1989 - 1996 Corvette: Service Bulletin: Information on Corvette ZF 6-Speed Manual Transmission Service Procedure

Model Year: 1989-96 CHEVROLET CORVETTE WITH ZF 6-SPEED MANUAL TRANSMISSION (ML9)
Subject: INFORMATION ON CORVETTE ZF 6-SPEED MANUAL TRANSMISSION SERVICE PROCEDURE
Source: Chevrolet Dealer Service Bulletin
Bulletin Number: 77-72-04

INFORMATION

GM OF CANADA AND NAES DEALERS ARE NOT AUTHORIZED TO UTILIZE THIS SERVICE BULLETIN.

THIS BULLETIN CANCELS AND SUPERSEDES DEALER SERVICE BULLETIN NO. 91-89-7B (CORPORATION NUMBER 827201R) DATED OCTOBER 1990. ALL THE APPLICABLE MODEL YEARS HAVE BEEN ADDED.

THIS BULLETIN SUMMARIZES THE ZF TRANSMISSION SERVICE PROCEDURES.

REPAIRS NOT COVERED UNDER CHEVROLET WARRANTY

TRANSMISSIONS REQUIRED FOR VEHICLES THAT ARE OUT OF CHEVROLET WARRANTY SUCH AS CUSTOMER PAY REPAIRS, INSURANCE CLAIMS, EXTENDED WARRANTY REPAIRS, ETC. ARE TO BE OBTAINED THROUGH GENERAL MOTORS SERVICE PARTS OPERATIONS (GMSPO). REFERENCE GMSPO PARTS CATALOG FOR THE APPLICABLE PARTS NUMBERS AND PROCEDURES.

IMPORTANT: EXTENDED WARRANTIES, WHETHER PURCHASED BY A CUSTOMER OR BY CHEVROLET FOR A CUSTOMER, IS NOT CONSIDERED PART OF THE ORIGINAL CHEVROLET WARRANTY.

FOR CUSTOMERS WHO WANT THE ORIGINAL COMPLAINT TRANSMISSION TO BE REPAIRED INSTEAD OF USING A SERVICE ASSEMBLY OBTAINED FROM GMSPO, THE DEALER MAY CONTACT ZF OF NORTH AMERICA TO ARRANGE FOR SUCH REPAIRS. DEALERS ARE TO CONTACT ZF OF NORTH AMERICA AT 1-847-634-3500, EXTENSION 141, FOR ADDITIONAL INFORMATION. DEALER MUST OBTAIN A RETURN AUTHORIZATION NUMBER FROM ZF BEFORE SENDING IN COMPLAINT UNIT.

REPAIRS COVERED UNDER CHEVROLET WARRANTY

A TRANSMISSION EXCHANGE PROGRAM WILL BE ADMINISTERED BY THE CHEVROLET TECHNICAL ASSISTANCE NETWORK (TAN).

THE FOLLOWING EXPLAINS ALL REQUIREMENTS REGARDING DIAGNOSIS, SERVICEABLE AND NON-SERVICEABLE ITEMS, WARRANTY CLAIMS PROCESSING PROCEDURES AND SHIPPING INSTRUCTIONS. THIS INFORMATION SHOULD BE FILED IN THE "SPECIAL EXCHANGE POLICY PROCEDURES" MANUAL.

IN THE EVENT YOUR DEALERSHIP RECEIVES A COMMENT ON A 1989-96 ZF 6-SPEED MANUAL TRANSMISSION, FOLLOW THE PROCEDURES LISTED BELOW. YOUR COOPERATION IN ADHERING TO THE FOLLOWING PROCEDURES WILL GREATLY IMPROVE THE EFFECTIVENESS OF THE PROGRAM.

A. PRELIMINARY DIAGNOSTIC PROCEDURE

CONDITION AND REMEDY - EXTERNAL CAUSES OF CONDITION

CONDITION CAUSE REMEDY

CANNOT SHIFT A) CLUTCH DOES NOT CHECK CLUTCH OPERATION- INTO GEARS DISENGAGE REPAIR AS NECESSARY PER SERVICE MANUAL SECTION 7C

B) INTERNAL CAUSE EXCHANGE TRANSMISSION

NOISY IN ALL A) OIL FLUID LEVEL REFILL TRANSMISSION OIL GEARS, TOO

LOW (PART ACCORDING TO NEUTRAL, NUMBER 1052931) SPECIFICATION. 2.1 L (4.4 FORWARD, AND PTS.) DETERMINE CAUSE OF REVERSE LOW OIL LEVEL; I.E., REPAIR AS NECESSARY.

B) TRANSMISSION CORRECT OIL LEVEL OVERHEATS DUE TO EXCESSIVELY LOW OR HIGH OIL FLUID LEVEL

C) INTERNAL CAUSE EXCHANGE TRANSMISSION

TRANSMISSION A) LOW SPEED NORMAL CONDITION FIRST GEAR PARKING LOT GROWL MANEUVER

NOISE ON A) DUAL MASS NORMAL CONDITION ENGINE SHUT- FLYWHEEL DOWN RESONANCE

NOISE IN ALL A) BELL-HOUSING LOOSEN BOLTS FOR GEARS (GROWL TRANSMISSION TRANSMISSION, BELL HOUSING OR GEAR MISALIGNMENT AND SUPPORT BEAM. WHINE) RETORQUE STARTING WITH BELL HOUSING TO ENGINE, TRANSMISSION TO BELL HOUSING AND SUPPORT BEAMS TO TRANSMISSION. BOLT TORQUE SEQUENCE SHOULD BE HORIZONTAL THEN VERTICAL IN INCREMENTS OF 7-16 N.M (5-10 LBS. FT.) REFER TO SECTION 4A FOR DRIVELINE SUPPORT ALIGNMENT PROCEDURE IN THE CORVETTE SERVICE MANUAL.

B. ON-VEHICLE SERVICE (WITHOUT EXCHANGE)

CORRECTIONS TO PERFORM WHILE TRANSMISSION IS INSTALLED IN VEHICLE:

CONDITION CAUSE REMEDY

TRANSMISSION LEAKS A) EXTENSION HOUSING REPLACE REAR OIL FLUID EXTENSION SEAL LEAKS. (SEE HOUSING REAR OIL ILLUSTRATION) SEAL. (KENT

MOORE SPECIAL TOOL #J21359-A REQUIRED.)

B) REVERSE IDLER REPLACE GASKET COVER LEAKS (SEE (SEE ILLUSTRATION) ILLUSTRATION.) NOTICE: REVERSE IDLER SHAFT CAN

CHANGE ITS POSITION. AFTER REMOVING COVER, SCREW IN REVERSE IDLER SHAFT BOLT (17) TO HOLD SHAFT IN POSITION.

C) OIL DRAIN PLUG CHECK FOR TIGHT LEAKS. (SEE FIT. ILLUSTRATION.)

D) BACKUP LAMP CHECK FOR TIGHT SWITCH LEAKS. (SEE FIT; REPLACE AS ILLUSTRATION) NECESSARY.

E) BREATHER TUBE CHECK FOR TIGHT LEAKS. (SEE FIT; REPLACE AS ILLUSTRATION) NECESSARY

F) SPEED SENSOR LEAKS REPLACE O-RING.

LEAKAGE AND OTHER A) COMPUTER AIDED CHECK FOR TIGHT DAMAGE GEAR SELECT FIT (25 NM / 18 SOLENOID. (SEE LBS. FT.). ILLUSTRATION) REPLACE SOLENOID ASSEMBLY AS NECESSARY.

C. OUT-OF-VEHICLE REPAIR (WITHOUT EXCHANGE)

CORRECTION WHILE TRANSMISSION IS REMOVED BUT WITHOUT DISASSEMBLING THE TRANSMISSION.

CONDITION CAUSE REMEDY

TRANSMISSION LEAKS A) INPUT SHAFT LEAKS REPLACE INPUT SHAFT BEARING RETAINER ASSEMBLY, O-RING AND GASKET. FRONT INPUT BEARING ENDPLAY

SHOULD BE CHECKED AND RE-SHIMMED IF NECESSARY, PER PROCEDURE IN SHOP MANUAL. (SEE ILLUSTRATION) KENT MOORE SPECIAL TOOL #J38126 NEEDED FOR O- RING REPLACEMENT. IMPORTANT: BEARING RETAINER FOR L98/LT1 AND LT5 ENGINE IS NOT INTERCHANGEABLE.

B) COUNTERSHAFT SEAL REPLACE COUNTERSHAFT LEAKS SEAL (SEE ILLUSTRATION). KENT MOORE SPECIAL TOOL #J29381 REQUIRED.

D. LIST OF POSSIBLE COMMENTS - CAUSE AND REPAIR

BELOW ARE SOME OTHER POSSIBLE TRANSMISSION CONDITIONS WHICH

ARE NOT LISTED IN A, B, OR C ABOVE.

CONDITION CAUSE REMEDY

CANNOT SHIFT INTO A) GEARSHIFT LINKAGE EXCHANGE SHIFTER GEAR (SHIFTER RELATED) ASSEMBLY

B) COMPUTER AIDED INSPECT SOLENOID PIN GEAR SELECT AND SLEEVE SOLENOID STICKS

TRANSMISSION LEAKS A) TRANSMISSION CASE EXCHANGE TRANSMISSION LEAKS

REVERSE BIND OR A) REVERSE BLOCKOUT REFER TO SERVICE BLOCKOUT (CANNOT GET SET SCREW LOOSE. MANUAL OR INTO GEAR) (PRE-95 MODEL TRANSMISSION UNIT YEAR) REPAIR MANUAL

E. EXCHANGE PROCEDURE (CHEVROLET WARRANTY REPAIRS ONLY)

ONCE THE ABOVE PRELIMINARY DIAGNOSIS AND/OR REPAIRS ARE MADE AND AN EXCHANGE UNIT IS STILL DEEMED NECESSARY, CALL CHEVROLET TAN AND REQUEST A TRANSMISSION SPECIALIST. TRANSMISSIONS REPAIRED UNDER CHEVROLET WARRANTY ARE NOT AVAILABLE FROM GENERAL MOTORS SERVICE PARTS OPERATIONS (GMSPO). PLEASE BE PREPARED TO PROVIDE SERIAL NUMBER FROM COMPLAINT TRANSMISSION

TAG, VEHICLE DELIVERY DATE AND DEALER SHIPPING ADDRESS.

ALSO, BE PREPARED TO PROVIDE THE NECESSARY INFORMATION BY FILLING OUT THE REPORTING FORM (EXAMPLE ATTACHED, REPRODUCE LOCALLY) PRIOR TO CALLING.

CHEVROLET TECHNICAL ASSISTANCE NETWORK (TAN) WILL ARRANGE TO SHIP AN EXCHANGE UNIT TO YOUR DEALERSHIP AND PROVIDE YOUR DEALERSHIP WITH A TAN REFERENCE NUMBER. THIS NUMBER MUST BE WRITTEN ON THE RETURN TRANSMISSION CASE COVER BEFORE RETURNING THE UNIT TO ZF OF NORTH AMERICA, INC.

TO INCREASE THE EFFECTIVENESS OF THE PROGRAM, THE REMOVED TRANSMISSION UNIT MUST BE RETURNED IMMEDIATELY (NOT LATER THAN 1 WEEK AFTER DATE OF RECEIPT OF REPLACEMENT UNIT). UNDER NO CIRCUMSTANCES MAY THE REMOVED TRANSMISSION BE RETAINED OR PURCHASED BY THE DEALER. CORE CHARGE OF $3,000 PLUS ADMINISTRATION FEE WILL BE CHARGED TO THE DEALER OPEN ACCOUNT AFTER 60 DAYS.

THE REMOVED TRANSMISSION MUST BE RETURNED COMPLETE, INCLUDING SHIFTER ASSEMBLY, AS REMOVED FROM THE VEHICLE WITHOUT EXAMINATION OF THE UNIT OTHER THAN AS DESCRIBED IN PARAGRAPHS A, B, C, OR D ABOVE. DEALERSHIPS RETURNING UNITS THAT HAVE BEEN EVEN PARTIALLY DISASSEMBLED WILL BE JUDGED AS VIOLATING THIS PROCEDURE AND AS SUCH WILL BE SUBJECT TO BEING BILLED FOR ALL MATERIALS FURNISHED.

THE EXCHANGE UNIT WILL HAVE AN ENVELOPE ATTACHED TO IT. THIS ENVELOPE WILL CONTAIN:

RETURN SHIPPING LABEL REPORTING FORM LEAK IDENTIFICATION CHARTS IDENTIFICATION TAG EXPLANATION CHART

IMPORTANT: FOR CORVETTE OWNERS WHO WISH TO RETAIN ORIGINAL TRANSMISSION CASE, ZF OF NORTH AMERICA MUST BE ALLOWED TEN (10) WORK DAYS TO REPAIR ORIGINAL UNIT, PLUS SHIPPING TIME (APPROXIMATELY 3 TO 5 WORKING DAYS). IF AFTER INSPECTION OF THE ORIGINAL TRANSMISSION, IT IS DETERMINED TO BE NON- REPAIRABLE, THE DEALER WILL BE NOTIFIED THROUGH THE CHEVROLET TECHNICAL ASSISTANCE NETWORK (TAN) AND A REPLACEMENT TRANSMISSION WILL BE SHIPPED FROM ZF WITHIN TWENTY-FOUR (24) HOURS OF AUTHORIZATION FROM TAN.

F. PREPARATION FOR SHIPPING

DRAIN TRANSMISSION FLUID FROM THE CONCERNED UNIT. REPLACE THE DRAIN PLUG. DISCONNECT AND RETAIN SPEED SENSOR FROM REMOVED TRANSMISSION.

IMPORTANT: DO NOT REMOVE TRANSMISSION SHIFTER.

REMOVE ALL PLASTIC SHIPPING PLUGS AND COVERS FROM THE EXCHANGE UNIT AND INSTALL THEM ON THE REMOVED UNIT.

COMPLETE THE INFORMATION ON THE COMPLAINT TAG. REFER TO THE IDENTIFICATION TAG EXPLANATION CHART.

IF TRANSMISSION LEAKS (SEE ILLUSTRATIONS ATTACHED), CLEAN LEAK AREAS, POWDER, AND MARK LEAK AREA ON TRANSMISSION. MARK AREA OF LEAKAGE ON ILLUSTRATIONS WITH RED PEN. WRITE TAN REFERENCE NUMBER ON LEAK IDENTIFICATION FORMS.

FOLD THE REPORT FORM, STAPLE IT TO THE COMPLAINT TAG AND SECURE THE TAG TO THE CLUTCH HOUSING BOLT HOLE OF THE REMOVED UNIT. FOLD AND STAPLE THE LEAK IDENTIFICATION FORMS TO THE SAME TAG.

WRITE THE TAN REFERENCE NUMBER ON THE CASE COVER OF THE REMOVED TRANSMISSION AND ON THE WARRANTY INFORMATION REPORTING FORM.

REPACK THE REMOVED UNIT INTO THE ORIGINAL SHIPPING CONTAINER.

PLACE LEAK IDENTIFICATION CHARTS AND COPY OF REPAIR ORDER IN ORIGINAL ENVELOPE AND ATTACH TO ORIGINAL TRANSMISSION.

G. SHIPPING INSTRUCTIONS

PLACE THE NEW SHIPPING LABEL OVER THE OLD SHIPPING LABEL ON THE ORIGINAL SHIPPING CONTAINER.

DEALER SHOULD COMPLETE A BILL OF LADING WITH *** PREPAID *** FREIGHT (CHARGED TO THE REPAIR ORDER).

THE REMOVED TRANSMISSION IS TO BE SHIPPED *** PREPAID *** TRUCK FREIGHT TO:

ZF OF NORTH AMERICA, INC. 777 HICKORY HILL DR. VERNON HILL, IL 60061 ATT'N.: DOCK 10 847-634-3500, EXT 141

THE SAME DAY THE INSTALLATION IS COMPLETED !

TO INCREASE THE EFFECTIVENESS OF THE PROGRAM, THE REMOVED UNIT SHOULD BE RETURNED IMMEDIATELY. FAILURE TO RETURN THE REMOVED UNIT WILL RESULT IN THE DEALERSHIP BEING BILLED $3,000.00 FOR THE UNIT FURNISHED, PLUS AN ADMINISTRATIVE CHARGE.

H. WARRANTY CLAIMS PROCESSING PROCEDURE

UPON COMPLETION OF THE REPAIR, A WARRANTY CLAIM IS TO BE SUBMITTED TO CHEVROLET FOR ONLY THE LABOR FOR THE REMOVAL AND REPLACEMENT OF THE EXCHANGE TRANSMISSION AND THE TRANSMISSION FLUID (PART #1052931).

WARRANTY INFORMATION:

FOR VEHICLES REPAIRED UNDER WARRANTY, USE:

LABOR OPERATION NUMBER: K2720 (USE CURRENTLY ISSUED LABOR TIME)

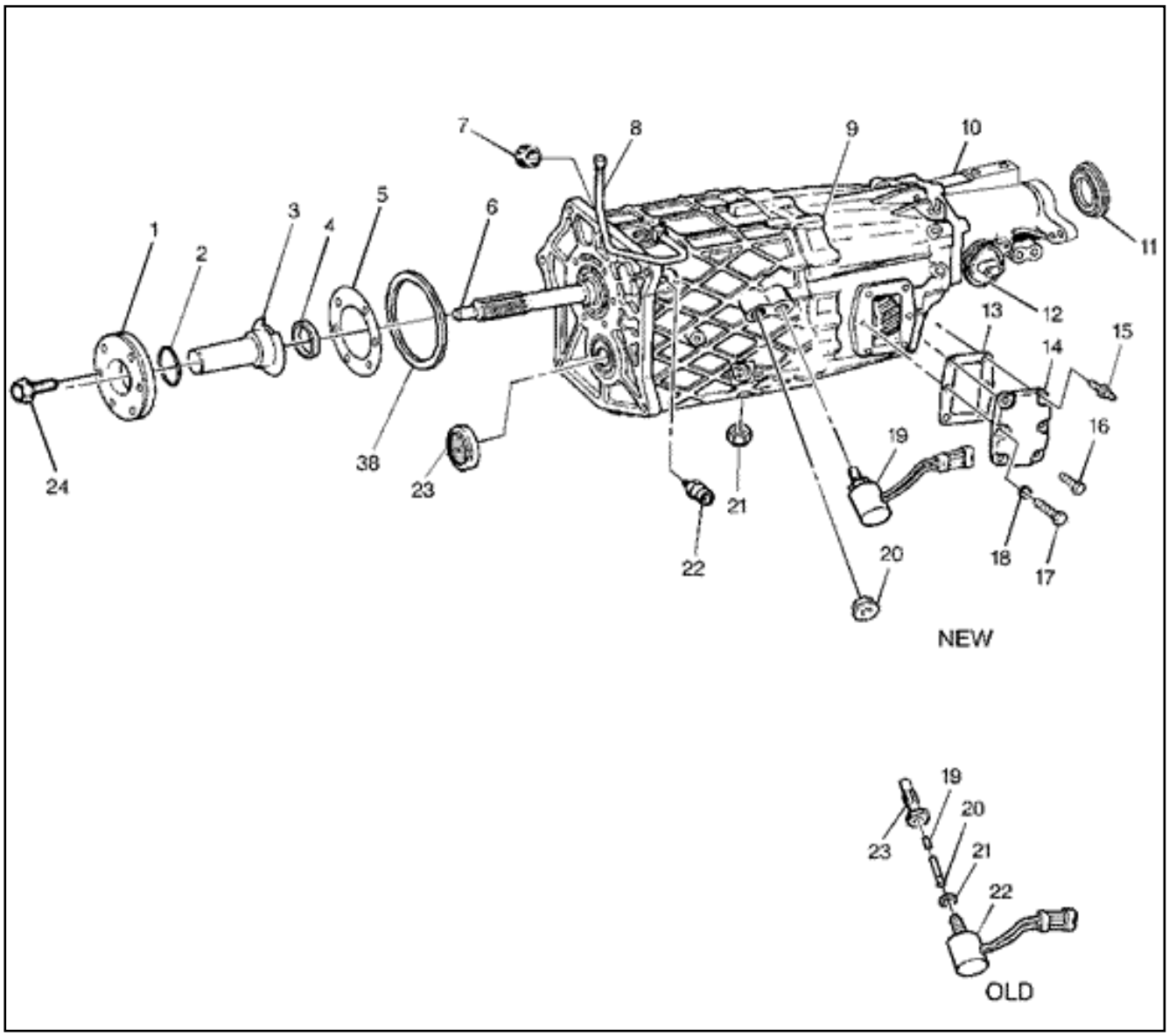
PARTS: APPLICABLE TRANSMISSION FLUID

ADD: 0.2 HRS. ADMINISTRATIVE TIME TO REGULAR LABOR HOURS

DMN (SECTION H): PREPAID FREIGHT CHARGES AND TOWING IF APPLICABLE

YOUR COOPERATION IS GREATLY APPRECIATED. PROMPT RETURN OF THE REMOVED TRANSMISSION WILL INCREASE THE EFFECTIVENESS OF THIS PROGRAM. IF YOU HAVE ANY QUESTIONS REGARDING THE EXCHANGE PROGRAM ADMINISTRATIVE PROCEDURES, PLEASE CONTACT THE CHEVROLET TECHNICAL ASSISTANCE NETWORK (TRANSMISSION GROUP).

Figure 1


1
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NEW
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OLD

Figure 2

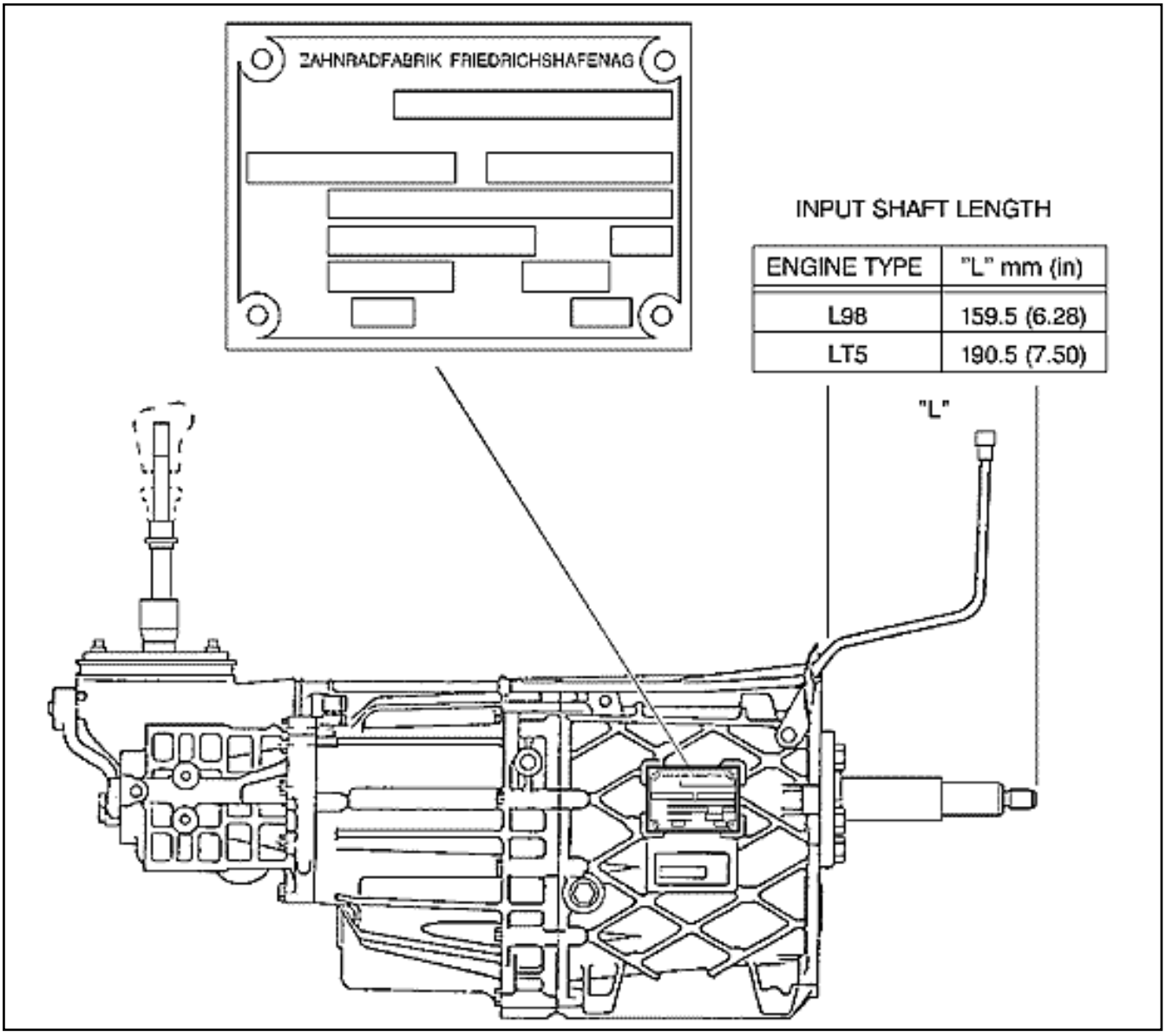
ZAHNRADFABRIK FRIEDRICHSHAFENAG
INPUT SHAFT LENGTH
ENGINE TYPE
"L" mm (in)
L98
159.5 (6.28)
LT5
190.5 (7.50)
"L"

Figure 3

1	2	3	4	5	6	7	8	9	10	11	12	13	14
A													
B													
C													
D													
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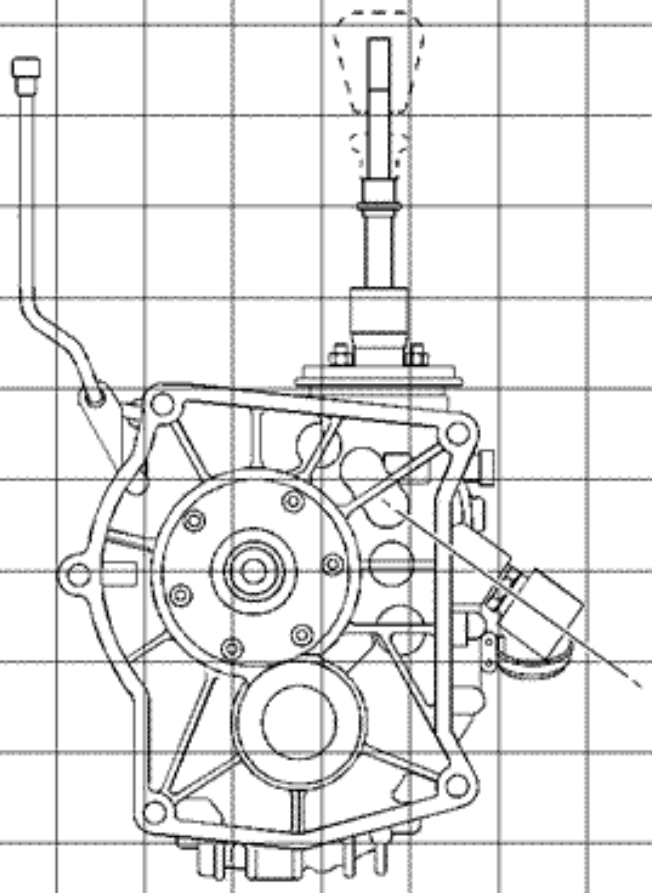

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Figure 4

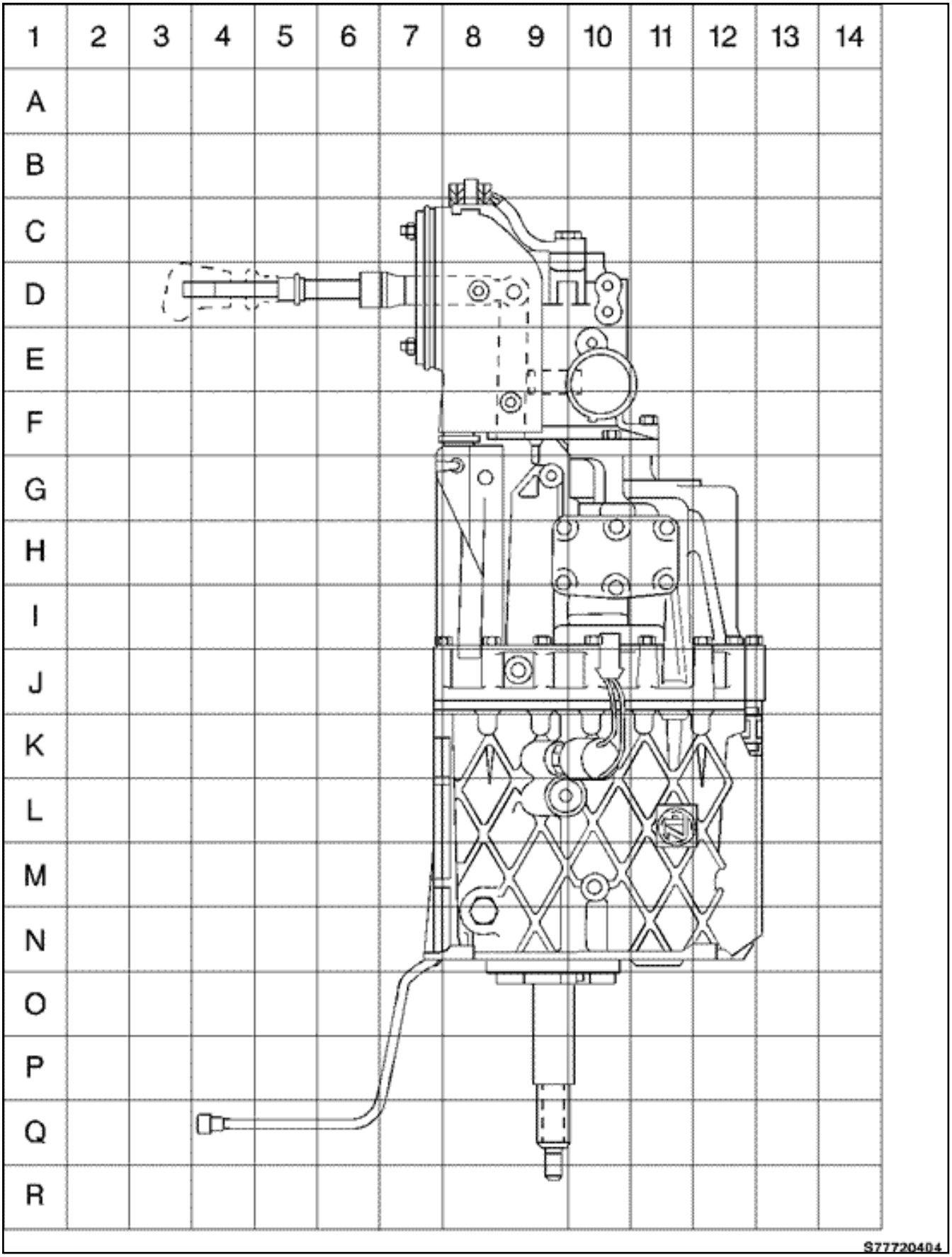
1 2 3 4 5 6 7 8 9 10 11 12 13 14
A B C D E F G H I J K L M N O P Q R
S77720404

Figure 5

1	2	3	4	5	6	7	8	9	10	11	12	13	14
A													
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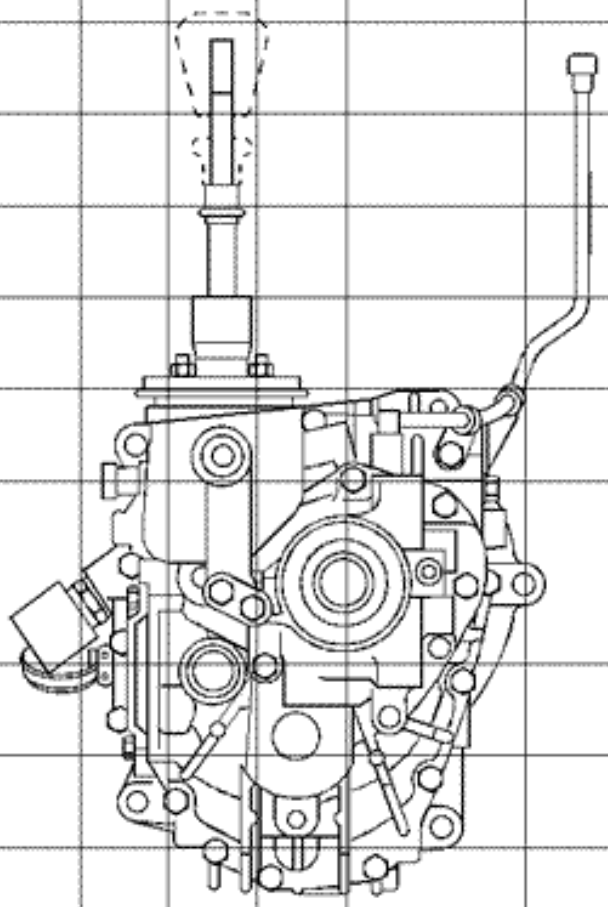

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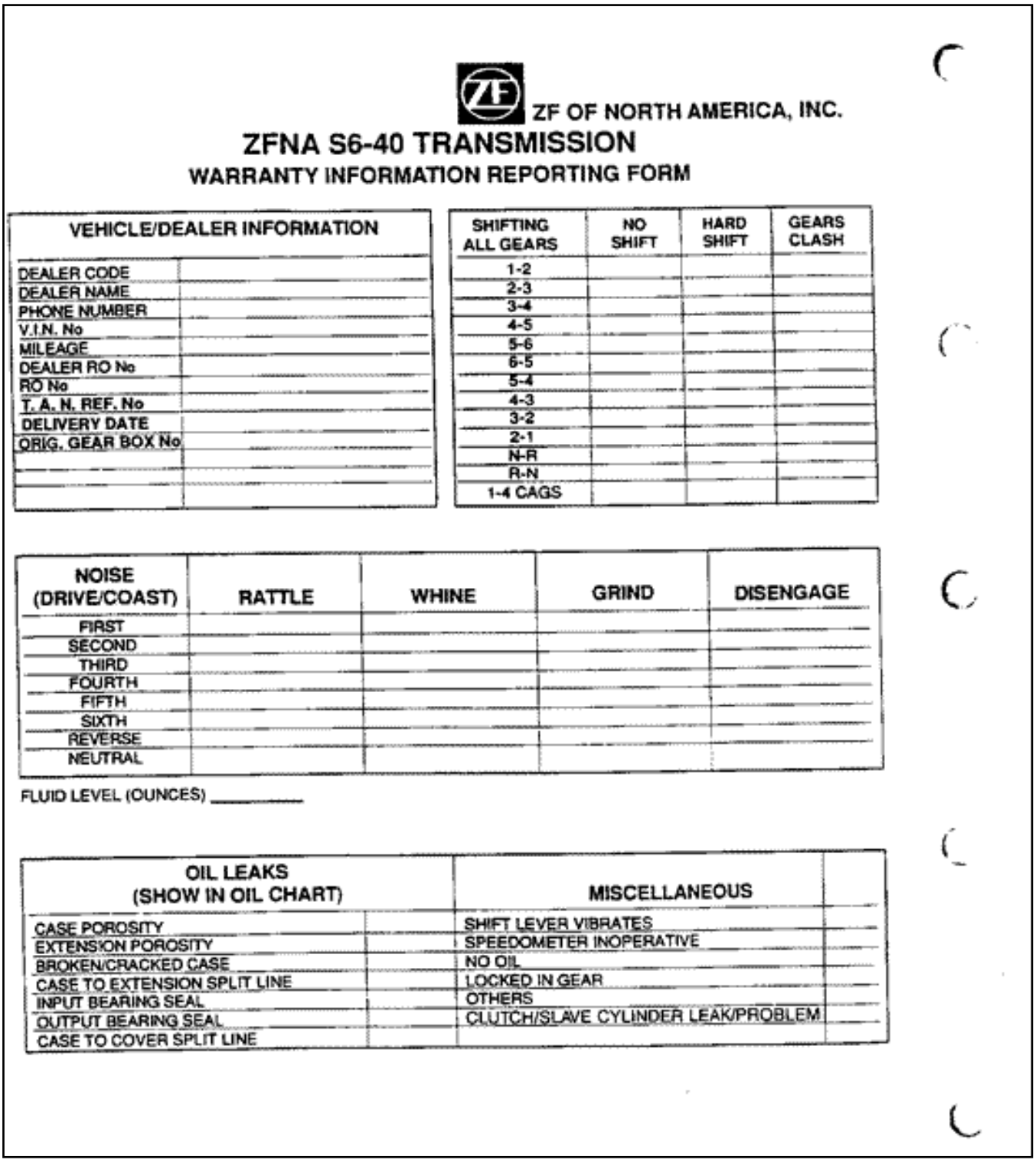
Figure 6



ZF OF NORTH AMERICA, INC.

ZFNA S6-40 TRANSMISSION

WARRANTY INFORMATION REPORTING FORM

VEHICLE/DEALER INFORMATION	
DEALER CODE	
DEALER NAME	
PHONE NUMBER	
V.I.N. No	
MILEAGE	
DEALER RO No	
RO No	
T. A. N. REF. No	
DELIVERY DATE	
ORIG. GEAR BOX No	

SHIFTING ALL GEARS	NO SHIFT	HARD SHIFT	GEARS CLASH
1-2			
2-3			
3-4			
4-5			
5-6			
6-5			
5-4			
4-3			
3-2			
2-1			
N-R			
R-N			
1-4 CAGS			

NOISE (DRIVE/COAST)	RATTLE	WHINE	GRIND	DISENGAGE
FIRST				
SECOND				
THIRD				
FOURTH				
FIFTH				
SIXTH				
REVERSE				
NEUTRAL				

FLUID LEVEL (OUNCES) _____

OIL LEAKS (SHOW IN OIL CHART)		MISCELLANEOUS	
CASE POROSITY		SHIFT LEVER VIBRATES	
EXTENSION POROSITY		SPEEDOMETER INOPERATIVE	
BROKEN/CRACKED CASE		NO OIL	
CASE TO EXTENSION SPLIT LINE		LOCKED IN GEAR	
INPUT BEARING SEAL		OTHERS	
OUTPUT BEARING SEAL		CLUTCH/SLAVE CYLINDER LEAK/PROBLEM	
CASE TO COVER SPLIT LINE			

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