THIS IS NOT DONE, LABELS WILL REMAIN IN PLACE BUT CAN BE MORE EASILY PULLED OFF SHOES.

- IF ANYTHING, ADHESION WAS SLIGHTLY IMPROVED BY EXPOSURE TO HIGH TEMPERATURES.

- PROVIDING CAST SURFACE IS DRY AND FREE FROM EXCESSIVE LOOSE DUST AND GREASE, NO SPECIAL PRETREATMENT OF THE CAST SURFACE IS NECESSARY. IT IS PREFERABLE THAT THE LABEL BE ATTACHED TO A FLAT CAST SURFACE; HOWEVER, WHEN ATTACHED TO CORNERS OR OVER CASTING IMPERFECTIONS, ETC., THE LOCAL LOSS OF ADHESION DOES NOT CAUSE ANY GREAT PRACTICAL PROBLEM; IT COULD, OF COURSE, HAVE COSMETIC IMPLICATIONS.

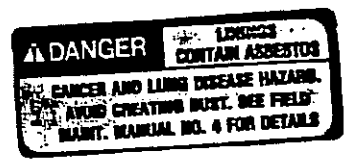
- IT IS RECOMMENDED THAT THE ON-HIGHWAY-APPROVED LABEL 2297-K-5627 BE USED ON OFF-HIGHWAY PRODUCTS. HOWEVER, THE EFFECTS OF TIME AND ENVIRONMENT ON ADHESION SHOULD BE MONITORED. ALSO, ROCKWELL PLANTS AT YORK AND ASHTABULA SHOULD RUN A CHECK ON ALL OFF-HIGHWAY SHOES AND DETERMINE WHETHER THERE IS ADEQUATE FLAT SPACE FOR THE 1.875" X 0.75" LABELS.

J. K. JEFFERIES

PD
ATT. (1)

ATTACHMENT


CAUTION
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
BREATHING ASBESTOS DUST
MAY CAUSE SERIOUS
BODILY HARM
MISE EN GARDE:
CONTIENT DES FIBRES
D'AMIANTE. ÉVITER DE
CRÉER DE LA POUSSIÈRE
L'INHALATION DE POUSSIÈRE
D'AMIANTE PEUT ENTRAÎNER
DES RISQUES SÉRIEUX POUR
LA SANTÉ.


DANGER
CONTAIN ASBESTOS
CANCER AND LUNG DISEASE HAZARD.
AVOID CREATING DUST. SEE FIELD
MAINT. MANUAL NO. 4 FOR DETAILS

CAUTION: CONTAINS ASBESTOS FIBERS.
AVOID CREATING DUST. BREATHING ASBESTOS
DUST MAY CAUSE SERIOUS BODILY HARM.

DANGER: CONTAINS ASBESTOS FIBERS.
AVOID CREATING DUST.
CANCER AND LUNG DISEASE HAZARD.
B1