



91-2, *Publication Date: JANUARY 23, 1991*

| | |
|---|--------------------------------|
| <ul style="list-style-type: none">• Chassis - Low Clearance Concerns - Low Profile Or Low Rider Models With 6.6L And 7.8L Ford Diesel Engines• Oil - Filter - 6.6L And 7.8L Ford Diesel - New Shorter Filter Available for "Low Profile Or Low Rider" Models | Article No. 91-2-14 |
|---|--------------------------------|

MEDIUM/HEAVY TRUCK:

1987-91 CARGO SERIES, F & B SERIES, L SERIES

ISSUE:

A new shorter oil filter (FOHZ-6731-B) is available to resolve chassis clearance concerns on the subject engines and model applications. This shorter filter services all 6.6L & 7.8L engines that incorporate two "spin on" full flow oil filters. The new oil filter does not change the requirement that three additional quarts of oil be added to the crankcase when changing oil and filters.

ACTION:

Install two oil filters (FOHZ-6731-B; Motorcraft FL-811-B) when changing oil and filters.

NOTE:

OIL FILTER (E7HZ-6731-A) MAY CONTINUE TO BE USED ON 6.6L & 7.8L ENGINES NOT INSTALLED IN F SERIES "LOW PROFILE OR LOW RIDER" MODELS UNTIL INVENTORY IS EXHAUSTED.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 401000, 499000

Bulletin Contents

TSB Article 91-2-15 has been superseded by Article 91-3-12.



91-3, *Publication Date: FEBRUARY 2, 1991*

| | |
|--|--------------------------------|
| Brakes - Rear - "Lucas Girling A2LS" - Hydraulic Or Air-Over-Hydraulic - Availability Of Service Brake Assemblies | Article No. 91-3-12 |
|--|--------------------------------|

MEDIUM/HEAVY TRUCK:

1984-91 C SERIES

1985-91 F & B SERIES, L SERIES

1986-91 CARGO SERIES

This TSB article is being republished in its entirety to provide more specific instructions for returning the brake assembly cores.

ISSUE:

Complete "Lucas Girling A2LS" rear hydraulic brake assemblies are now available for service. These assemblies contain the backing plate, bridge tube, bleeder screw, adjuster cylinder, expander cylinder, return springs and the appropriate shoe and lining assemblies.

ACTION:

If service is required, refer to the following Rear Hydraulic Brake Service Assemblies Application Chart for the correct brake assembly. Refer to the appropriate Medium/Heavy Truck Shop Manual, Sections 12-01 and 12-03 for service details.

CAUTION:

NEW REAR BRAKELININGS MUST BE INSTALLED ON THE OPPOSITE HANDED BRAKE WHEN INSTALLING A COMPLETE BRAKE ASSEMBLY ON ONLY ONE SIDE OF THE VEHICLE. ALWAYS REPLACE BRAKE LININGS IN AXLE SETS.

NOTE:

APPLY PIPE SEALANT (D8AZ-19554-A) TO THE SPRING CHAMBER MOUNTING THREADS PRIOR TO MOUNTING THEM ON THE BRAKE ASSEMBLY.

NOTE:

15"x7" REAR BRAKE ASSEMBLIES ARE NOT AVAILABLE WITH 13,000 AND 15,000 LB. REAR AXLES.

The Lucas Girling A2LS rear hydraulic brake assemblies are eligible for core allowance payment. The core return portion of the program will consist of warranty and non-warranty parts. Instructions on how to claim the core allowance credit are in the Warranty and Policy Manual, Section 6.1, pages 5-7.

NOTE:

LUCAS GIRLING REAR BRAKE ASSEMBLY CORES SHOULD BE DRAINED OF FLUID AND RETURNED FULLY INTACT IN THE ORIGINAL CRATE. MAKE SURE TO FILL OUT THE INFORMATION CARD. RETURN IT IN THE CRATE WITH THE CORE TO VENCHURS PACKAGING INC. AT THE ADDRESS BELOW. CALL VENCHURS PACKAGING (800-344-8145) AND REQUEST A RETURN AUTHORIZATION NUMBER. VENCHURS WILL ISSUE AN UPS CALL TAG AND UPS WILL CONTACT THE DEALER FOR PICKUP OF THE CORE.

ADDRESS:

- **VENCHURS PACKAGING INC.**
- **800 TABOR STREET**
- **ADRIAN, MICHIGAN 49221**

OTHER APPLICABLE ARTICLES:

90-5-12

SUPERSEDES: 91-2-15

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 301000



91-3, *Publication Date: FEBRUARY 2, 1991*

| | |
|--|--------------------------------|
| <ul style="list-style-type: none">• Engine - Cummins L10 - Oil Filler Tube Cracked• Leaks - Oil From Filler Tube Mounting Plate - Cummins L10 - Vehicles Built From 1/02/90 To 12/01/90 | Article No. 91-3-13 |
|--|--------------------------------|

MEDIUM/HEAVY TRUCK:

1990-91 L SERIES

ISSUE:

The one-piece oil filler tube assembly may crack where the tube is welded/brazed to the mounting plate. In addition, the dipstick guide tube may interfere with the oil pick-up tube on rear sump oil pan applications. An oil leak may result because this interference causes the mounting plate not to rest flat against the engine mounting surface.

ACTION:

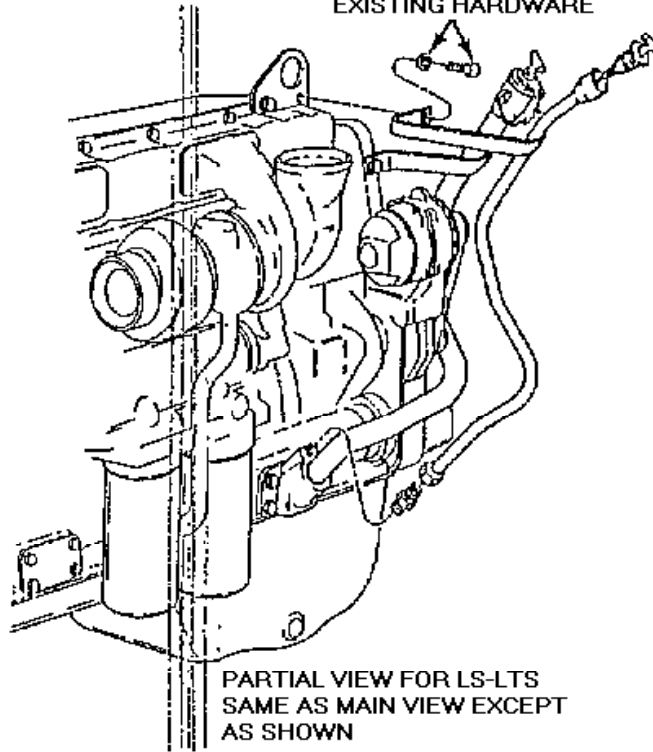
Use the following procedure to eliminate the interference condition on rear sump engines.

SERVICE PROCEDURE

1. Cut off and throw away the original plugged dipstick guide tube. (The "dummy" tube is not needed in this application.) Make the cut near the mounting plate, about an inch away.
2. Plug the shortened tube with the original plug (-6B507-) which can be removed from the tube that was just cut off.
3. Modify the existing one-piece oil filler tube as follows:
 - a. Cut the tube about 10" from the mounting plate between the two bends, Figure 1.

FRONT SUMP ENGINE

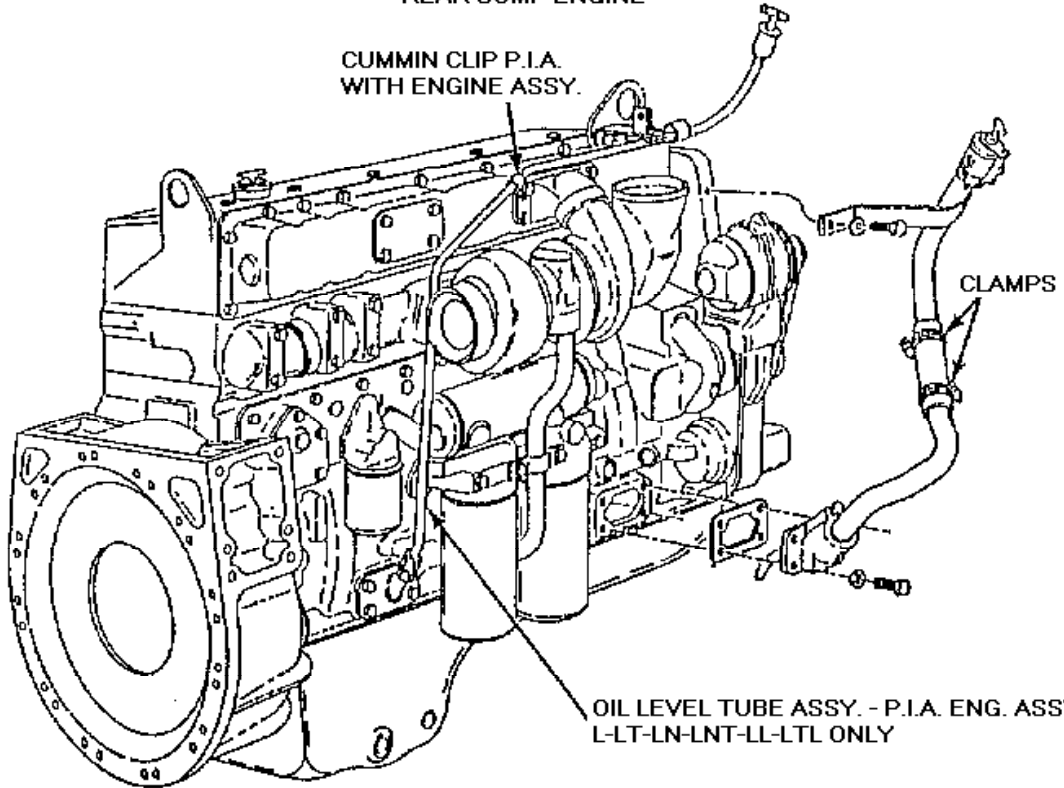
EXISTING HARDWARE



PARTIAL VIEW FOR LS-LTS
SAME AS MAIN VIEW EXCEPT
AS SHOWN

REAR SUMP ENGINE

CUMMIN CLIP P.I.A.
WITH ENGINE ASSY.



OIL LEVEL TUBE ASSY. - P.I.A. ENG. ASSY.
L-LT-LN-LNT-LL-LTL ONLY

Figure 1 - Article 91-3-13

- b. Install a rubber hose between the tubes, Figure 1.
- c. Secure the hose with two (2) hose clamps (D9AZ-8287-E).

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 401000, 499000



91-4, *Publication Date: FEBRUARY 20, 1991*

| | |
|--|--------------------------------|
| Steering - Unique Ackermann Arms - Service Part Application | Article No. 91-4-14 |
|--|--------------------------------|

MEDIUM/HEAVY TRUCK:

1991 and after L SERIES

ISSUE:

Unique Ackermann arms by wheelbase are available for 1991 and later model L-Series trucks with 14,600-20,000 lb. front axles.

ACTION:

If service is required, refer to the following Ackermann Arm Application Chart for correct parts usage. Refer to the 1991 L-Series Shop Manual, Section 13-24, for service details.

Both wheelbase ranges use greaseable tie rod (F1HZ-3280-A) or lube-for-life tie rod (F1HZ-3280-B).

NOTE:

THESE COMPONENTS ARE TO BE USED TO SERVICE ONLY 1991 AND LATER L-SERIES TRUCKS WITH 14,600 TO 20,000 LB. FRONT AXLES.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 303000



91-4, *Publication Date: FEBRUARY 20, 1991*

| | |
|---|--------------------------------|
| Radiator - Lower Hoses - Service Part Availability - 7.8L Ford Diesel Engine With The Jacket Water After Cooler (JAWC) | Article No. 91-4-15 |
|---|--------------------------------|

MEDIUM/HEAVY TRUCK:

1987-91 L SERIES

1988-91 F & B SERIES

ISSUE:

Individual lower radiator hoses are now available for service to replace the production "Branched Hose" assemblies.

ACTION:

If service is required, refer to the tables in Figure 1 for the specific "Branched Hose" assembly part number and the standard hose part number from which to obtain the required component part.

TABLE #1
(L-8000 SERIES MODELS w/ADTECH RAD)

| ENGINEERING P/N TO BE SERVICED | SERVICE P/N | REMARKS |
|--|---|---------|
| F1HT-8286-AYA -AYB -AYC -AYD -BGA -AZA -AZB -AZD -BHA E8HT-8626-BEA -BFA | F1HZ-8286-AA F1HZ-8286-AA F1HZ-8286-AA F1HZ-8286-AA F1HZ-8286-AA F1HZ-8286-BRA F1HZ-8286-BRA F1HZ-8286-BRA F1HZ-8286-AB E8HZ-8286-AD E8HZ-8286-AE | a/t |
| F1HT-8286-AUA -AUB -AUC -AUD -AVA -AVB -AVD E8HT-8286-BGA -BHA | F1HZ-8286-W F1HZ-8286-W F1HZ-8286-W F1HZ-8286-W FOHZ-8286-BPA FOHZ-8286-BPA FOHZ-8286-BPA E8HZ-8286-AB E8HZ-8286-AC | m/t |

TABLE #2
(F&B SERIES MODELS w/ADTECH RAD)

| ENGINEERING P/N TO BE SERVICED | SERVICE P/N | HOSE ID. | REMARKS |
|--|---------------------------------------|---------------|------------|
| FOHT-8286-ACA -ADA E9HT-8286-YA -ZA | FOHZ-8286-BMA -BNA -BMA -BNA | 1.94" 2.0" | m/t n/p |
| FOHT-8286-AEA -AFA E9HT-8286-AAA -ABA | FOHZ-8286-ADA -AFA -ADA -ABA | 1.94" 2.0" | m/t w/p |
| FOHT-8286-ANA -ASA E9HT-8286-AHA -AKA | FOHZ-8286-APA -ABA -APA -ABA | 1.94" 2.0" | a/t |

TABLE #3
(L-8000 SERIES MODELS w/NON-ADTECH RAD)

| ENGINEERING P/N TO BE SERVICED | SERVICE P/N | HOSE ID. | REMARKS |
|--------------------------------|-------------------|----------|---------|
| E7HT-8286-AC -BC | E8HZ-8286-J -K | 2.0" | m/t |
| E7HT-8286-VB -YB | -J -K | 2.0" | a/t |

TABLE #4
(F & B SERIES MODELS w/NON-ADTECH RAD)

| ENGINEERING P/N TO BE SERVICED | SERVICE P/N | HOSE ID. | REMARKS |
|--------------------------------|-------------------|----------|---------|
| E8HT-8286-BNA -BRA | E8HZ-8286-R -S | 2.0" | n/p |
| E8HT-8286-BLA -BMA | -U -T | 2.0" | w/p |

LEGEND: a/t = AUTO TRANS m/t = MANUAL TRANS n/p = no PTO w/p = with PTO

TB-1979-A

Figure 1 - Article 91-4-15

For any given model year and truck line, the only difference between the hoses for the 7.8L engine and any other HP rated Ford Diesel Engine is the added 3/4" ID "Branch" line for the JWAC. Therefore, the 2" ID main hoses for the JWAC engine can be cut from the lower non-branched hose of the other Ford Diesels to create the specific component parts for the "Branched" hoses.

The 3/4" ID branch line cannot be cut from other parts. It must be either cut from bulk hose for service or the entire branched assembly must be purchased. Cutting from bulk hose is recommended to avoid excessive costs.

The aluminum "tee" and original clamping rings can be reused. They are not currently available for service. If a clamping ring has been damaged, use a high capacity hose clamp (E9HZ-8287-A).

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 402000



91-5, *Publication Date: MARCH 6, 1991*

| | |
|---|--------------------------------|
| Air Conditioning - Compressor Drive Belt Jumps Off - 6.6L & 7.8L Ford Diesel Engines | Article No. 91-5-13 |
|---|--------------------------------|

MEDIUM/HEAVY TRUCK:

1986-91 F & B SERIES, L SERIES

ISSUE:

Air conditioning drive belts may jump off during normal operation on some trucks. This occurs because of differences in belt alignment/tensioning and design tolerance variations.

ACTION:

Install a drive belt stabilizer guide to keep the drive belts from jumping off. Refer to the following procedure for service details.

VEHICLES WITH A SANDEN A/C COMPRESSOR

1. Use a 1/2" drive belt for both the 6.6L and 7.8L engine applications.
 - 6.6L - Use belt C9PZ-8620-CZ
 - 7.8L - Use belt E4PZ-8620-B
2. Install a drive belt stabilizer guide (F1HZ-19E759-A) on the tension side of the the belt circuit, Figure 1.

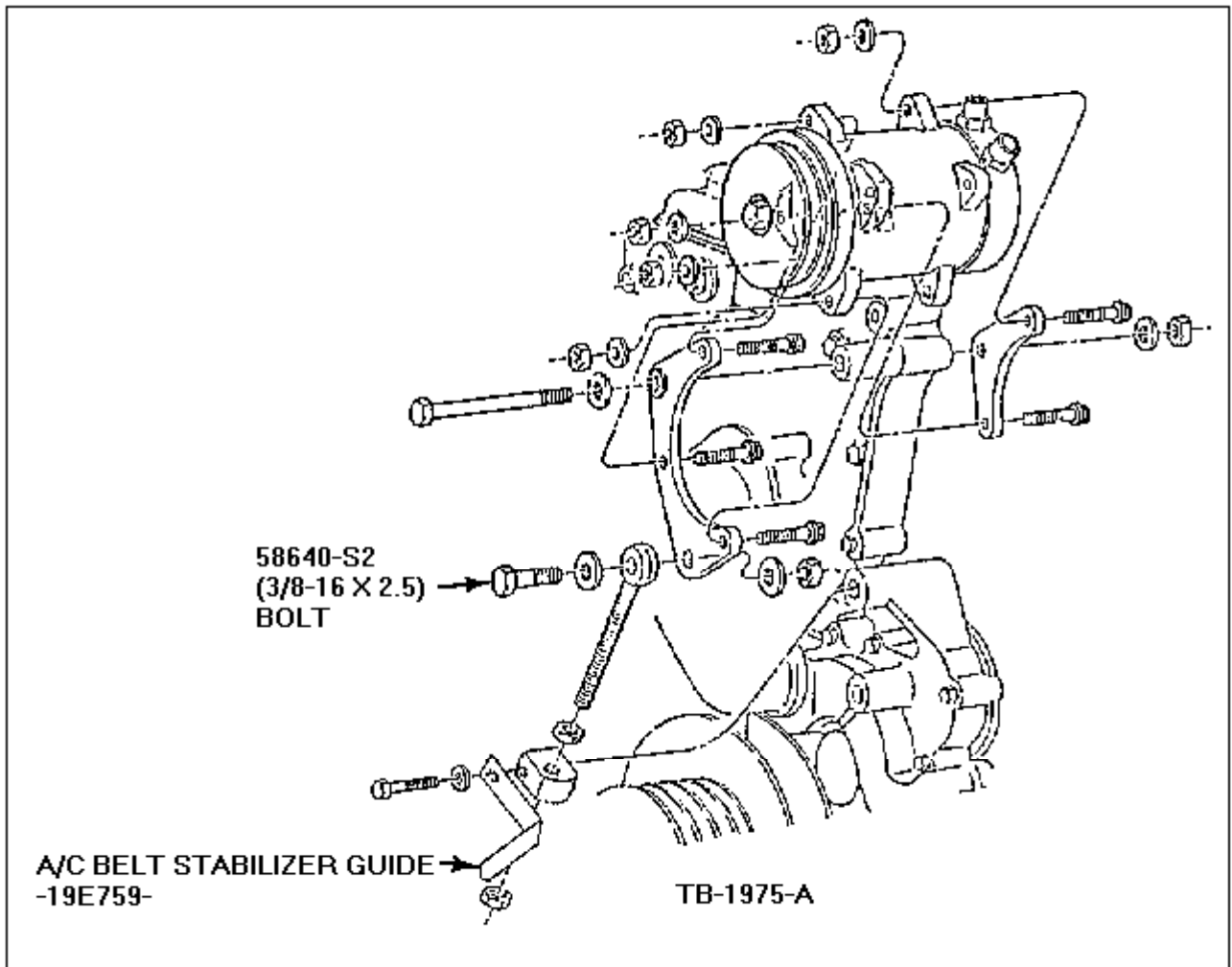


Figure 1 - Article 91-5-13

3. Remove and scrap the idler pulley and attaching hardware from the slack side of the belt circuit, Figure 2.

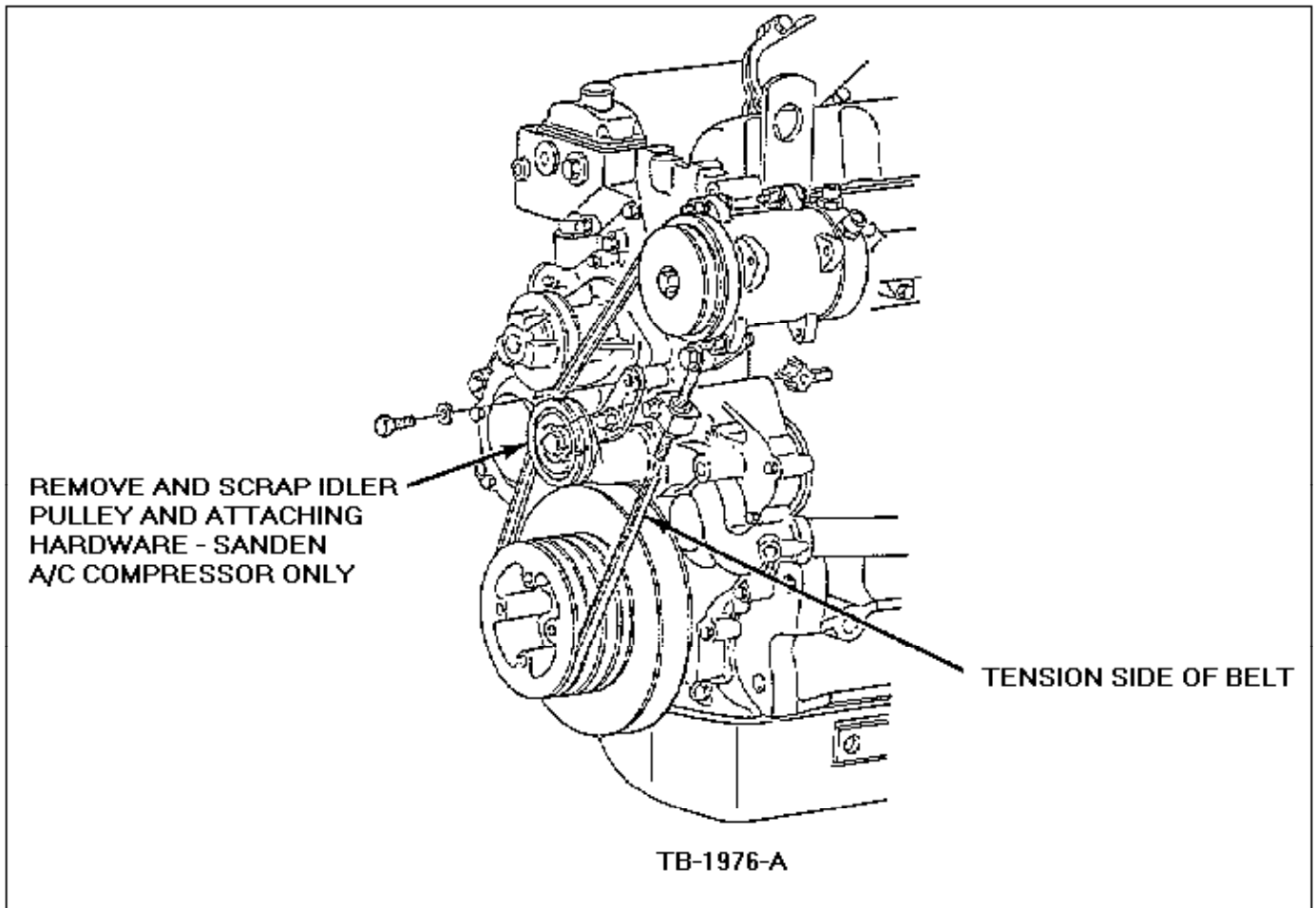


Figure 2 - Article 91-5-13

4. Replace the production installed A/C adjuster block bolt with the longer 3/8-16 X 2.50 bolt (58640-S2). Tighten to 26-35 lb-ft. (35-47 N-m). This bolt is required because the added thickness of the stabilizer guide reduces the thread engagement.

VEHICLES WITH THE FS-6 A/C COMPRESSOR

1. Install the stabilizer guide (F1HZ-19E759-A) and 3/8-16 X 2.50 bolt (58640-S2). Tighten to 26-35 lb-ft. (35-47 N-m).
2. Do not remove the idler pulley.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 208000, 208999, 208200



91-5, *Publication Date: MARCH 6, 1991*

| | |
|--|--------------------------------|
| Clutch - Converting From Borg Warner To Spicer - Component Identification Information | Article No. 91-5-14 |
|--|--------------------------------|

MEDIUM/HEAVY TRUCK:
1986-90 CARGO SERIES

This TSB article is being reissued in its entirety to reflect revised and additional clutch hardware.

ISSUE:

Spicer CASIA (Cast Angle Spring Internal Assist) clutch components and SAS (Stamped Angle Spring) clutch components are now available for service use. These same clutches are used in production for improved durability. The CASIA clutch is used on all synchronized transmission applications, while the SAS clutch is used on the non-synchronized transmission applications.

ACTION:

To install the Spicer ceramic disc clutch components, refer to the Spicer Clutch Part Number Cross-Reference Chart, Figure 1, for correct parts usage. Refer to the 1986-90 Cargo Shop Manual, Sections 16-01 and 16-02 for clutch service details.

CAUTION:

UNDER NO CIRCUMSTANCES ARE BORG WARNER AND SPICER CLUTCH PARTS TO BE MIXED OR INSTALLED ON THE SAME TRUCK.

NOTE:

THE DECISION ON PILOT BEARING REPLACEMENT SHOULD BE MADE AT CLUTCH INSTALLATION. IF THE FLYWHEEL HAS A SPICER CLUTCH MOUNTING PATTERN, THE TWO DOWEL PINS IN THE FLYWHEEL USED TO LOCATE A BORG-WARNER CLUTCH SHOULD BE REMOVED. A 5/8" ACCESS (PUNCH) HOLE IS PROVIDED IN THE FRONT FLYWHEEL FACE FOR DOWEL PIN REMOVAL. FOR 1986 VEHICLES WITH FLYWHEELS (SIX BOLT MOUNTING) THAT DO NOT CONTAIN THE SPICER MOUNTING PATTERN, A NEW FLYWHEEL (E6HZ-6375-B) IS REQUIRED. REFER TO TSB [«90-5-15»](#).

OTHER APPLICABLE ARTICLES:

90-5-15

SUPERSEDES: 90-23-19

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 506000



91-6, *Publication Date: MARCH 18, 1991*

| | |
|--|-------------------------------|
| Paint - Codes - Revised 1991 Fleet Color Paint Code Numbers | Article No. 91-6-2 |
|--|-------------------------------|

FORD:

1991 CROWN VICTORIA, ESCORT, MUSTANG, TAURUS, TEMPO, THUNDERBIRD

LINCOLN-MERCURY:

1991 CONTINENTAL, COUGAR, GRAND MARQUIS, MARK VII, SABLE, TOPAZ, TOWN CAR

LIGHT TRUCK:

1991 AEROSTAR, BRONCO, ECONOLINE, EXPLORER, F-150-350 SERIES, RANGER

MEDIUM/HEAVY TRUCK:

1991 C SERIES, CARGO SERIES, F & B SERIES, L SERIES

ISSUE:

Revised 1991 Domestic and Fleet Color Paint Code Charts are now available.

ACTION:

If service is required, Refer to the revised Domestic and Fleet Color Paint Code Charts shown in Figures 1 thru 5.

SERVICE REFINISH CODES

WHITES

| <u>Ford Code #</u> | <u>Akzo</u> | <u>Acme-Rogers</u> | <u>Martin Senour</u> | <u>Sherwin-Williams</u> | <u>BASF</u> | <u>PPG</u> | <u>DuPont</u> |
|--------------------|-------------|--------------------|----------------------|-------------------------|-------------|------------|---------------|
| W0046A | FLNA4534 | 17204 | 10004 | J5-1704 | 76768 | 8709 | 6729 |
| W0069A | FLNA4012 | 17206 | 10006 | J5-1706 | 76770 | 8710 | 7168 |
| W0071A | FLNA4084 | 17208 | 11627 | J5-1708 | 76772 | 8712 | 94126 |
| W0091A | FLNA4020 | 17209 | 10008 | J5-1709 | 76773 | 8713 | 6733 |
| W0115A | FLNA4001 | 17213 | 10011 | J5-1712 | 76777 | 8717 | 508 |
| W0157A | FLNA4083 | 17217 | 10016 | J5-1717 | 76782 | 8722 | 6886 |
| W0330A | FLNA4003 | 26455 | 11008 | J5-3362 | 79986 | 8835 | 7372 |
| W0332A | FLNA4027 | 28490 | 11722 | J5-4944 | 77263 | 8857 | 7331 |
| W0619A | FLNA4203 | 9343 | 323398 | JX-8618 | 83248 | 90553 | H8941 |

CREAMS

| <u>Ford Code #</u> | <u>Akzo</u> | <u>Acme-Rogers</u> | <u>Martin Senour</u> | <u>Sherwin-Williams</u> | <u>BASF</u> | <u>PPG</u> | <u>DuPont</u> |
|--------------------|-------------|--------------------|----------------------|-------------------------|-------------|------------|---------------|
| W1030B | FLNA 1030 | 17221 | 10019 | J5-1720 | 76785 | 81626 | 7173 |
| W1100B | FLNA 1007 | 17224 | 10022 | J5-1328 | 76788 | 81629 | 1222 |
| W1677B | FLNA 1210 | 36907 | 36907 | 36907 | 80735 | 26130 | G8828 |

GRAYS

| <u>Ford Code #</u> | <u>Akzo</u> | <u>Acme-Rogers</u> | <u>Martin Senour</u> | <u>Sherwin-Williams</u> | <u>BASF</u> | <u>PPG</u> | <u>DuPont</u> |
|--------------------|-------------|--------------------|----------------------|-------------------------|-------------|------------|---------------|
| W2007C | FLNA7013 | 16133 | 94-8729 | JX-9290 | 76793 | 32663 | 7180 |
| W2032C | FLNA7014 | 17232 | 10029 | J5-1336 | 76796 | 32666 | 7183 |
| W2101C | FLNA7058 | 17237 | 10034 | J5-1730 | 83343 | 32671 | 6737 |
| W2166C | FLNA7016 | 17244 | 90-9881 | J5-357 | 76818 | 31953 | 7190 |
| W2180C | FLNA7011 | 17245 | 10041 | J5-746 | 76810 | 32678 | |
| W2323C | FLNA7023 | 18271 | 11641 | J5-5029 | 77278 | 32620 | 7808 |

BROWNS - BEIGES - TANS

| <u>Ford Code #</u> | <u>Akzo</u> | <u>Acme-Rogers</u> | <u>Martin Senour</u> | <u>Sherwin-Williams</u> | <u>BASF</u> | <u>PPG</u> | <u>DuPont</u> |
|--------------------|-------------|--------------------|----------------------|-------------------------|-------------|------------|---------------|
| W3004N | FLNA7018 | 17253 | 10048 | J5-1741 | 80215 | 22998 | 7195 |
| W3028N | FLNA7010 | 17255 | 10050 | J5-1743 | 76826 | 21601 | 7196 |
| W3029N | FLNA7020 | 17256 | 90-488 | J5-1744 | 76827 | 23000 | 7197 |
| W3052N | FLNA7201 | 17257 | 10051 | J5-1745 | 76828 | 23001 | 96932 |
| W3053N | FLNA3053 | 17258 | 10052 | J5-1746 | 76829 | 23002 | 7198 |
| W3075N | FLNA7019 | 17259 | 90-8161 | J5-8085 | 76830 | 23003 | 6719 |

| | | | | | | | |
|--------|----------|-------|--------|---------|-------|-------|-------|
| W3075N | FLNA7012 | 17239 | 369401 | J5-0000 | 70000 | 23000 | 0742 |
| W3317N | FLNA7025 | 18216 | 11650 | J5-4957 | 79979 | 81963 | 7814 |
| W3341N | FLNA4032 | 16639 | 11651 | J5-4958 | 77290 | 22675 | 74224 |
| W3365N | FLNA7208 | 18252 | 11655 | J5-4961 | 77423 | 32976 | 67258 |
| W3381K | FLNA8015 | 44520 | 44520 | 44520 | 77558 | 23685 | 20168 |
| W3663K | FLNA8202 | 36909 | 36909 | 36909 | 80737 | 26132 | G8831 |

BROWNS METALLICS

| <u>Ford Code #</u> | <u>Akzo</u> | <u>Acme- Rogers</u> | <u>Martin Senour</u> | <u>Sherwin- Williams</u> | <u>BASE</u> | <u>PPG</u> | <u>DuPont</u> |
|-------------------------------|--------------------|--------------------------------|---------------------------------|-------------------------------------|--------------------|-------------------|----------------------|
| W3827N | FLNA9012 | 17423 | 10205 | J5-3962 | 76846 | 71669 | 7205 |
| W3830N | FLNA9004 | 17424 | 10206 | J5-1866 | 76847 | 23020 | 4793 |
| W3833N | FLNA9213 | 17425 | 10207 | J5-1867 | 76840 | 23021 | |
| W3837N | FLNA9005 | 17427 | 10209 | J5-1868 | 76850 | 23023 | 4807 |
| W3860N | FLNA9206 | 34672 | 13841 | 34672 | 833349 | 25533 | C8223 |
| W3875N | FLNA9208 | 36910 | 36910 | 36910 | 80738 | 26133 | G8829 |

TB-2072-A

Figure 1 - Article 91-6-2

SERVICE REFINISH CODES

REDS

| <u>Ford Code #</u> | <u>Akzo</u> | <u>Acme-Rogers</u> | <u>Martin Senour</u> | <u>Sherwin-Williams</u> | <u>BASF</u> | <u>PPG</u> | <u>DuPont</u> |
|---------------------------|--------------------|---------------------------|-----------------------------|--------------------------------|--------------------|-------------------|----------------------|
| W4520D | FLNA3038 | 34676 | 13845 | 34676 | 80767 | 50887 | 7854 |
| W4632D | FLNA3204 | 36911 | 36911 | 36911 | 80739 | 72984 | G8834 |
| W4640D | FLNA3202 | 36912 | 36912 | 36912 | 80740 | 72985 | G8832 |
| W4650D | FLNA3203 | 36913 | 36913 | 36913 | 83057 | 72986 | G8833 |
| W4672D | FLNA3205 | 36914 | 36914 | 36914 | 80742 | 72987 | G8835 |

RED METALLICS

| <u>Ford Code #</u> | <u>Akzo</u> | <u>Acme-Rogers</u> | <u>Martin Senour</u> | <u>Sherwin-Williams</u> | <u>BASF</u> | <u>PPG</u> | <u>DuPont</u> |
|---------------------------|--------------------|---------------------------|-----------------------------|--------------------------------|--------------------|-------------------|----------------------|
| W4860D | FLNA9046 | 34680 | 13849 | 34680 | 83329 | 72686 | 45761 |
| W4861D | FLNA9011 | 34681 | 13850 | 34681 | 83330 | 50789 | 6787 |

ORANGES

| <u>Ford Code #</u> | <u>Akzo</u> | <u>Acme-Rogers</u> | <u>Martin Senour</u> | <u>Sherwin-Williams</u> | <u>BASF</u> | <u>PPG</u> | <u>DuPont</u> |
|---------------------------|--------------------|---------------------------|-----------------------------|--------------------------------|--------------------|-------------------|----------------------|
| W5607E | FLNA2205 | 36915 | 36915 | 36915 | 80743 | 61154 | G8838 |
| W5615E | FLNA2203 | 36916 | 36916 | 36916 | 80744 | 61155 | G8836 |
| W5684E | FLNA2206 | 36918 | 36918 | 36918 | 80746 | 61157 | G8839 |
| W5685E | FLNA2208 | 36919 | 36919 | 36919 | 80747 | 61158 | G8841 |
| W5694E | FLNA2207 | 36920 | 36920 | 36920 | 80748 | 61159 | G8840 |

YELLOWS

| <u>Ford Code #</u> | <u>Akzo</u> | <u>Acme-Rogers</u> | <u>Martin Senour</u> | <u>Sherwin-Williams</u> | <u>BASF</u> | <u>PPG</u> | <u>DuPont</u> |
|---------------------------|--------------------|---------------------------|-----------------------------|--------------------------------|--------------------|-------------------|----------------------|
| W6210F | FLNA 1028 | 17335 | 10121 | J5-1796 | 76917 | 81661 | 6768 |
| W6642F | FLNA 1202 | 36922 | 36922 | 36922 | 80750 | 82752 | G8843 |
| W6644F | FLNA 1201 | 38223 | 38223 | 38223 | 83262 | 82824 | K8858 |
| W6675F | FLNA 1206 | 36924 | 36924 | 36924 | 80752 | 82754 | G8849 |
| W6684F | FLNA 1205 | 36925 | 36925 | 36925 | 80753 | 82755 | G8848 |
| W6695F | FLNA 1203 | 36927 | 36927 | 36927 | 80755 | 82757 | G8845 |

GREENS

| <u>Ford Code #</u> | <u>Akzo</u> | <u>Acme-Rogers</u> | <u>Martin Senour</u> | <u>Sherwin-Williams</u> | <u>BASF</u> | <u>PPG</u> | <u>DuPont</u> |
|---------------------------|--------------------|---------------------------|-----------------------------|--------------------------------|--------------------|-------------------|----------------------|
| W7080G | FLNA6020 | 17345 | 10131 | J5-1127 | 76927 | 43821 | 7233 |
| W7094G | FLNA6223 | 17348 | 10133 | J5-1804 | 76930 | 43824 | 94121 |

| | | | | | | | |
|---------|----------|-------|-------|---------|-------|-------|-------|
| W7168G | FLNA6021 | 17361 | 10145 | J5-1814 | 76943 | 43837 | 7240 |
| W7202G | FLNA6010 | 17368 | 10152 | J5-1820 | 76950 | 43844 | 54738 |
| W7327G | FLNA6022 | 44524 | 44524 | 44524 | 77331 | 44567 | 7373 |
| W7348G | FLNA6030 | 18299 | 11676 | J5-4981 | 77335 | 44570 | |
| W7361-G | FLNA6031 | 18243 | 11678 | J5-4983 | 77337 | 44572 | 7828 |
| W7385G | FLNA6019 | 15712 | 11685 | J5-4990 | 77347 | 43273 | |
| W7406G | FLNA6002 | 18244 | 11690 | J5-4994 | 77353 | 44109 | 7722 |
| W7514G | FLNA6018 | 34693 | 13862 | 34693 | 81670 | 43812 | 6740 |
| W7566G | FLNA6214 | 34694 | 13863 | 34694 | 83333 | 45853 | K8256 |
| W7600G | FLNA6202 | 36928 | 36928 | 36928 | 80756 | 46172 | G8851 |
| W7602G | FLNA6206 | 38747 | 38747 | 38747 | 83267 | 46268 | H8938 |
| W7603G | FLNA6201 | 36929 | 36929 | 36929 | 80757 | 46173 | G8850 |
| W7606G | FLNA6204 | 36930 | 36930 | 36930 | 80758 | 46174 | G8854 |
| W7627G | FLNA6209 | 38625 | 38625 | 38625 | 83270 | 46270 | H8949 |
| W7648G | FLNA6210 | 38233 | 38233 | 38233 | 81376 | 46271 | H8950 |
| W7658G | FLNA6203 | 36931 | 36931 | 36931 | 80759 | 46175 | G8852 |

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Figure 2 - Article 91-6-2

SERVICE REFINISH CODES

GREEN METALLICS

| <u>Ford Code #</u> | <u>Akzo</u> | <u>Acme-Rogers</u> | <u>Martin Senour</u> | <u>Sherwin-Williams</u> | <u>BASE</u> | <u>PPG</u> | <u>DuPont</u> |
|--------------------|-------------|--------------------|----------------------|-------------------------|-------------|------------|---------------|
| W7809G | FLNA9218 | 17430 | 10212 | J5-1871 | 76957 | 43856 | 95610 |
| W7814G | FLNA9215 | 17431 | 10213 | J5-1872 | 76958 | 43857 | 94886 |
| W7819G | FLNA9009 | 17432 | 10214 | J5-1873 | 76959 | 43858 | 6529 |
| W7824G | FLNA9006 | 17433 | 10215 | J5-1874 | 76960 | 43859 | 4814 |
| W7847G | FLNA9016 | 18803 | 11694 | J5-4998 | 77359 | 44272 | 15394 |
| W7862G | FLNA9232 | 34696 | 13865 | 34696 | 83339 | 45855 | 43517 |
| W7864G | FLNA9204 | 34698 | 13867 | 34698 | 83340 | 45857 | B8152 |

BLUES

| <u>Ford Code #</u> | <u>Akzo</u> | <u>Acme-Rogers</u> | <u>Martin Senour</u> | <u>Sherwin-Williams</u> | <u>BASE</u> | <u>PPG</u> | <u>DuPont</u> |
|--------------------|-------------|--------------------|----------------------|-------------------------|-------------|------------|---------------|
| W8002H | FLNA5012 | 17375 | 10158 | J5-1825 | 80007 | 13582 | 6544 |
| W8025H | FLNA5035 | 17378 | 10161 | J5-1828 | 76965 | 13585 | 7247 |
| W8026H | FLNA5036 | 17379 | 10162 | J5-1274 | 76966 | 12375 | 7248 |
| W8049H | FLNA5037 | 17382 | 10165 | J5-1831 | 76969 | 13588 | 7250 |
| W8096H | FLNA5016 | 17389 | 10172 | J5-1837 | 76976 | 12908 | 29509 |
| W8118H | FLNA5039 | 17391 | 10174 | J5-1838 | 76978 | 13593 | 7253 |
| W8119H | FLNA5017 | 17392 | 10175 | J5-1839 | 76979 | 13594 | 24160 |
| W8140H | FLNA5040 | 17394 | 10177 | J5-1840 | 76981 | 13596 | 7255 |
| W8161H | FLNA5018 | 17399 | 10182 | J5-1121 | 76986 | 13599 | 7260 |
| W8177H | FLNA5044 | 17400 | 10183 | J5-1844 | 76987 | 13600 | 7262 |
| W8304H | FLNA5213 | 18233 | 11695 | J5-4999 | 77360 | 14337 | 94937 |
| W8319H | FLNA5077 | 18227 | 11702 | J5-5007 | 77368 | 14340 | 6820 |
| W8342H | FLNA5045 | 18315 | 11539 | J5-4786 | 77374 | 14343 | 7270 |
| W8345H | FLNA5052 | 18231 | 11706 | J5-5010 | 83350 | 13306 | 7844 |
| W8347H | FLNA5205 | 9652 | 90-1627 | JX-9593 | 77377 | 12902 | 97332 |
| W8355H | FLNA5054 | 18234 | 11709 | J5-5013 | 83351 | 14344 | 7846 |
| W8363H | FLNA5055 | 18316 | 11710 | J5-5014 | 77381 | 14345 | 7847 |
| W8381H | FLNA5220 | 18318 | 11716 | J5-5019 | 77178 | 13898 | 63203 |
| W8520H | FLNA5022 | 34699 | 13868 | 34699 | 83352 | 15903 | 4943 |
| W8528H | FLNA5202 | 34703 | 13872 | 34703 | 81231 | 15907 | H8334 |

BLUE METALLICS

| <u>Ford</u> | <u>Acme-</u> | <u>Martin</u> | <u>Sherwin-</u> |
|-------------|--------------|---------------|-----------------|
|-------------|--------------|---------------|-----------------|

| <u>Code #</u> | <u>Akzo</u> | <u>Rogers</u> | <u>Senour</u> | <u>Williams</u> | <u>BASF</u> | <u>PPG</u> | <u>DuPont</u> |
|---------------|-------------|---------------|---------------|-----------------|-------------|------------|---------------|
| W8816H | FLNA9002 | 17437 | 10219 | J5-1878 | 76993 | 13607 | 95604 |
| W8829H | FLNA9210 | 17440 | 10222 | J5-1881 | 76996 | 13610 | 96926 |
| W8832H | FLNA9216 | 17441 | 10223 | J5-1882 | 76997 | 13611 | 95181 |
| W8836H | FLNA9219 | 17443 | 10225 | J5-1884 | 76999 | 13613 | 95805 |
| W8847H | FLNA9201 | 38751 | 38751 | 38751 | 83273 | 16563 | H8954 |
| W8866H | FLNA9202 | 34708 | 13877 | 34708 | 80559 | 15912 | K8462 |

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Figure 3 - Article 91-6-2

1991 DOMESTIC PAINT CODES

| *M* No. | Color Name | C/O or New | Car Code | Truck Code | PPG | DuPont | Sikkens | Martin- Senior Acme | BASF | Glasureit |
|----------------|--------------------------|---------------------------|---------------------|-----------------------|------------|---------------|----------------|--------------------------------|-------------|------------------|
| | | | | | | | | Rogers | R-M | |
| | | | | | | | | Sherwin- Williams | | |
| 6415 | Crystal Blue Frost C/C | CO | MD | - | 4214 | B9026 | FA90:MD | 41968 | 20070 | FD-6415 |
| 6416 | Bisque Frost C/C | CO | AD | - | 4206 | B9027 | FA90:AD | | 20074 | FD-6416 |
| 6417 | Alabaster Solid | CO | AJ | - | 4209 | B9028 | FA90:AJ | 41959 | 20073 | FD-6417 |
| 6421 | Woodrose C/C | CO | CD | - | 4212 | B9029 | FA90:CD | 41966 | 20079 | FD-6421 |
| 6422 | Med. Bisque C/C | CO | AC | - | 4218 | B9030 | FA90:AC | 41958 | 20077 | FD-6422 |
| 6425 | Elect. Currant Red C/C | CO | EG | EG | 4213 | B9031 | FA90:EG | 41967 | 20078 | FD-6425 |
| 6434 | Race Yellow C/C | CO | AG | - | 4207 | B9032 | FD90:AG | 41960 | 20081 | FD-6434 |
| 6435 | Past Alabaster Solid C/C | CO | AK | - | 4219 | B9033 | FA90:AK | 41963 | 20076 | FD-6435 |
| 6441 | Atlantic Blue Solid | N | K2 | K2 | 4290 | B9108 | FA91:K2 | 44083 | 21145 | FD-6441 |
| 6442 | Med. Titanium C/C | CO | YG | - | 4291 | B9115 | FA91:YG | 43996 | 20359 | FD-6442 |
| 6443 | Lt. Cranberry C/C | N | EW | - | 4293 | B9111 | FA91:EW | 44084 | 21155 | FD-6443 |
| 6444 | Med. Cranberry C/C | N | EX | - | 4287 | B9113 | FA91:EX | 44085 | 21156 | FD-6444 |
| 6445 | Dk. Cranberry C/C | N | ER | - | 4288 | B9110 | FA91:ER | 44086 | 21157 | FD-6445 |
| | | | | | | | | Martin- Senior Acme | BASF | |
| *M* No. | Color Name | C/O or New | Car Code | Truck Code | PPG | DuPont | Sikkens | Rogers | R-M | Glasureit |
| | | | | | | | | Sherwin- Williams | | |
| 6446 | Med. Amethyst Frost | N | KB | - | 4286 | B9104 | FA91:KB | 44087 | 21154 | FD-6446 |
| 6447 | Past St. Blue Frost | N | MB | - | 4284 | B9114 | FA91:MB | 44088 | 21152 | FD-6447 |
| 6448 | Sandalwood Spice C/C | CO | AB | - | 4292 | B9112 | FA90:AB | 43997 | 20361 | FD-6448 |
| 6450 | Med. Mocha C/C | N | DC | DC | 4283 | B9103 | FA91:DC | 44091 | 21147 | FD-6450 |
| 6451 | Newport Blue C/C | CO | - | KP | 4294 | B9105 | FA91:KP | 44083 | 21165 | FD-6451 |
| 6454 | Med. Platinum C/C | CO | RC | | 4296 | B9109 | FA91:RC | 44094 | 21162 | FD-6454 |
| 6456 | Jewel Green Met. | CO | PB | | 4295 | B9116 | FA91:PB | 44095 | 21159 | FD-6456 |
| 6465 | Mocha Frost | N | DD | DD | 4282 | B9101 | FA91:DD | 44092 | 21158 | FD-6466 |
| 6466 | White C/C | N | YZ | - | 4289 | B9145 | FA91:YZ | 44093 | 19046 | FD-6465 |
| 6470 | Vermillion C/C Solid | CO | E4 | - | 4217 | B8954 | FA91:AL | 42497 | 19079 | FD-6470 |
| 6472 | Med. Alabaster C/C | N | AL | - | 4285 | B9144 | FA91:A4 | 44285 | 21153 | FD-6472 |
| 6473 | Desert Tan | N | A4 | | 4297 | B9147 | FA90:YN | 44097 | 21170 | FD-6473 |
| 6505 | Silver C/C | CO | YN | | 4262 | D8806 | | 38357 | 21169 | FD-6505 |

TB-2075-A

Figure 4 - Article 91-6-2

1991 DOMESTIC PAINT CODES

| <u>"M" No.</u> | <u>Color Name</u> | <u>C/O or New</u> | <u>Car Code</u> | <u>Truck Code</u> | <u>PPG</u> | <u>DuPont</u> | <u>Sikkens</u> | <u>Martin- Senior Acme Rogers</u> | | <u>BASF R-M</u> | <u>Glasurit</u> |
|----------------|-----------------------|---------------------------|---------------------|-----------------------|---------------|---------------|----------------|---|-------|---------------------|-----------------|
| | | | | | | | | <u>Sherwin- Williams</u> | | | |
| 1724 | Black Solid | CO | YC | YC | 9000/ 9300 | 99S | FA90:YC | F10B- 1738(SW) | PKG | 21-1240 | |
| 5916 | Desert Tan Met. | CO | AT | | 3575 | B8341 | FA90:AT | 32816 | 13223 | FD-5916 | |
| 5920 | Oxford White Solid | CO | YO | YO | 3620 | B8424 | FA90:YO | 33631 | 14110 | FD-5920 | |
| 5979 | Br. Regatta Blue Met. | CO | MG | MG | 3745 | B8584 | FA90:MG | 34354 | 15119 | FD-5979 | |
| 6044 | Smoke Met. | CO | YW | | 3842 | B8641 | FA90:YW | 35380 | 16141 | FD-6044 | |
| 6153 | Med. Red Solid | CO | EM | EM | 3954 | B8778 | FA90:EM | 36434 | 17151 | FD-6153 | |
| 6156 | Med. Cabernet Solid | CO | EH | EH | 3936 | B8750 | FA90:EH | 36357 | 17131 | FD-6156 | |
| 6188 | Dk. Shadow Blue Met. | CO | MJ | | 3946 | B8775 | FA90:MJ | 36373 | 17144 | FD-6188 | |
| 6210 | White | CO | YY | | 3876 | B8687 | FA90:YY | 35521 | 16185 | FD-6210 | |
| 6214 | Lt. Smoke Met. | CO | YV | | 3843 | B8688 | FA90:YV | 35520 | 16180 | FD-6214 | |
| 6236 | Med. Scarlet Solid | CO | EN | | 3935 | B8753 | FA90:EN | 32356 | 17130 | FD-6236 | |
| 6253 | Lt. Sandalwood C/C | CO | AX | | 4067 | B8852 | FA90:AX | 37278 | 18139 | FD-6253 | |
| 6260 | Chestnut C/C | N | A9 | | 4077 | B8855 | FA91:A9 | 38161 | 18145 | FD-6260 | |
| 6261 | Dk. Chestnut C/C | N | A8 | | 4078 | B8857 | FA91:A8 | 38163 | 18148 | FD-6261 | |
| 6262 | Dk. Chestnut Met. | CO | CE | | 4080 | B8856 | FA90:CE | 37162 | 18146 | FD-6262 | |
| 6263 | M. Regatta Blue C/C | CO | ME | - | 4060 | B8836 | FA90:ME | 37274 | 18133 | FD-6263 | |
| 6282 | Med. Titanium Met. | N | YK | - | 4125 | D8856 | FA91:YK | 38807 | | | |
| 6290 | Twilight Blue C/C | CO | MK | MK | 4069 | B8835 | FA90:MK | 37280 | 18141 | FD-6290 | |

| <u>"M" No.</u> | <u>Color Name</u> | <u>C/O or New</u> | <u>Car Code</u> | <u>Truck Code</u> | <u>PPG</u> | <u>DuPont</u> | <u>Sikkens</u> | <u>Martin- Senior Acme Rogers</u> | | <u>BASF R-M</u> | <u>Glasurit</u> |
|----------------|------------------------|---------------------------|---------------------|-----------------------|------------|---------------|----------------|---|-------|---------------------|-----------------|
| | | | | | | | | <u>Sherwin- Williams</u> | | | |
| 6312 | Med. Sandalwood C/C | CO | AW | | 4066 | B8853 | FA90:AW | 37277 | 18138 | FD-6312 | |
| 6325 | Currant Red Solid | CO | EC | EC | 4161 | B8903 | FA90:EC | 39067 | 19051 | FD-6325 | |
| 6327 | Crystal Blue C/C | CO | KA | KA | 4165 | B9805 | FA90:KA | 39070 | 19066 | FD-6327 | |
| 6328 | Lt. Crystal Blue C/C | CO | MA | MA | 4171 | B8916 | FA90:MA | 39074 | 19052 | FD-6328 | |
| 6329 | Past Titanium Solid | CO | YD | - | 4261 | B9107 | FA91:YD | 44040 | 20360 | FD-6329 | |
| 6330 | Lt. Titanium C/C | CO | YF | - | 4121 | D8859 | FA90:YF | 38806 | 18157 | FD-6330 | |
| 6342 | Wild Strawberry C/C | CO | EL | EL | 4166 | D8829 | FA90:EL | 38461 | 18154 | FD-6342 | |
| 6346 | Vermillion Solid | CO | EP | EP | 4163 | B8902 | FA90:EP | 39068 | 19060 | FD-6346 | |
| 6373 | Ebony C/C | CO | UA | - | 9700 | 99S | FA90:UA | 38743 | 18183 | FD-6373 | |
| 6381 | Med. Currant Red C/C | CO | EE | - | 4173 | B8910 | FA90:EE | 39076 | 19057 | FD-6381 | |
| 6383 | Ultra Blue C/C | CO | MM | - | 4164 | B9021 | FA90:MM | 41969 | 20071 | FD-6323 | |
| 6390 | Dk. Titanium C/C | CO | YU | - | 4167 | B9806 | FA90:YU | 30971 | 19062 | FD-6390 | |
| 6392 | Pastel Alabaster Solid | CO | AH | AH | 4208 | B9022 | FA90:AH | 41961 | 20072 | FD-6392 | |
| 6395 | Sandalwood Frost C/C | CO | AP | - | 4210 | B9023 | FA90:AP | 41964 | 20075 | FD-6395 | |
| 6397 | M. Woodrose C/C | CO | CA | - | 4211 | B9024 | FA90:CA | 41965 | 20080 | FD-6397 | |
| 6401 | Titanium Frost C/C | CO | YX | - | 4216 | D8894 | FA90:YX | 40299 | 19266 | FD-6401 | |
| 6403 | Pawnee Tan Solid | CO | AV | | 4220 | B9034 | FA90:AV | 42575 | 20085 | FD-6403 | |
| 6406 | Glacier White Solid | CO | ZC | | 90677 | B8951 | FA90:ZC | 41116 | 20083 | FD-6406 | |
| 6414 | DP Jewel Green C/C | CO | PA | PA | 4215 | B9025 | FA90:PA | 41970 | 20082 | FD-6414 | |

Figure 5 - Article 91-6-2

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 106000



91-6, *Publication Date: MARCH 18, 1991*

| | |
|---|-------------------------------|
| Mirror - RH Rear View Adjustment | Article No. 91-6-8 |
|---|-------------------------------|

MEDIUM/HEAVY TRUCK:

1991 CARGO SERIES

ISSUE:

Some trucks may have been shipped with the RH rear view mirror improperly adjusted. The mirror may be in such a position that a portion of it is obstructed from the driver's view by the vertical bar separating the windows in the door.

ACTION:

Adjust the RH rear view mirror to provide adequate visibility, Figure 1. Refer to the 1991 Cargo Truck Shop Manual, Section 35-50, for correct installation torque specifications.

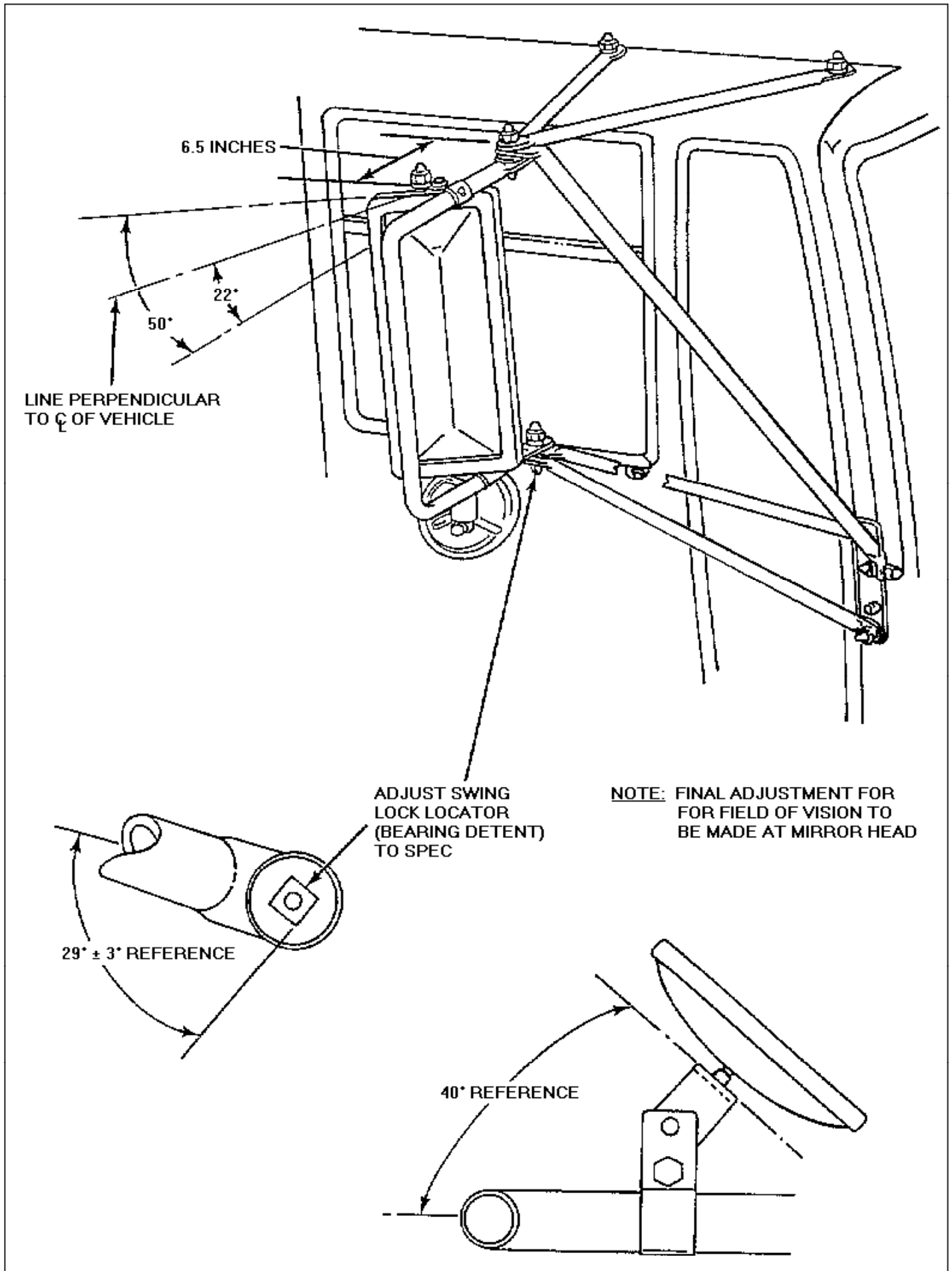


Figure 1 - Article 91-6-8

NOTE:

THE CORRECT ADJUSTMENT OF THE RH MIRROR IS NOT SYMMETRICAL WITH THE LH MIRROR. THEREFORE, WHEN THE RH MIRROR IS PROPERLY ADJUSTED, IT WILL BE APPARENT THAT THE RH AND LH MIRRORS ARE NOT IN THE SAME POSITION.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 103000



91-6, *Publication Date: MARCH 18, 1991*

| | |
|---|-------------------------------|
| <ul style="list-style-type: none">• Steering - "Squeaking" Noise From Column When Turning• Noise - "Squeaks" From Steering Column When Turning | Article No. 91-6-9 |
|---|-------------------------------|

MEDIUM/HEAVY TRUCK:
1986-91 CARGO SERIES

ISSUE:

A "Squeaking" noise may be heard in the steering column when the steering wheel is turned. This condition may be caused by lack of lubricant where the turn signal cam is retained to the signal/wiper switch mounting plate.

ACTION:

Lubricate the turn signal cam to eliminate the squeaking noise. Refer to the following service procedure for details.

SERVICE PROCEDURE

1. Remove the steering column shroud from the left hand side of the column.
2. Apply Ford Multi-Purpose Grease on the bottom flange of the turn signal return cam. Refer to Figure 1.

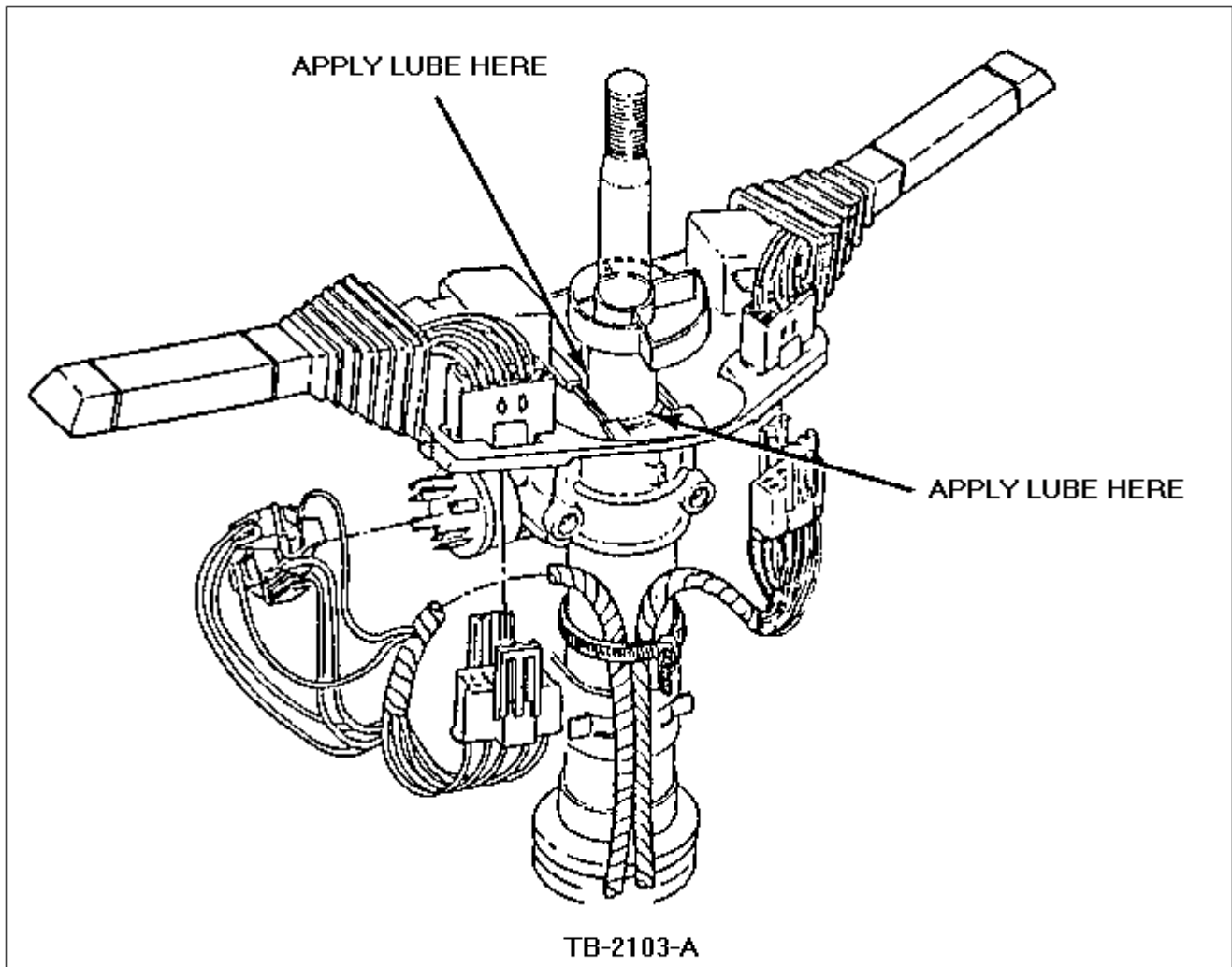


Figure 1 - Article 91-6-9

3. Turn the steering wheel to distribute the lube and verify the squeak is eliminated.
4. Re-install the steering column shroud.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 303000, 702000

**Engine - 6.6L & 7.8L Ford Diesel - Static Timing Specifications****Article No.
91-6-10****MEDIUM/HEAVY TRUCK:**

1991 CARGO SERIES, F & B SERIES, L SERIES

ISSUE:

Static timing specifications are available for 1991 6.6L and 7.8L engines. Two different engine calibrations have been used on these engines. The two calibrations can be identified by the two different engine family numbers on the engine information decal on the rocker arm cover.

ACTION:

If service is required, use the static timing specifications shown on the engine information decal and in the Static Specification Chart, Figure 1. DO NOT use the chart in the 1991 Truck Shop Manual.

| | FAMILY NUMBER | | | | | |
|---------------|---------------|---|-------|---------------|---|-------|
| | LFM 07.8 FPK9 | | | MFM 07.8 FPK8 | | |
| | Static Timing | Distance X (No. 2 Piston to Top of Block) | | Static Timing | Distance X (No. 2 Piston to Top of Block) | |
| MODEL | ANGLE | MM | IN | ANGLE | MM | IN |
| 6.6L (165 HP) | 7.5° | 94.92 | 3.737 | 7.5° | 94.92 | 3.737 |
| 6.6L (170 HP) | 8.5° | 95.58 | 3.763 | 7.5° | 94.92 | 3.737 |
| 6.6L (185 HP) | 8.5° | 95.58 | 3.763 | 7.5° | 94.92 | 3.737 |
| 7.8L (190 HP) | 8.0° | 113.06 | 4.451 | 8.0° | 113.06 | 4.451 |
| 7.8L (210 HP) | 9.0° | 113.23 | 4.480 | 9.5° | 114.00 | 4.488 |
| 7.8L (215 HP) | 7.0° | 112.24 | 4.419 | 6.0° | 111.46 | 4.388 |
| 7.8L (225 HP) | 10.0° | 114.48 | 4.507 | 9.5° | 114.00 | 4.488 |
| 7.8L (240 HP) | 10.5° | 112.24 | 4.521 | 10.0° | 114.48 | 4.507 |
| 7.8L (270 HP) | 9.0° | 113.92 | 4.480 | 8.5° | 113.28 | 4.460 |

TB-2114-A

Figure 1 - Article 91-6-10

NOTE:

THESE SPECS APPLY TO 1991 ENGINES AND NOT 1990 ENGINES IN 1991 MODEL YEAR TRUCKS.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 499000, 690000



91-6, *Publication Date: MARCH 18, 1991*

| | |
|--|--------------------------------|
| Engine - 7.8L Ford Diesel - High Idle Speed Specification | Article No. 91-6-11 |
|--|--------------------------------|

MEDIUM/HEAVY TRUCK:

1991 CARGO SERIES, F & B SERIES, L SERIES

ISSUE:

The high idle speed specification for the 1991 7.8L/270 HP engine is published incorrectly in the 1991 Truck Shop Manual.

ACTION:

When checking the high idle speed on the 1991 7.8L/270 HP engine use the specification from the Engine Information Decal and not the values specified in the 1991 Truck Shop Manual. This change applies to 1991 engines and not 1991 Model Year trucks with 1990 engines.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 499000, 690000



91-7, *Publication Date: APRIL 5, 1991*

Not enough memory.

MEDIUM/HEAVY TRUCK:

1991 CARGO SERIES, F & B SERIES, L SERIES

ISSUE:

Low fuel inlet pressure may be caused by a plugged screen in the fuel sedimenter bowl on the fuel lift pump. This is not listed as a possible cause in the 1991 Engine/Emissions-Diagnosis Shop Manual.

ACTION:

Clean the fuel sedimenter bowl and screen during every oil change to ensure adequate fuel inlet pressure. This recommendation applies to 1991 engines and not to 1991 model year vehicles with 1990 engines.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 404000, 614000, 614500, 614600



91-7, *Publication Date: APRIL 5, 1991*

- Air Conditioning - Temperature Control Lever Disengagement - Trucks With A/C Only
- Heat - Temperature Control Lever Disengagement - Trucks With A/C Only

Article No.
91-7-16

MEDIUM/HEAVY TRUCK:
1987-91 CL-CLT-9000 SERIES

ISSUE:

Lack of heat or air conditioning may be caused by the temperature control lever disengaging from the climate control module.

ACTION:

Install a new climate control assembly and, if necessary, reroute the RH control cable to reduce cable efforts. Refer to the following procedure for service details.

SERVICE PROCEDURE

1. If the climate control assembly is obtained from dealer stock, make sure it is the latest design level.
 - a. Look for the bracket part number (E4TH-18352-AA), Figure 1. This specific part number indicates that it is of the latest design level.

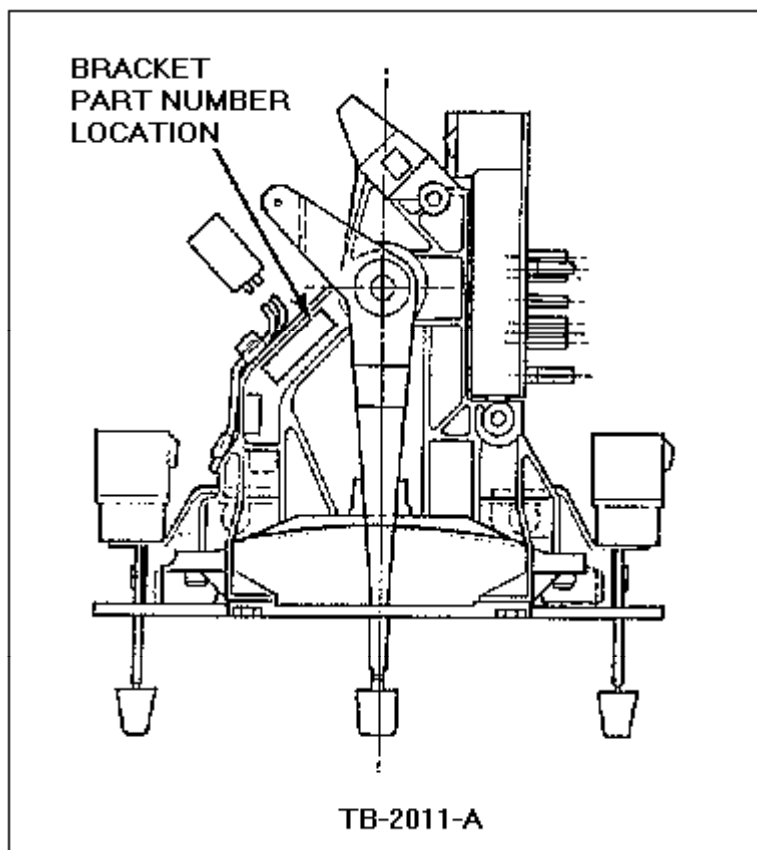
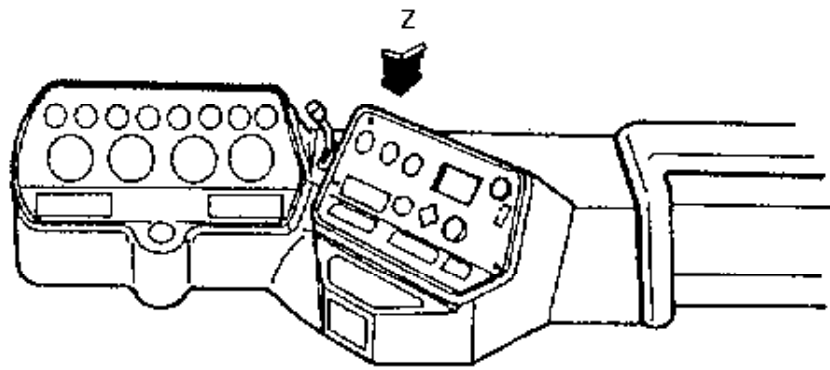
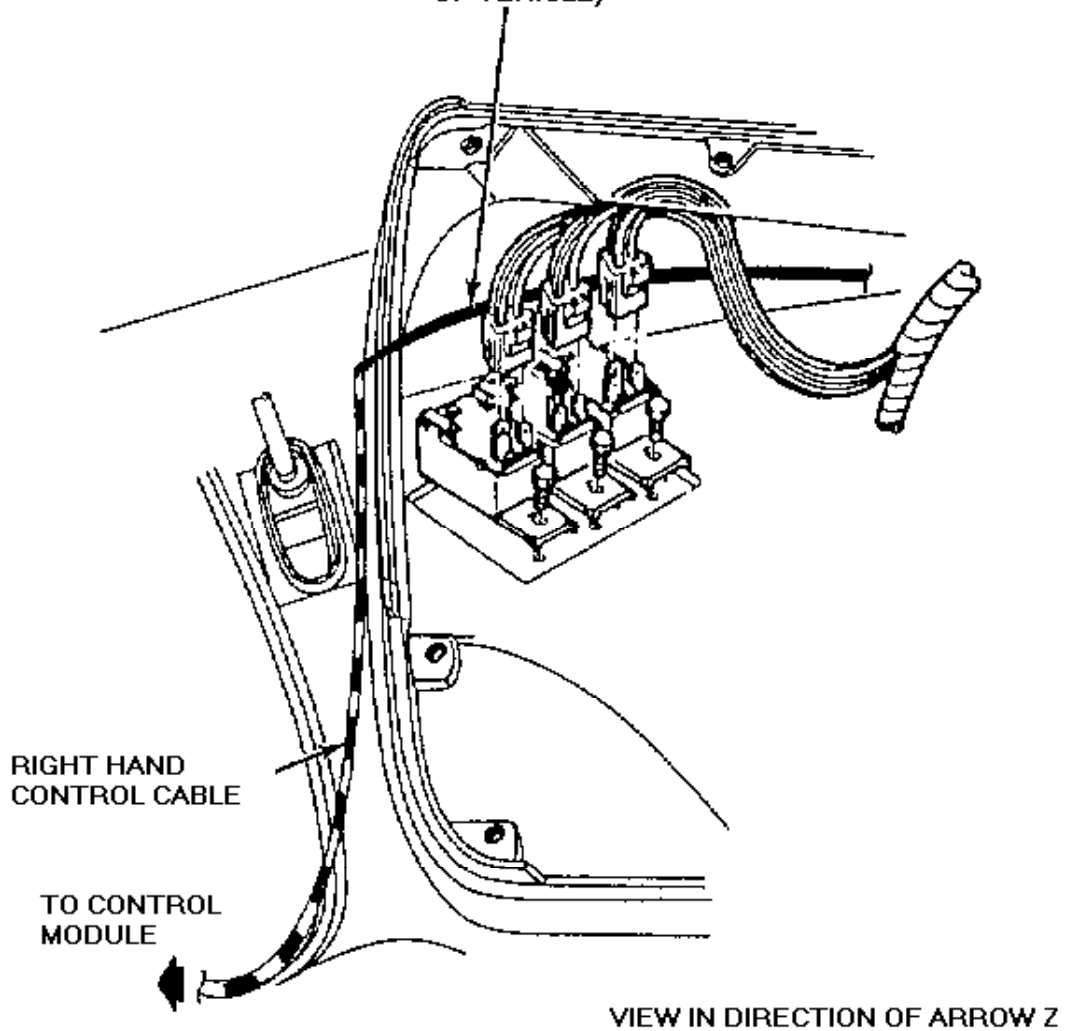


Figure 1 - Article 91-7-16

- b. The part number is moulded into the part and is visible without disassembly of the module.
2. Install the climate control assembly. Refer to the 1987-91 CL/CLT-9000 Series Truck Shop Manual, Section 36-21-63, for installation details.
3. Check to see if the truck has the RH temperature control cable incorrectly routed in front of the light relays. This reduces the cable bend radius which may result in increased operating efforts.
4. If the cable routing is in front of the light relays, reroute it as follows.
 - a. Reroute the RH control cable so that it passes behind the light relays toward the front of the vehicle, Figure 2.



ROUTE CABLE
BEHIND RELAYS
(TOWARD FRONT
OF VEHICLE)



TB-1878-A

Figure 2 - Article 91-7-16

- b. Tie wrap the cable with the air lines to assure it doesn't shift position, Figure 3.

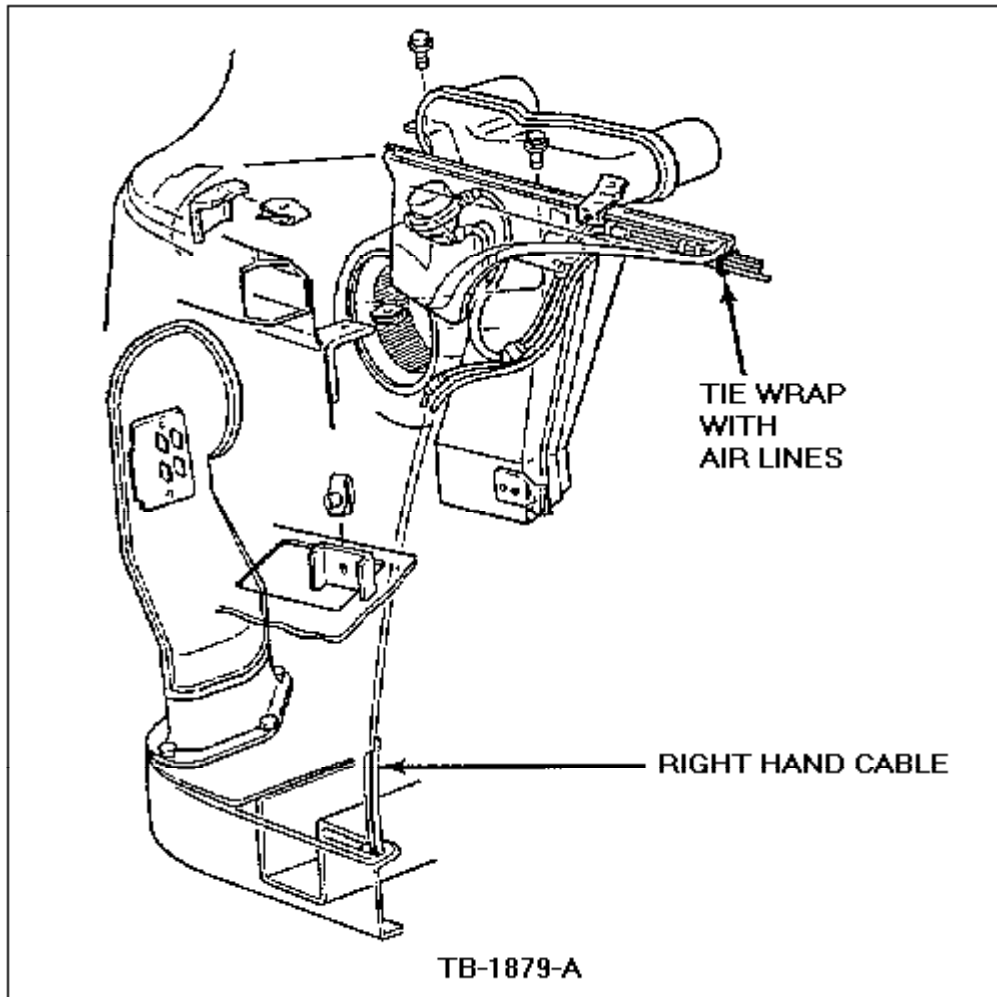


Figure 3 - Article 91-7-16

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 208000, 208100, 208200



91-8, *Publication Date: APRIL 17, 1991*

| | |
|--|-------------------------------|
| Latches - Door - Replacement Required | Article No. 91-8-4 |
|--|-------------------------------|

FORD:

1985-88 EXP
1985-91 CROWN VICTORIA, ESCORT, MUSTANG, TEMPO, THUNDERBIRD
1986 LTD
1986-91 TAURUS
1988-91 FESTIVA
1989-91 PROBE

LINCOLN-MERCURY:

1985-87 LYNX
1985-91 CAPRI, CONTINENTAL, COUGAR, GRAND MARQUIS, MARK VII, TOPAZ, TOWN CAR
1986-91 SABLE
1987-91 TRACER

MERKUR:

1985-91 XR4TI
1988-89 SCORPIO

LIGHT TRUCK:

1985-90 BRONCO II
1985-91 AEROSTAR, BRONCO, ECONOLINE, F-150-350 SERIES, RANGER
1989-91 F SUPER DUTY
1991 EXPLORER

MEDIUM/HEAVY TRUCK:

1985-90 C SERIES
1985-91 CL-9000, F & B SERIES, L SERIES
1986-91 CARGO SERIES

ISSUE:

Rework of door latches has been reported from Service Investigation Reports. This is unacceptable as it may affect proper latch function.

ACTION:

Replace latches which functions improperly and can not be adjusted.

WARNING:

NEVER REWORK OR MODIFY A LATCH ASSEMBLY, ALWAYS REPLACE THE LATCH ASSEMBLY.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY



91-8, *Publication Date: APRIL 17, 1991*

| | |
|--|--------------------------------------|
| <ul style="list-style-type: none">• Radiator - "Ad-Tech" - Availability Of New "Anti-Slobber" Coolant Supply Tank• Radiator - "Ad-Tech" - Coolant Spillage From Supply Tank | Article No. 91-8-29 |
|--|--------------------------------------|

MEDIUM/HEAVY TRUCK:

1988-91 CL-CLT-9000 SERIES

ISSUE:

An improved "anti-slobber" coolant supply tank with improved brackets is now available for service. These new coolant supply tanks should be used on all previous Ad-Tech radiator equipped CL-Series vehicles.

ACTION:

Install a new coolant supply tank. Rework the supply line by shortening the 1" ID hose to fit. All other attaching hardware is reusable without modification.

APPLICATION

CL/CLT WITH CUMMINS L10 ENGINE AND A 3-PASS RADIATOR

Use coolant supply tank (FOHZ-8A080-B).

NOTE:

A 3-PASS RADIATOR HAS THE INLET PORT ON ONE TANK AND THE OUTLET PORT ON THE OTHER TANK. ADDITIONALLY, THE 3-PASS RADIATOR HAS A VENT FITTING IN THE TOP PORTION OF BOTH RADIATOR TANKS.

ALL OTHER CL/CLT ENGINE/RADIATOR APPLICATIONS

Use coolant supply tank (FOHZ-8A080-C).

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 402000



91-9, *Publication Date: MAY 1, 1991*

| | |
|---|-------------------------------|
| Air Conditioning - Refrigerant R-12 - Service Tips | Article No. 91-9-7 |
|---|-------------------------------|

FORD:

1985-86 LTD
1985-88 EXP
1985-91 CROWN VICTORIA, ESCORT, MUSTANG, TEMPO, THUNDERBIRD
1986-91 TAURUS
1988-91 FESTIVA
1989-91 PROBE

LINCOLN-MERCURY:

1985-87 LYNX
1985-91 CONTINENTAL, COUGAR, GRAND MARQUIS, MARK VII, TOPAZ, TOWN CAR
1986-91 SABLE
1987-91 TRACER
1991 CAPRI

MERKUR:

1985-89 XR4TI
1988-89 SCORPIO

LIGHT TRUCK:

1985-90 BRONCO II
1985-91 BRONCO, ECONOLINE, F-150-350 SERIES, RANGER
1986-91 AEROSTAR
1988-91 F SUPER DUTY
1991 EXPLORER

MEDIUM/HEAVY TRUCK:

1985-90 C SERIES
1985-91 CL-CLT-9000 SERIES, F & B SERIES, L SERIES
1986-91 CARGO SERIES

ISSUE:

A number of manufacturers are producing refrigerant products which are described as being direct replacements for Refrigerant R-12. The use of any unauthorized substitute refrigerant may severely damage the A/C components.

ACTION:

If service is required, use only NEW or RECYCLED Refrigerant R-12.

CAUTION:

USING ANY UNAUTHORIZED SUBSTITUTE REFRIGERANT FOR R-12 MAY RESULT IN SEVERE DAMAGE TO THE A/C SYSTEM COMPONENTS.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 208000, 208200



91-9, *Publication Date: MAY 1, 1991*

| | |
|--|--------------------------------|
| Heavy Truck Labor Time Standards Manual - New Labor Operation Supplements - 6.6L And 7.8L Ford Diesel Engines | Article No. 91-9-12 |
|--|--------------------------------|

MEDIUM/HEAVY TRUCK:

1990-91 CARGO SERIES, F & B SERIES, L SERIES

ISSUE:

New Road Test labor operation supplements are now available for Ford Medium/Heavy Truck.

ACTION:

Use the following labor supplements for making Ford Medium/Heavy Truck post repair, road test.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 490000



91-10, *Publication Date: MAY 15, 1991*

| | |
|---|--------------------------------|
| <ul style="list-style-type: none">• No Crank - Low State Of Battery Charge - Cars And Light Trucks• No Crank - Low State Of Battery Charge - Medium/Heavy Trucks• Battery - Low State Of Charge - Rapid Recharge Procedure | Article No. 91-10-8 |
|---|--------------------------------|

FORD:

1985-86 LTD
1985-88 EXP
1985-91 CROWN VICTORIA, ESCORT, MUSTANG, TEMPO, THUNDERBIRD
1986-91 TAURUS
1988-91 FESTIVA
1989-91 PROBE

LINCOLN-MERCURY:

1985-86 CAPRI, MARQUIS
1985-87 LYNX
1985-91 CONTINENTAL, COUGAR, GRAND MARQUIS, MARK VII, TOPAZ, TOWN CAR
1986-91 SABLE
1987-89 TRACER
1991 CAPRI, TRACER

MERKUR:

1985-89 XR4TI
1988-90 SCORPIO

LIGHT TRUCK:

1985-91 BRONCO II, BRONCO, ECONOLINE, F-150-350 SERIES, RANGER
1986-91 AEROSTAR
1988-91 F SUPER DUTY, F47, F-53, F-59
1991 EXPLORER

MEDIUM/HEAVY TRUCK:

1985-90 C SERIES
1985-91 CL-CLT-9000 SERIES, F & B SERIES, L SERIES
1986-91 CARGO SERIES

ISSUE:

Some vehicles may not crank because of a low battery state of charge. A rapid recharge procedure has been developed for charging non-defective batteries needing only a recharge.

ACTION:

If service is required, recharge the battery by using the following procedure.

BATTERY CHARGING PROCEDURE

This rapid recharge procedure may be used in recharging batteries that have been identified by a Load Test as non-defective and needing only a recharge. These can be...

- In-service "no-start" battery failures (vehicle will not crank due to low battery state-of-charge)

- Batteries discharged in vehicles due to "key-off" loads.

NOTE:

PLEASE REFER TO THE BATTERY TESTING PROCEDURE ARTICLE IN THIS TSB FOR BATTERY LOAD TEST PROCEDURE.

Rapid charge the batteries by using either of the following methods...

- Perform a 2 hour charge using either 20 ampere constant current (manual setting on charger).
- Perform a 2 hour charge at constant potential (automatic setting on the charger).

NOTE:

IF EXCESSIVE GASSING OR ACID SPEWING OCCURS DURING THE CHARGE, DISCONTINUE CHARGING. THE BATTERY HAS REACHED SERVICEABLE CHARGE. IF THE BATTERY WILL NOT ACCEPT AT LEAST 5 AMPERES AFTER 20 MINUTES OF CHARGING, REPLACE THE BATTERY.

WARNING:

WEAR SAFETY GLASSES - BATTERY CHARGING CAN BE DANGEROUS. WHILE BEING CHARGED, THE BATTERY PRODUCES POTENTIALLY EXPLOSIVE MIXTURE OF HYDROGEN AND OXYGEN GASSES. KEEP SPARKS, FLAMES AND LIGHTED CIGARETTES AWAY FROM BATTERIES. REMEMBER, BATTERIES CONTAIN SULFURIC ACID. IN CASE OF ACID CONTACT WITH THE SKIN, EYES OR CLOTHING, FLUSH IMMEDIATELY WITH LARGE AMOUNTS OF WATER. GET MEDICAL ATTENTION.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 203000, 203100, 602300



91-10, *Publication Date: MAY 15, 1991*

| | |
|------------------------------------|---------------------------------|
| Battery - Testing Procedure | Article No. 91-10-10 |
|------------------------------------|---------------------------------|

FORD:

1985-86 LTD
1985-88 EXP
1985-91 CROWN VICTORIA, ESCORT, MUSTANG, TEMPO, THUNDERBIRD
1986-91 TAURUS
1988-91 FESTIVA
1989-91 PROBE

LINCOLN-MERCURY:

1985-87 LYNX
1985-91 CONTINENTAL, COUGAR, GRAND MARQUIS, MARK VII, TOPAZ, TOWN CAR
1986-91 SABLE
1987-89 TRACER
1991 CAPRI, TRACER

MERKUR:

1985-89 XR4TI
1988-89 SCORPIO

LIGHT TRUCK:

1985-90 BRONCO II
1985-91 AEROSTAR, BRONCO, ECONOLINE, F-150-350 SERIES, RANGER
1989-91 F SUPER DUTY, F47, F-53, F-59
1991 EXPLORER

MEDIUM/HEAVY TRUCK:

1985-90 C SERIES
1985-91 CL-CLT-9000 SERIES, F & B SERIES, L SERIES
1986-91 CARGO SERIES

ISSUE:

A battery testing procedure has been developed for all cars and trucks.

ACTION:

If service is required, refer to the Battery Testing Procedure Chart, Figure 1.

| BATTERY TESTING PROCEDURE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|-----------------------------|--|---------------------------|-------------|-----|-----|-----|-----|-----|-----|-----|-----|--|-----------------------------|----------------------|-----|------------|-----|------------|-----|------------|-----|-----------|-----|------------|-----|------------|-----|-------------|-----|-------------|-----|--|--|
| TEST STEP | RESULT | ACTION TO TAKE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A1 VISUAL INSPECTION <ul style="list-style-type: none"> Remove negative cable, then positive cable. Check for dirty or corroded connections. Are connections OK? | NO YES | CLEAN terminals and clamps. GO to A2 . GO to A2 . | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A2 LOOSE BATTERY POST <ul style="list-style-type: none"> Check for loose battery posts. Are posts OK? | NO YES | REPLACE battery. GO to A3 . | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A3 CRACKED BATTERY COVER <ul style="list-style-type: none"> Remove holddowns and shields. Check for broken/cracked case or cover. Is cover OK? | NO YES | REPLACE battery. GO to A4 . | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A4 BATTERY CAPACITY AND LOAD TEST <ul style="list-style-type: none"> Use a high rate discharge tester with a variable rate control or a fused rate tester with meter compensation for different battery electrical sizes. Follow instructions supplied with tester for the battery capacity test. Recommended Discharge Rate at 27°C (80°F): One half of the cold cranking amps. <table border="0" style="margin-left: 40px;"> <tr> <td style="text-align: center;">Example</td> <td style="text-align: center;">Discharge Rate</td> </tr> <tr> <td style="text-align: center;"><u>Cold Cranking Amps</u></td> <td style="text-align: center;"><u>Amps</u></td> </tr> <tr> <td style="text-align: center;">850</td> <td style="text-align: center;">425</td> </tr> <tr> <td style="text-align: center;">650</td> <td style="text-align: center;">325</td> </tr> <tr> <td style="text-align: center;">540</td> <td style="text-align: center;">270</td> </tr> <tr> <td style="text-align: center;">460</td> <td style="text-align: center;">230</td> </tr> </table> <ul style="list-style-type: none"> Voltage Readings at 15 seconds for Good Battery (Battery Capacity Test). <table border="0" style="margin-left: 40px;"> <tr> <td style="text-align: center;"><u>Approximate Battery Temperature</u></td> <td style="text-align: center;"><u>Minimum Load Voltage</u></td> </tr> <tr> <td style="text-align: center;">27°C(80°F) and above</td> <td style="text-align: center;">9.6</td> </tr> <tr> <td style="text-align: center;">21°C(70°F)</td> <td style="text-align: center;">9.6</td> </tr> <tr> <td style="text-align: center;">16°C(60°F)</td> <td style="text-align: center;">9.5</td> </tr> <tr> <td style="text-align: center;">10°C(50°F)</td> <td style="text-align: center;">9.4</td> </tr> <tr> <td style="text-align: center;">4°C(40°F)</td> <td style="text-align: center;">9.3</td> </tr> <tr> <td style="text-align: center;">-1°C(30°F)</td> <td style="text-align: center;">9.1</td> </tr> <tr> <td style="text-align: center;">-7°C(20°F)</td> <td style="text-align: center;">8.9</td> </tr> <tr> <td style="text-align: center;">-12°C(10°F)</td> <td style="text-align: center;">8.7</td> </tr> <tr> <td style="text-align: center;">-18°C(0°F)</td> <td style="text-align: center;">8.5</td> </tr> </table> <ul style="list-style-type: none"> Wait 2 minutes and check the Open Circuit Voltage (OCV). Measure Open Circuit Voltage with a digital voltmeter capable of reading 1/100 volt. | Example | Discharge Rate | <u>Cold Cranking Amps</u> | <u>Amps</u> | 850 | 425 | 650 | 325 | 540 | 270 | 460 | 230 | <u>Approximate Battery Temperature</u> | <u>Minimum Load Voltage</u> | 27°C(80°F) and above | 9.6 | 21°C(70°F) | 9.6 | 16°C(60°F) | 9.5 | 10°C(50°F) | 9.4 | 4°C(40°F) | 9.3 | -1°C(30°F) | 9.1 | -7°C(20°F) | 8.9 | -12°C(10°F) | 8.7 | -18°C(0°F) | 8.5 | Passed the minimum load voltage and OCV above 12.40 Passed the minimum load voltage and OCV below 12.40 Failed the minimum load voltage and OCV above 12.40 Failed the minimum load voltage and OCV below 12.40 | Battery OK. Battery OK but NEEDS CHARGING Battery worn out REPLACE battery CHARGE battery for 20 minutes @ 35 amps. REPEAT STEP A4 (load test). PASSED the minimum load voltage. Battery OK but NEEDS CHARGING. FAILED the minimum load voltage. REPLACE battery. |
| Example | Discharge Rate | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <u>Cold Cranking Amps</u> | <u>Amps</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 850 | 425 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 650 | 325 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 540 | 270 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 460 | 230 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <u>Approximate Battery Temperature</u> | <u>Minimum Load Voltage</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27°C(80°F) and above | 9.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21°C(70°F) | 9.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16°C(60°F) | 9.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10°C(50°F) | 9.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4°C(40°F) | 9.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -1°C(30°F) | 9.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -7°C(20°F) | 8.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -12°C(10°F) | 8.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -18°C(0°F) | 8.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | NOTE: Whenever possible, test and charge battery at or near room temperature | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Figure 1 - Article 91-10-10

NOTE:

WHENEVER POSSIBLE, TEST AND CHARGE BATTERIES AT OR NEAR ROOM TEMPERATURE.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 203100

Bulletin Contents

TSB Article 91-10-16 has been superseded by Article 92-11-15.



91-10, *Publication Date: MAY 15, 1991*

| | |
|---|---------------------------------|
| <ul style="list-style-type: none">• Engine - 6.6L And 7.8L Ford Diesel Engine - Fan Clutch Revised Torque Specifications• Fan Clutch - 6.6L And 7.8L Ford Diesel Engine - Installation Torque Increase | Article No. 91-10-17 |
|---|---------------------------------|

MEDIUM/HEAVY TRUCK:
1991 CARGO SERIES

ISSUE:

Fan Clutch assembly may become loose. Revised torque specifications are now required when installing the Fan Clutch assembly on the Ford Diesel Engine and are now included in the production of the vehicle.

ACTION:

If service is required, Refer to the Medium/Heavy Truck Shop Manual for service details and include the following specification revisions.

- Apply Loctite (WSA-M2G351-A5,#242) to the threads of the fan clutch hub prior to installation.
- Torque the fan clutch to the adapter to 135-150 ft.-lbs.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 490000



91-11, *Publication Date: MAY 30, 1991*

| | |
|---|---------------------------------|
| Glass - Door Windows - Bind Or Difficult To Operate - Vehicles With Tinted Glass | Article No. 91-11-20 |
|---|---------------------------------|

MEDIUM/HEAVY TRUCK:

1990-91 L SERIES

ISSUE:

The door window mechanisms on some L-Series trucks equipped with tinted glass may bind or become difficult to operate. This occurs when the window regulator arm disengages from the glass assembly. The glass channel assembly may come off the door glass when the window is rolled down. If the door glass is then rolled up, the regulator arm may become trapped on the glass guides or door sheet metal causing the regulator arm to bend.

ACTION:

If service is required, reinstall the glass guide assembly to the door glass. Refer to the following procedure for service details.

SERVICE PROCEDURE

1. Remove the door glass from the vehicle. Refer to the 1990/91 L-Series Shop Manual, Section 42-04, for service details.

NOTE:

IF THE WINDOW REGULATOR ARMS ARE BENT, REPLACE THE WINDOW REGULATOR AT THIS TIME.

2. If the glass is off or loose from the glass channel, reinstall the glass channel to the glass. Use two (2) thicknesses of glass setting tape.
3. Reinstall the door glass in the vehicle.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 102000



91-11, *Publication Date: MAY 30, 1991*

| | |
|---|---------------------------------|
| Steering - Power - Pressure Hose Replacements With New TAS-65 Model Gear | Article No. 91-11-21 |
|---|---------------------------------|

MEDIUM/HEAVY TRUCK:

1982-90 L SERIES

ISSUE:

The Ross HFB-64 power steering gear has been replaced in service by the improved TAS-65 model. In most cases a new power steering pressure hose will be required with the new gear.

ACTION:

If service is required, cross-reference the appropriate pressure line part number to identify its serviceable parts. Refer to the following Power Steering Pressure Line Application Chart for correct parts usage.

(*) The applications and pressure line engineering part numbers are cross-referenced to the applicable bulk hose and fitting part numbers in Section 36 of the Truck Parts Master Catalog.

The power steering gear service part numbers and usage are shown in the following Power Steering Gear Application Chart.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 303000



91-11, *Publication Date: MAY 30, 1991*

| | |
|--|---------------------------------|
| Air Conditioning - Poor Performance - Fixed Orifice Tube Not Installed - Vehicles Built From 11/01/90 To 02/01/91 | Article No. 91-11-23 |
|--|---------------------------------|

MEDIUM/HEAVY TRUCK:

1991 L SERIES

ISSUE:

A lack of A/C cooling may be experienced because a fixed tube was not installed in the inlet tube of the evaporator core.

ACTION:

Check to see if the fixed orifice tube is missing and, if necessary, install one in the inlet tube of the evaporator core. Refer to the following procedure for service details.

SERVICE PROCEDURE

1. Determine if the fixed orifice is missing by checking the A/C system operating pressures. If the orifice tube is missing...
 - The suction side pressure will be higher than normal (-70/80 psi).
 - The discharge pressure will be lower than normal (-100 psi).
 - The difference between the suction discharge pressures will be low (20-40 psi).
2. Confirm the condition by observing the A/C operating pressures. Refer to the 1991 L-Series Truck Shop Manual, Page 36-62-10, for a chart of normal A/C system operating pressures.
3. If the orifice tube is missing, install a new orifice tube (E1FZ-19D990-A) in the inlet side of the evaporator core. Refer to the 1991 L-Series Shop Manual, Page 36-62-14, for the installation procedure.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 208200



91-12, *Publication Date: JUNE 12, 1991*

| | |
|--|---------------------------------|
| <ul style="list-style-type: none">• Turn Signal Brackets - Mirror Mounted - Vehicles Built In 1989 And 1990• Turn Signals - Mirror Mounted Brackets - Vehicles Built In 1989 And 1990 | Article No. 91-12-13 |
|--|---------------------------------|

MEDIUM/HEAVY TRUCK:

1989-91 LS-8000, LTS-9000

ISSUE:

Turn signal brackets may fail on vehicles equipped with mirror mounted turn signals because of structural design.

ACTION:

A new reinforced bracket has been released for production and service. This new bracket is interchangeable with the old service bracket and with the production bracket.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 103000, 201200



91-12, *Publication Date: JUNE 12, 1991*

| | |
|--|---------------------------------|
| Safety Belt - Service Replacements - Availability And Usage | Article No. 91-12-14 |
|--|---------------------------------|

MEDIUM/HEAVY TRUCK:

1886-89 CARGO SERIES

ISSUE:

Safety belt replacements are now available for service in black color only.

ACTION:

Install safety belts as required. Refer to the 1986-89 Cargo Truck Shop Manual, Section 41-50, for service details. Refer to the Parts Block for correct parts usage.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 101000, 104000



91-14, *Publication Date: JULY 11, 1991*

| | |
|--|---------------------------------|
| Headlamp - Aeromax - Cracks And Breaks Attachments At The Headlamp Body To Headlamp Frame | Article No. 91-14-18 |
|--|---------------------------------|

MEDIUM/HEAVY TRUCK:

1988-91 L SERIES

ISSUE:

The attachments at the headlamp body to the headlamp frame may crack and break because of weak adjustment retainers.

ACTION:

Install a new headlamp assembly with reinforced adjustment retainers and improved threaded inserts for better durability. Refer to the 1988-91 L Series Truck Shop Manual, Section 32-21, for service details.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 111000, 201200



91-15, Publication Date: JULY 24, 1991

Brakes - Hydraulic - Revised TW-11 Parking Brake Control Valve

**Article No.
91-15-13**

MEDIUM/HEAVY TRUCK:

1986-90 F & B SERIES, L SERIES

This TSB article is being republished in its entirety to include a bolt with thread sealer.

ISSUE:

Revised TW-11 parking brake valves are available for service. The new valves have a new Viton "o"-ring at the input fitting to improve sealing. The valve used on F, L, and LN Series trucks also has a new material and casting pattern to reduce the number of ports. With fewer ports the number of possible leak points is reduced.

ACTION:

If service is required, install a new TW-11 parking brake valve. See the following chart for the correct part usage. Refer to the Medium/Heavy Truck Shop Manual, Page 12-75-8 for installation procedures for the F-Cowl and B Series Trucks. Use the pictorial installation procedure shown in Figures 1 and 2 for the F, L and LN Series Trucks.

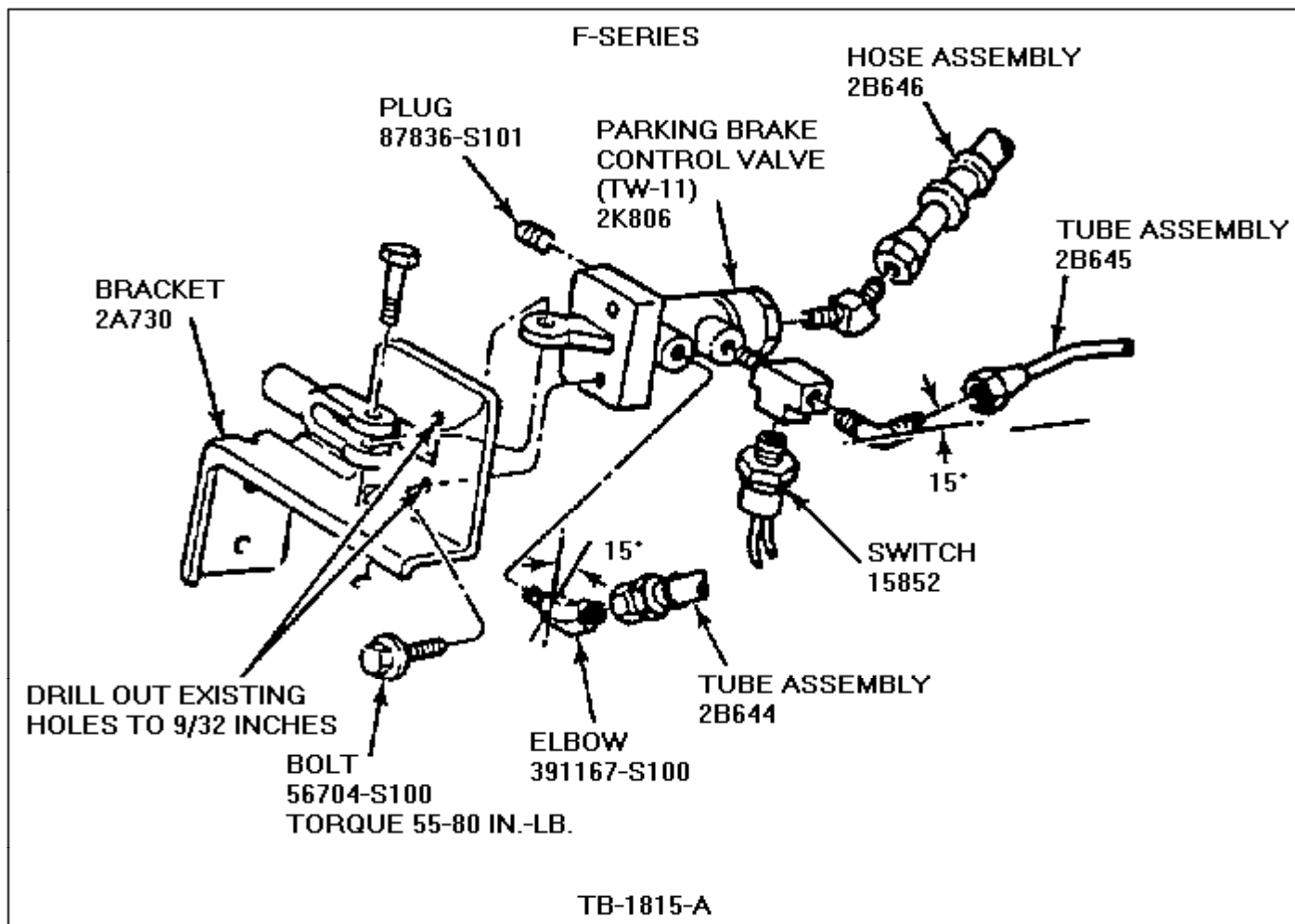


Figure 1 - Article 91-15-13

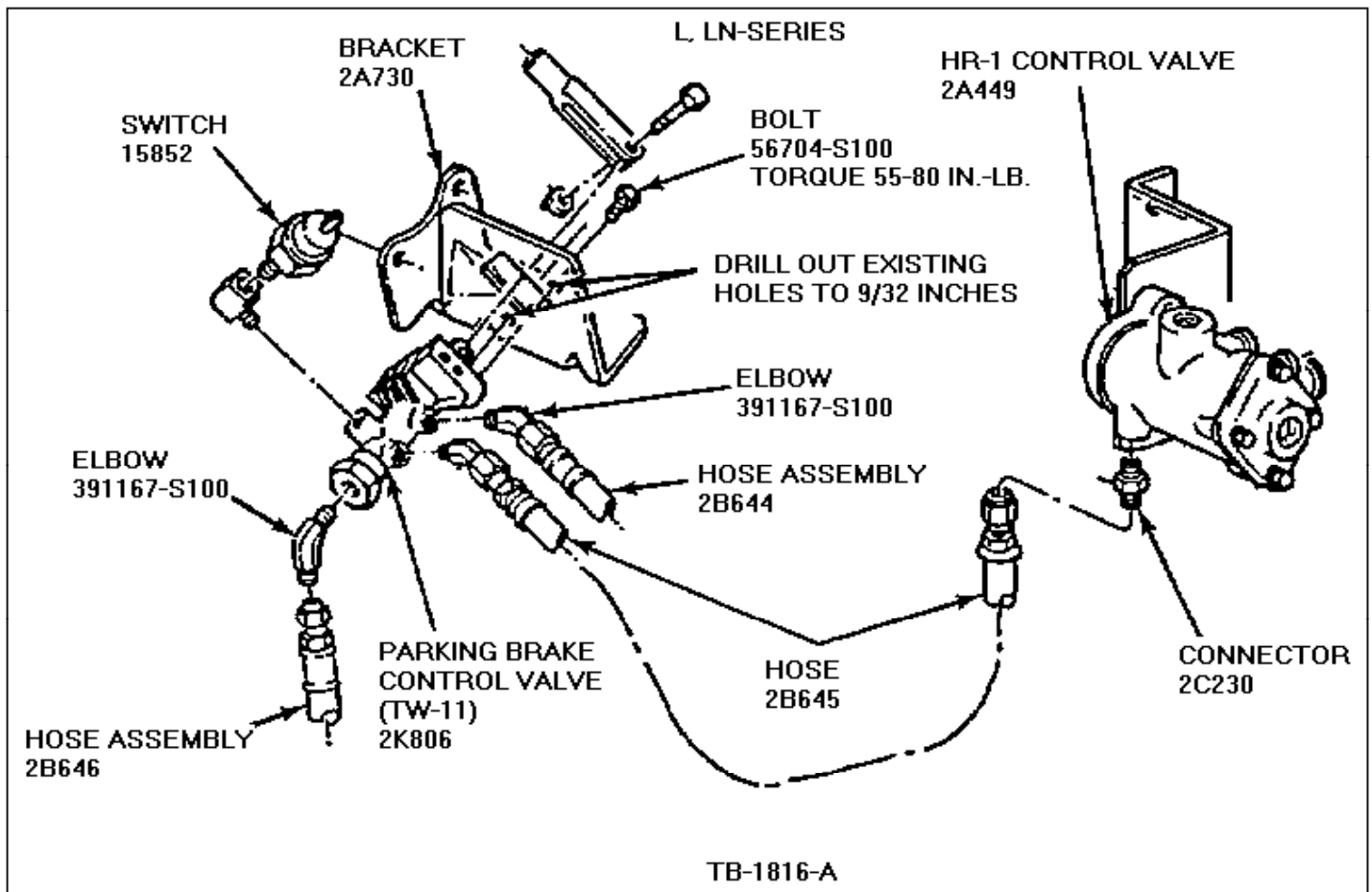


Figure 2 - Article 91-15-13

* Installation of the TW-11 valve is the same as that presently on the truck.

** Installation of the TW-11 valve is different from that presently used on the truck.

NOTE:

THE NEW TW-11 VALVE WENT INTO PRODUCTION ON 4/17/90. SOME TRUCKS BUILT ON OR SOON AFTER THIS DATE, HOWEVER, MAY HAVE BEEN BUILT WITH THE OLD VALVE. INSPECT THE VALVE ON THE TRUCK TO DETERMINE IF IT IS THE OLD OR NEW DESIGN. THE NEW VALVE HAS FOUR (4) PORTS. THE OLD VALVE HAS FIVE (5) PORTS.

OTHER APPLICABLE ARTICLES: NONE

SUPERSEDES: 90-24-12

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 302000



| | |
|--|---------------------------------|
| Clutch - Converting From Borg Warner To Spicer - Component Identification Information | Article No. 91-15-14 |
|--|---------------------------------|

MEDIUM/HEAVY TRUCK:
1986-90 CARGO SERIES

This TSB article is being republished in its entirety to provide a Spicer clutch part number cross-reference chart and updated parts information.

ISSUE:

Spicer CASIA (Cast Angle Spring Internal Assist) clutch components and SAS (Stamped Angle Spring) clutch components are now available for service use. These same clutches are used in production at KTP for improved durability. The CASIA clutch is used on all synchronized (5 and 6 speed) transmission applications, while the SAS clutch is used on the non-synchronized (RT-6610 and RT-6614) transmission applications.

ACTION:

To install the Spicer ceramic disc clutch components, refer to the Spicer Clutch Part Number Cross-Reference Chart, Figure 1, for correct parts usage. This chart lists the equivalent Spicer ceramic disc clutch components for each vehicle/engine combination produced for 1986-90 model years. No linkage changes are required. Refer to the 1986-90 Cargo Shop Manual, Sections 16-01 and 16-02 for clutch service details.

| SPICER CLUTCH PART NUMBER CROSS-REFERENCE CHART | | | | | | | | |
|--|--------------|------------|---------------------------------|----------------|--|---|--------------------------|--------------------|
| ENGINE | TRANS. | HP-RPM | CLUTCH DIA-PLATES/ LOAD-LBS. | COVER ASSEMBLY | CERAMIC DISC ASSEMBLY | | | BOLT/ WASHER |
| 6.6L T | 5 & 6 Spd a/ | 160 @ 2600 | 14-1/2400 | F1HZ-7563-A | F1HZ-7550-A | | | 391309-S2/44877-S2 |
| 6.6L T | 5 & 6 Spd a/ | 165 @ 2600 | 14-1/2400 | F1HZ-7563-A | F1HZ-7550-A | | | 391309-S2/44877-S2 |
| 6.6L T | 5 & 6 Spd a/ | 170 @ 2600 | 14-1/2400 | F1HZ-7563-A | F1HZ-7550-A | | | 391309-S2/44877-S2 |
| ENGINE | TRANS. | HP-RPM | CLUTCH DIA-PLATES LOAD-LBS. | COVER ASSEMBLY | CERAMIC FRONT DISC ASSEMBLY (FLYWHEEL) | CERAMIC REAR DISCS ASSEMBLY (PRESS PLATE) | INTERMED. PLATE ASSEMBLY | BOLT/ WASHER |
| 7.8L T | 5 & 6 Spd a/ | 185 @ 2400 | 14-2/2000 | F1HZ-7563-B | F1HZ-7550-B | F1HZ-7550-C | F1HZ-7563-D | 391310-S2/44877-S2 |
| 7.8L ATA | 5 & 6 Spd a/ | 240 @ 2400 | 14-2/2000 | F1HZ-7563-B | F1HZ-7550-B | F1HZ-7550-C | F1HZ-7563-D | 391310-S2/44877-S2 |
| 7.8L JWAC | 5 & 6 Spd a/ | 210 @ 2400 | 14-2/2000 | F1HZ-7563-B | F1HZ-7550-B | F1HZ-7550-C | F1HZ-7563-D | 391310-S2/44877-S2 |
| 7.8L T | RT-6610/13b/ | 185 @ 2400 | 14-2/1800 | F1HZ-7563-C | E5HZ-7550-B | E5HZ-7550-A | E5HZ-7563-A | 389421-S2/44877-S2 |
| 7.8L ATA | RT-6610/13b/ | 240 @ 2400 | 14-2/1800 | F1HZ-7563-C | E5HZ-7550-B | E5HZ-7550-A | --- | 389421-S2/44877-S2 |
| 7.8L JWAC | RT-6610/13b/ | 210 @ 2400 | 14-2/1800 | F1HZ-7563-C | E5HZ-7550-B | E5HZ-7550-A | --- | 389421-S2/44877-S2 |
| a/ Non-adjustable clutch b/ Adjust clutch per Shop Manual Section 16-01 and 16-02 after installation. | | | | | KEY: T= Turbo ATA= Air-to-Air Intercooler JWAC= Jacket Water After Cooling | | | |

TB-2293-A

Figure 1 - Article 91-15-14

CAUTION:

UNDER NO CIRCUMSTANCES ARE BORG WARNER AND SPICER CLUTCH PARTS TO BE INSTALLED (INTERMIXED) ON THE SAME VEHICLE.

NOTE:

THE DECISION ON PILOT BEARING REPLACEMENT SHOULD BE MADE AT CLUTCH INSTALLATION. IF THE FLYWHEEL HAS A SPICER CLUTCH MOUNTING PATTERN, THE TWO DOWEL PINS IN THE FLYWHEEL USED TO LOCATE A BORG-WARNER CLUTCH SHOULD BE REMOVED. A 5/16" (7.938M) ACCESS (PUNCH) HOLE IS PROVIDED IN THE FRONT FLYWHEEL FACE FOR DOWEL PIN REMOVAL. FOR 1986 VEHICLES WITH FLYWHEELS (SIX BOLT CRANKSHAFT MOUNTING) THAT DO NOT CONTAIN THE SPICER MOUNTING PATTERN, A NEW FLYWHEEL (E6HZ-6375-B) IS REQUIRED. REFER TO TSB [«90-5-15»](#).

OTHER APPLICABLE ARTICLES:**90-5-15****SUPERSEDES:** 90-5-14**WARRANTY STATUS:** INFORMATION ONLY**OASIS CODES:** 506000



91-16, *Publication Date: AUGUST 7, 1991*

- Cooling System - Reservoir - Cracked And Leaks Coolant
- Leaks - Coolant - From Reservoir

Article No.
91-16-15

MEDIUM/HEAVY TRUCK:
1986-91 CARGO SERIES

ISSUE:

The cooling system reservoir may leak coolant because of cracks at the reservoir's mounting bosses.

ACTION:

Install a new more durable cooling system reservoir (F1HZ-8A080-D). Some additional components are required to complete a retrofit. Refer to the Parts Block and Figure 1 for correct parts usage. Refer to the 1986-91 Cargo Truck Shop Manual, Section 27-02, for complete cooling system service details.

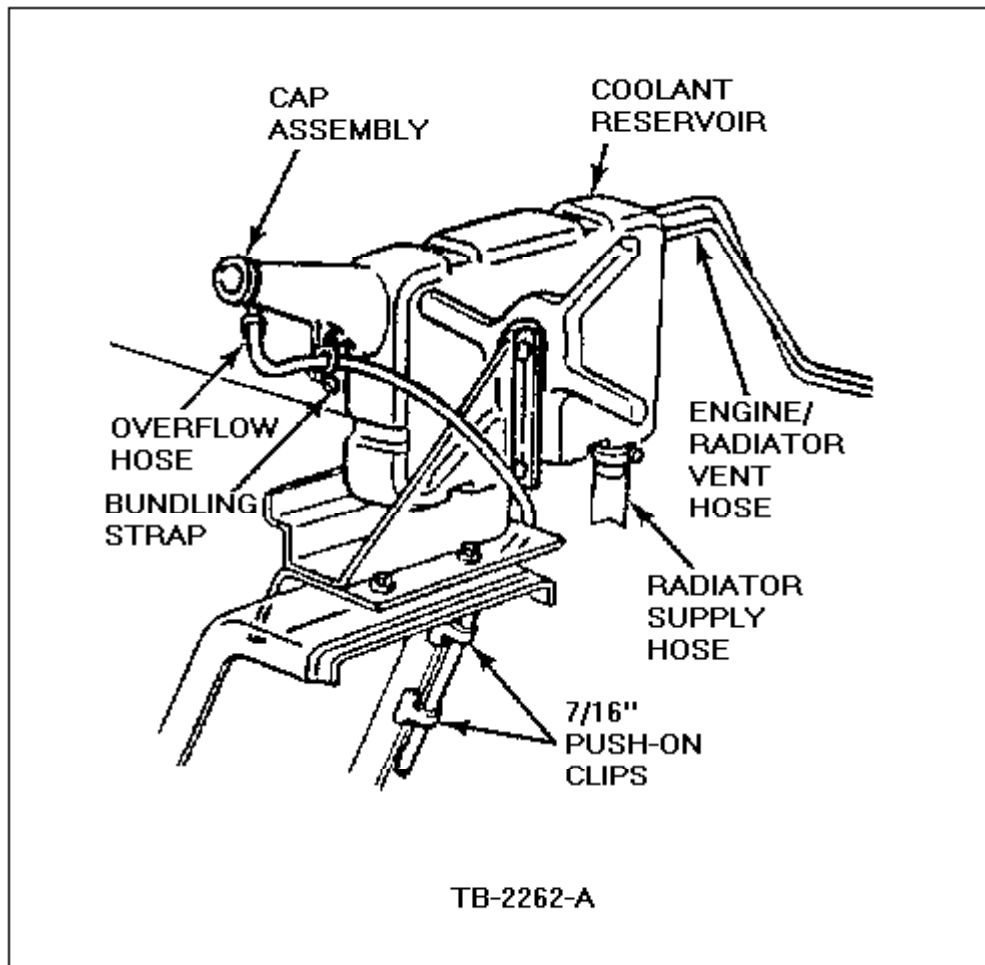


Figure 1 - Article 91-16-15

NOTE:

CARRYOVER PARTS MAY BE REUSED. ONLY ORDER THESE PARTS IF THE ORIGINALS ARE DAMAGED OR REQUIRE REPLACEMENT FOR SOME OTHER REASON.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 402000



91-16, Publication Date: AUGUST 7, 1991

- Cooling System - Upper Engine To Radiator Coolant Pipe Contacts Adjacent Components
- Leaks - Coolant - Upper Engine To Radiator Coolant Pipe Contacts Adjacent Components

Article No.
91-16-16

MEDIUM/HEAVY TRUCK:
1992 LLS-9000, LTLS-9000

ISSUE:

The upper engine-to-radiator coolant pipe may contact adjacent components and eventually cause a coolant leak. This occurs because of the positioning of the tube support chain which is connected to the radiator support rod.

ACTION:

Move or adjust the support chain to obtain maximum clearance between the coolant pipe and other components. Refer to the following procedure for service details.

SERVICE PROCEDURE

1. Remove one link from the chain, Figure 1. Reattach as described in Step 2.

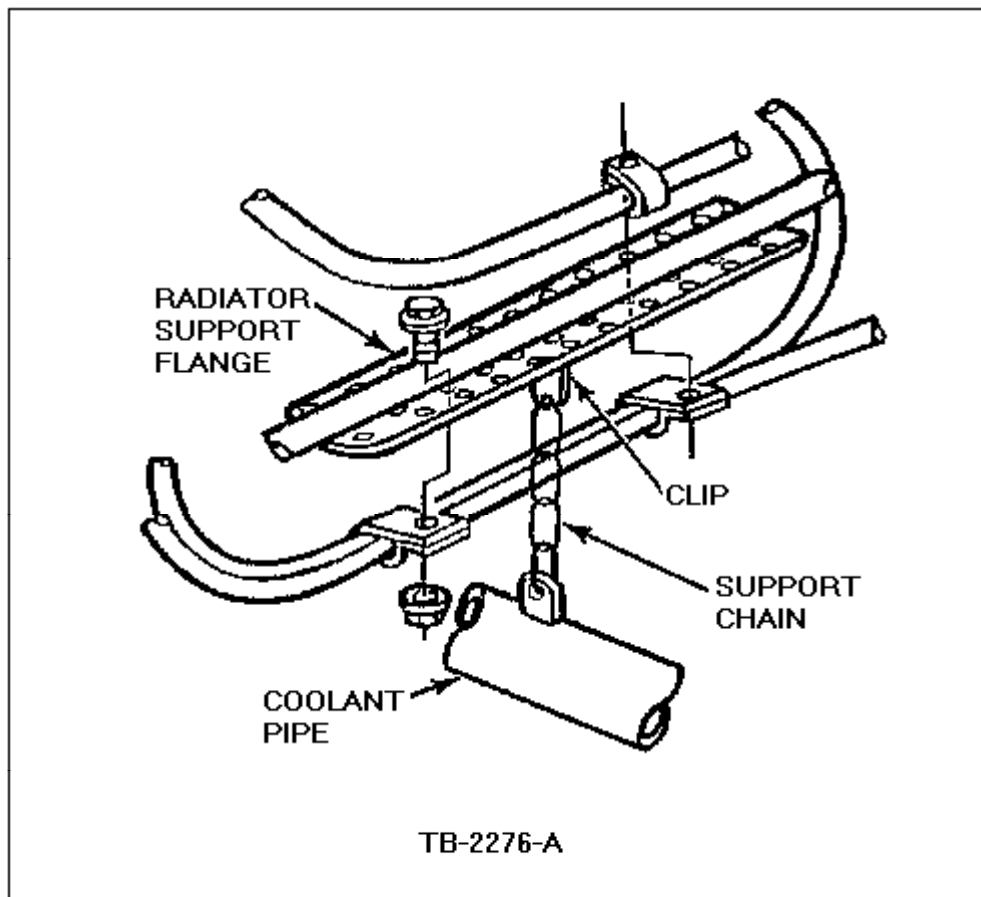


Figure 1 - Article 91-16-16

2. Reposition the support chain in the sixth hole from the front of the flange on the radiator support rod, Figure 1.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 402000



91-18, *Publication Date: SEPTEMBER 5, 1991*

| | |
|---|--------------------------------|
| Paint - Exterior - Comprehensive Repair Procedures | Article No. 91-18-1 |
|---|--------------------------------|

FORD:

1985-86 LTD
1985-92 CROWN VICTORIA, ESCORT, MUSTANG, TEMPO, THUNDERBIRD
1986-92 TAURUS
1988-92 FESTIVA
1989-92 PROBE

LINCOLN-MERCURY:

1985-86 CAPRI, MARQUIS
1985-87 LYNX
1985-92 CONTINENTAL, COUGAR, GRAND MARQUIS, MARK VII, TOPAZ, TOWN CAR
1986-92 SABLE
1988-92 TRACER

MERKUR:

1985-89 XR4TI
1988-89 SCORPIO

LIGHT TRUCK:

1985-90 BRONCO II
1985-92 BRONCO, ECONOLINE, F-150-350 SERIES, RANGER
1986-92 AEROSTAR
1988 F-47
1988-92 F SUPER DUTY
1991 EXPLORER

MEDIUM/HEAVY TRUCK:

1985-90 C SERIES
1985-91 CL-CLT-9000 SERIES
1985-92 F & B SERIES, L SERIES
1986 CARGO SERIES

ISSUE:

A comprehensive paint repair procedure TSB has been developed for service use. It includes the following paint repair topics.

(A) Rough Texture And/Or Orange Spots Due To Iron Particles On Horizontal Surfaces

(B) Exterior Color Peeling From Ultra Violet Light

(C) Lower Body Stone Protection Repair Tips

(D) Procedures For PVC Body Side Moldings

(E) Lower Body-Side Stone Chip Protection Program

(F) Surface Defect Removal Without Repainting

(G) 1991 Color Matched/Compatible Spray Primer Chart

(H) Repair For Tinted Clearcoat

(I) Frequently Used And Paintable Plastics

(J) 1992 Paint Codes

ACTION:

If paint repair is required, refer to the following procedures for paint restoration.

(A) PAINT ROUGH TEXTURE AND/OR ORANGE SPOTS DUE TO IRON PARTICLES ON HORIZONTAL SURFACES

Hot iron dust particles may imbed themselves into the surface of the paint. On some light colored vehicles, after some weathering, tiny dots of rust start to appear. They feel rough to the touch and are difficult to remove.

To remove these particles, treat the finish with an oxalic acid-detergent wash. Use one of the following procedures to perform this service repair.

PROCEDURE #1

1. Wash and degrease the vehicle first, using Ford Multi Purpose Cleaner (BBA-19523-B) or equivalent, and a suitable wax and grease remover. If this does not remove all of the iron particles, proceed with the oxalic acid wash.

WARNING:

FOR YOUR SAFETY, USE RUBBER GLOVES, GOGGLES AND PROTECTIVE CLOTHING WHEN HANDLING THESE PRODUCTS.

2. Prepare a quantity of oxalic acid-detergent-water solution as follows:
 - a. Dissolve 6-8 ounces of oxalic acid (powder) in one gallon of warm water.
 - b. Add 1-2 tablespoons of non-alkaline detergent such as Ford Multi Purpose Cleaner.

NOTE:

IF YOU CHOOSE NOT TO MIX YOUR OWN SOLUTION, OXALIC ACID IS AVAILABLE PRE-PACKAGED IN VARIOUS STRENGTHS UNDER VARIOUS NAMES. SEE PROCEDURE #2.

When applying the solution to the affected surface, it is important to keep it wet. A good way to do this is to soak some strips of cloth in the solution and lay them on the surface. Keep the cloth moist at all times, DO NOT let the cloths dry out.

CAUTION:

IF ALLOWED TO DRY, PAINT DAMAGE OR METAL STAINING WILL OCCUR.

After soaking for 1-3 minutes, run your fingers lightly over the surface to see if any particles remain.

CAUTION:

IF SOAKING IS NOT DONE THOROUGHLY, STAINING WILL REDEVELOP WHERE IRON PARTICLES ARE LEFT BEHIND.

When the surface feels free of contamination, thoroughly rinse. The rinse should contain baking soda to neutralize the acid. Prepare the neutralizing rinse solution by dissolving 4 tablespoons of baking soda in 1 gallon of water.

3. Rinse the area with clean water.

CAUTION:

FAILURE TO THOROUGHLY RINSE THIS SURFACE COULD RESULT IN CORROSION OF ANODIZED ALUMINUM OR STAINLESS STEEL PARTS

PROCEDURE #2

FINISH KARE FORMULA #1119 AND #883 (Buffered solution not as harsh on aluminum parts)

WARNING:

FOR YOUR SAFETY, USE RUBBER GLOVES, GOGGLES AND PROTECTIVE CLOTHING WHEN HANDLING THESE PRODUCTS.

1. Apply hot diluted solution with soft mitt.
2. Agitate to create suds. Suds holds the acid solution in suspension and to the surface creating greater and extended activity.
3. Allow 3 to 5 minutes dwell time.
4. Rinse with COLD WATER.
5. Apply 883 per label instructions.

LIQUID NEUTRALIZER CONCENTRATE

1. Using a mitt, thoroughly go over the entire surface with the diluted solution (50-1) of water and #118 Liquid Neutralizer Concentrate. Then wipe dry.
2. If the iron particles are not totally removed after 2 washings, use one or both of the following service actions.
 - a. Sand with micro fine sandpaper (1500 Grid or greater) in localized areas.
 - b. Buff with very light compound and polish with wax in localized areas.

WARNING:

OUR ENVIRONMENT IS PRECIOUS - PLEASE USE PROPER DISPOSAL TECHNIQUES FOR ANY VOLATILE ORGANIC COMPOUNDS (V.O.C.'S) OR EXCESS MATERIALS.

(B) PAINT - EXTERIOR COLOR PEELING FROM ULTRA VIOLET LIGHT

Paint may be damaged because of ultra violet light absorption through the color coat. This damage will cause the top coat to peel to the E-coat primer.

If service is required, use the following procedure to correct the concerns.

NOTE:

READ THE ENTIRE SERVICE PROCEDURE BEFORE STARTING REPAIRS.

WARNING:

ALWAYS WEAR A NOISHA/MSHA RECOMMENDED VAPOR/PARTICULATE RESPIRATOR AND USE OTHER RECOMMENDED SAFETY EQUIPMENT.

1. Wash the vehicle with soap and water.
2. Verify topcoat adhesion by applying a 2 inch wide masking tape strip on all body panels above and below the beltline on each panel.
 - a. Pull the tape up quickly.
 - b. Inspect the adhesive side of the tape for paint removal.

NOTE:

IF PAINT WAS REMOVED DURING THE TAPE TEST, THE ENTIRE PANEL SHOULD BE STRIPPED AND REFINISHED AS NECESSARY.

3. Remove all trim (mouldings, name plates, striping, etc.) from the areas which will be repainted.

NOTE:

ALL REQUIRED REPLACEMENT MOULDINGS AND STRIPES SHOULD BE ORDERED AND RECEIVED PRIOR TO REPAIRING THE CUSTOMER'S VEHICLE.

4. Wipe the entire vehicle with wax and grease remover.
 - BASF Product #900 Prekleano
 - PPG Product #DX300
 - S-W Product #R7-K156
 - DuPont Product #3919 S
 - Sikkens Product #M 600
5. Mask off all areas on the vehicle which are not going to be painted or will be affected by overspray (engine compartment, wheels, etc.).
6. Remove the paint to bare metal from all the areas of the vehicle which are going to be repainted. Use one of the following methods.

SAND THE AFFECTED AREAS TO BARE METAL USING 40 GRIT 3M GREEN CORPS SANDING DISCS OR EQUIVALENT AND A SOFT PAD ON A 1700 RPM POLISHER. KEEP THE POLISHER MOVING TO AVOID DEVELOPING HOT SPOTS ON THE METAL.

NOTE:

CHEMICAL STRIPPING IS NOT RECOMMENDED.

NOTE:

IF AVAILABLE, PAINT MAY BE REMOVED USING A PLASTIC MEDIA BLAST SYSTEM. IF THIS PROCESS IS USED, EXTRA CARE MUST BE TAKEN DURING THE MASKING PROCESS TO PREVENT DAMAGE TO GLASS, MOULDING, ETC.

7. Blow off the entire vehicle to remove loose dust and debris.

NOTE:

IF RUST IS PRESENT, USE APPROPRIATE METAL CLEANER AND CONDITIONER (PHOSPHATE COATING) OVER BARE METAL AREAS.

8. Wipe all affected areas with a fast dry enamel reducer solvent, followed by a dry wipe using a clean, lint free cloth to remove all residue.

CAUTION:

KEEP WIPING UNTIL SURFACE IS COMPLETELY DRY. ANY RESIDUE WILL RESULT IN POPPING OF THE COATINGS TO BE APPLIED FOLLOWING THIS STEP.

NOTE:

THIS STEP WILL REDUCE THE POSSIBILITY OF FLASH RUST.

- BASF Product # BR 50
 - PPG Product # DX 300
 - S-W Product # R7 K156
 - DuPont Product # 3812 S
 - Sikkens Product # 123 FAST
9. Apply two medium wet coats (1.0 mil total) of self-etching, anti-corrosion primer using the manufacturer's recommendations and flash times.
 - BASF Product # DE-17
 - PPG Product # DP EPOXY PRIMER
 - S-W Product # E2-6980
 - DuPont Product # VARIPRIME
 - Sikkens Product # WASH FILLER 580
 10. Apply three medium wet coats (2.0 mils total) of acrylic urethane primer surfacer following the manufacturer's recommended procedures.
 - BASF Product # DP-20 PRIMER/SUFACER
 - PPG Product # K-36
 - S-W Product # P6-M49 OR P6-A48

- DuPont Product # URO PRIMERFILLER
 - Sikkens Product # AUTOCRYL 3+1 FILLER
11. Sand the vehicle using one of the following methods:
 - Wet-sand by hand using 400 grit or finer sandpaper.
 - Dry-sand by hand using 320 grit or finer sandpaper.
 12. Blow the entire vehicle off to remove loose dust and debris.
 13. Demask (remove all paper and tape) as necessary to remove the primer and dirt buildup on the paper and tape.
 14. Wipe the entire vehicle with wax and grease remover, followed by a dry wipe using a clean, lint free cloth to remove all residue.

CAUTION:
KEEP WIPING UNTIL SURFACE IS COMPLETELY DRY. ANY RESIDUE WILL RESULT IN POPPING OF THE COATINGS TO BE APPLIED FOLLOWING THIS STEP.

- BASF Product # 901 PRE-PAINT CLEANER
 - PPG Product # DX 330
 - S-W Product # R7-K156
 - DuPont Product # 3812 S
 - Sikkens Product # M 600
15. Mask all areas on the vehicle which are not to be painted or will be affected by paint overspray (engine compartment, wheels, etc.).

NOTE:
APPLY BASECOAT/CLEAR COAT ONLY TO SURFACES WHICH ORIGINALLY HAD BASECOAT/CLEAR COAT

16. Apply three medium wet coats (enough material to hide primer) of acrylic enamel base coat or acrylic urethane monocoat following the manufacturer's recommended procedure.
 - BASF Product # DIAMONT BASECOAT/Solo
 - PPG Product # DELTRON BASECOAT DBC/Deltron
 - S-W Product # ULTRA BASE/Ultra One Stage
 - DuPont Product # CHROMABASE/Cronar
 - Sikkens Product # AUTO BASE/Autocryl
17. Apply two medium wet coats of 2K acrylic urethane enamel clear coat, following manufacturer's recommended procedure.

- BASF Product # DIAMONT CLEAR 88/89
- PPG Product # CONCEPT 2001 DCU
- S-W Product # CC-650 OR CC-640
- DuPont Product # 1080 S URO CLEAR
- Sikkens Product # AUTO CLEAR

18. After the paint is dry, demask the entire vehicle and clean up any areas which have overspray.
19. Polish the vehicle as necessary to remove any defects in the paint which may create a customer concern.

CAUTION:
USE LOW SPEED (1700 RPM MAXIMUM) POLISHER.

20. Install all trim (mouldings, name plates, striping, etc.) on the vehicle which were removed prior to repainting.
21. Clean the exterior and interior of the vehicle thoroughly, including air ducts and other areas which are prone to accumulating dust. This step is essential to ensure customer satisfaction.

WARNING:
OUR ENVIRONMENT IS PRECIOUS - PLEASE USE PROPER DISPOSAL TECHNIQUES FOR ANY VOLATILE ORGANIC COMPOUNDS (V.O.C.'S) OR EXCESS MATERIALS.

STRIP AND REFINISH CLAIMING METHODOLOGY

The claiming instructions shown in Figure 1 are applicable to the repair of the EXTERIOR COLOR PEELING FROM ULTRA VIOLET LIGHT concern covered in this TSB only. See the SAMPLE CLAIMS, Figures 2 and 3, for examples.

STRIP AND REFINISH CLAIMING METHODOLOGY

(See Figures 2 and 3 for Illustration of Claim Preparation)

LABOR

To calculate STRIP AND REFINISH Labor Hours/Labor Operations:

1. Refer to SLTS Manual REFINISH labor allowance for panel or panels being STRIPPED AND REFINISHED.
2. Multiply REFINISH labor hours by 1.6 to arrive at the TOTAL labor allowance for the STRIPPED AND REFINISHED OPERATION.

Example

Refinish Hood (Metallic) = 1.7 hrs. (from SLTS Manual)
=> Strip and Refinish Hood (Metallic) = 1.7 hrs. x 1.6 = 2.7 hrs.

3. Labor Operation - To indicate a STRIP AND REFINISH repair labor operation, take the REFINISH labor operation and replace the suffix with a "C".

Example

Refinish Hood = P8P => Strip and Refinish Hood = P8C.

MATERIAL

To calculate Strip and Refinish Material Allowance:

1. Refer to SLTS Manual Refinish "Misc. Mat'l" column.
2. Divide "Misc. Mat'l" amount by 10. Enter in "Qty" column.

Example

Misc. Mat'l for Refinish Hood = 21, QTY for Strip and Refinish = $21 \div 10 = 2.1$.

3. Enter the appropriate "Unit Material Cost" from the *Material Cost Matrix* (shown below) in the "Each" column (e.g. 2k Urethane Monocoat = \$17.50).
4. Multiply QTY by the appropriate UNIT MATERIAL COST. This number represents the TOTAL MATERIAL ALLOWANCE for the repair and should be entered in the "Amount" column (QTY of $2.1 \times \$17.50 = \36.75).

*Material Cost Matrix**

| <i>Material</i> | <i>Unit Material Cost</i> |
|------------------------------|---------------------------|
| <i>Enamel Monocoat</i> | <i>\$7.80</i> |
| <i>2K Enamel Clearcoat</i> | <i>\$10.20</i> |
| <i>2K Urethane Monocoat</i> | <i>\$17.50</i> |
| <i>2K Urethane Clearcoat</i> | <i>\$19.20</i> |

Figure 1 - Article 91-18-1

SLTS SAMPLE

Cab - Complete (CAB) C.B Solid
Metallic
CREW Solid

Hood (16612) Solid
Metallic

Front Fender - Complete (16005-6) .. Solid
Metallic

| Material | Unit Material Cost |
|-----------------------|--------------------|
| Enamel Monocoat | \$7.80 |
| 2K Enamel Clearcoat | \$10.20 |
| 2K Urethane Monocoat | \$17.50 |
| 2K Urethane Clearcoat | \$19.20 |

| REFINISH | | |
|------------------|-------------|-------------|
| Operation Number | Labor Hours | Misc. Mat'l |
| P5P | 7.8 | 96 |
| | 8.1 | 96 |
| | 10.0 | 131 |
| | 10.3 | 131 |
| | 10.5 | 131 |
| | 10.8 | 131 |
| | 7.8 | 96 |
| | 8.1 | 96 |
| | 8.3 | 96 |
| | 8.6 | 96 |
| | 8.6 | 115 |
| | 8.9 | 115 |
| | 9.1 | 115 |
| | 9.4 | 115 |
| P7P | 0.7 | 2 |
| | 1.0 | 2 |
| P8P | 1.4 | 21 |
| | 1.7 | 21 |
| P9P | 2.0 | 42 |
| | 2.3 | 42 |
| P10P | 1.2 | 9 |
| | 1.5 | 9 |
| P16P | 0.8 | 3 |
| | 1.1 | 3 |
| P18P | 1.2 | 11 |
| | 1.5 | 11 |
| P22P | 0.3 | 1 |
| | 0.6 | 1 |
| P24P | 1.1 | 10 |
| | 1.4 | 10 |
| P32P | 4.9 | 83 |
| | 5.2 | 83 |
| P33P | 1.5 | 20 |
| | 1.8 | 20 |
| P39P | 1.4 | 12 |
| | 1.7 | 12 |

CLAIM SAMPLE

| PART NUMBERS | | | PARTS | | | CONDITION CODE | LINE |
|---|-------|--------|---------------------------|------|--------|--|------|
| PREFIX | BASIC | SUFFIX | QTY. | EACH | AMOUNT | | |
| | MAT | | 13.10 | 1750 | 22925 | | A |
| | | 1 | | | | | B |
| | CAB | | | | | D5 | C |
| | | | | | | | D |
| | MAT | 2 | 2.1 | 1750 | 3675 | | F |
| | 16612 | | | | | D5 | H |
| | MAT | 3 | .9 | 1750 | 1575 | | J |
| | 16005 | | | | | D5 | L |
| 1/INCLUDES ALL PAINT AND STRIP MATERIAL | | | | | | | |
| FORD USE ONLY - KEY PUNCH CHECK DIGIT | | | LABOR RATE | | | | |
| 042098 1 | | | MECH. | B.P. | T7 | DIESEL | |
| <small>ON BEHALF OF SERVICING DEALER I HEREBY CERTIFY THAT THE INFORMATION CONTAINED HEREON IS ACCURATE UNLESS OTHERWISE SHOWN. SERVICES DESCRIBED WERE PERFORMED AT NO CHARGE TO OWNER OR ON A CO-PAY BASIS. THERE WAS NO INDICATION FROM THE APPEARANCE OF THE VEHICLE OR OTHERWISE, THAT ANY PART REPAIRED OR REPLACED UNDER THIS CLAIM HAD BEEN CONNECTED IN ANY WAY WITH ANY ACCIDENT, NEGLIGENCE, OR ABUSE. RECORDS SUPPORTING THIS CLAIM ARE AVAILABLE FOR (1) YEAR FROM THE DATE OF PAYMENT NOTIFICATION AT THE SERVICING DEALER FOR INSPECTION BY REPRESENTATIVES OF FORD.</small> | | | | | | | |
| (SIGNED) _____ | | | DEALER OR GENERAL MANAGER | | | (DATE) _____ | |
| | | | | | | NOT RESPONSIBLE FOR LEFT IN CARS IN CASE BEYOND OUR CONTROL. WORK TO BE DONE ALTERNATELY. HEREBY GRANT YOU AN EXPRESS MECHANICAL WARRANTY FOR THE ABOVE VEHICLE THERETO. | |
| | | | | | | X _____ CUSTOMER | |

TB-2330-A

Figure 2 - Article 91-18-1

1. Solvent-wipe the damaged area with "Silicone and Wax Remover".
2. Using a heat gun or lamp, soften the vinyl coating of the damaged area until it can be scraped off with a putty knife or a similar tool. If necessary, sand off any hard to remove coating using an orbital disc sander (No. 80 Disc). (The spray-on vinyl protective coatings may not be suitable for "spot" application. See Manufacturer's label for instructions.)
3. Perform necessary servicing to correct the sheet metal damage.
4. Using white bodyfiller, fill the damaged area. Follow the instructions on the label and blend the bodyfiller with the surrounding sheet metal.
5. Allow the bodyfiller to completely cure and then carefully sand the area smooth, removing any high spots.
6. Refer to "Spray Procedure" for restoration of vinyl anti-stone abrasion material.

LARGE DAMAGED AREAS - VEHICLE WITH FACTORY SPRAYED ON VINYL

Peeling or damage over a large area will necessitate removal of the factory sprayed-on vinyl coating. The following procedure is suggested.

NOTE:

WHERE SHEET METAL IS DAMAGED TO THE EXTENT THAT A FENDER, DOOR, OR QUARTER PANEL REPLACEMENT IS REQUIRED, (OR IN AN INITIAL INSTALLATION), DISREGARD STEPS NO. 1 AND NO. 2.

1. Using a heat gun or lamp, soften the vinyl coating until it is pliable. Scrape coating off with a putty knife or a similar tool. If necessary, sand off any hard to remove coating using an orbital disc sander (No. 80 Disc). (The vinyl material, abrasion resistant coating may not be suitable for "spot" applications. See manufacturer's label for instructions.)
2. Perform necessary servicing to correct the sheet metal damage.
3. Refer to "Spray Procedure" for restoration of vinyl anti-stone abrasion material.

COATING APPLICATIONS

Approximately two quarts will be required for an initial installation on a passenger car or F-Series. Slightly more will be required for an Econoline. The specified dry film thickness of 15 to 20 mils (.015 to .020 inch) will require at least three, possibly four, applications of coating material, with "flash off" time between coats. Spray coat complete panels only.

The coating must be applied with commercial equipment by an experienced automotive painter. The coating must be thoroughly agitated before application. The material is heavy bodied. A pressure cup spray gun or "Rocker Schutz Gun" is recommended.

COATING PREPARATION - MASKING VEHICLE

Install suitable covers over the wheels.

NOTE:

IF THE VEHICLE HAS LOWER BODY SIDE MOULDINGS (12-14 INCHES ABOVE THE "TURN UNDER" OF THE ROCKER PANEL), THE MOULDING CAN SERVE AS THE UPPER MARGIN OF THE AREA TO

BE COATED. IF THE VEHICLE DOES NOT HAVE SUITABLE MOULDINGS, A SCULPTURE OR BREAK LINE IN THE SHEET METAL CAN BE UTILIZED. THIS LINE SHOULD BE SELECTED TO ENSURE ADEQUATE PROTECTION OF THE PAINTED SURFACES.

VEHICLES WITH BODY SIDE MOULDINGS

1. Masking tape should be positioned so that the moulding lower edge is also covered. The adjoining sheet metal should be left uncovered too so anti-stone, abrasion vinyl can be applied.

VEHICLES WITHOUT BODY SIDE MOULDINGS

2. If the contour of the body side has a break line, the upper coating margin must be masked off using 3M "Fine Line" Tape.
 - a. The normal masking tape and paper protection for the body side should be applied first and positioned about a quarter inch above the margin line.
 - b. The "Fine Line" tape should then be applied over the regular masking tape with the lower edge at the upper coating margin line. Extend this "Fine Line" tape into the wheel opening, in the absence of wheel opening mouldings, allowing the flange to be coated.
 - c. The anti-stone abrasion coating does not adhere well to flexible plastic parts. If left exposed, they must be masked off.
 - d. It is not necessary to mask off the body door openings in the coating area, as they will be uniformly coated where the door margins allow the coating to enter.

NOTE:

DOOR OPENING AREAS SHOULD BE CLEANED TO ASSURE COATING ADHERENCE.

COATING PREPARATION - SHEET METAL

REPAIRED SHEETMETAL

1. Scuff sand (No. 180 Grit Paper) the glossy surface of the painted areas to be coated.
2. Using a clean, lint-free cloth, solvent wipe the area to be coated with wax and grease remover.
3. Remove sanding dust using compressed air and lint-free tack cloth.

NEW SHEET METAL

1. Sand off (No. 180 Grit Paper) the prime paint in the area to be coated.
2. Using a lint-free cloth, solvent wipe the area to be coated with wax and grease remover.
3. Remove sanding dust using compressed air and a lint-free tack cloth.

NEW INSTALLATION

1. The glossy surface of the paint in the coating area must be sanded with a D/A sander. A 220/240 Grit Disc does a good, fast job. DO NOT sand through the primer.

2. Using a clean, lint-free cloth, solvent wipe the area to be coated with wax and grease remover.
3. Remove sanding dust using compressed air and a lint-free tack cloth.

SPRAY PROCEDURE

The lower exposed painted fender, rocker, and quarter panel down flanges should be protected. The vehicle must be elevated high enough so that the painter can spray this area effectively. When an initial installation is to be made, a remote two-quart capacity pressure cup makes a much more efficient tool, as the spray gun can be used closer to the floor. The spray gun, fluid hose and/or cup must be cleaned immediately after use. Refer to manufacturer's recommended cleaning procedure. Lacquer thinner can be used when the suggested clean up material is unavailable.

WARNING:

WEAR A NOISHA/MSHA RECOMMENDED VAPOR/PARTICULATE RESPIRATOR AND USE ALL OTHER RECOMMENDED SAFETY EQUIPMENT.

1. After preparing the new or damaged area(s), mix either Epoxy primer or Self-etch prime, per manufacturer's label instructions, and spray bare metal areas.
 - BASF DE15 or DE17
 - Sikkens Metalflex CR Primer (1 coat only)
 - DuPont Variprime
 - S-W E2G 980 GBP Etching Filler
 - PPG DP 40 (only)
2. Apply 1-2 light prime coats over the bare metal areas.
3. Allow the material to dry for 15-20 minutes before applying the anti-stone abrasion material.
4. Mix and apply anti-stone abrasion material per manufacturer's label instructions over the primed area.

NOTE:

AN ORANGE PEELED FINISH IS NORMAL WITH THESE PRODUCTS.

- BASF Glassohyd 1109-1240/6
- Sikkens OTO Bodycoat
- DuPont 123-5 Vinyl
- S-W G/W 295 Vinyl Gravel Guard
- PPG DX 54 Roadguard
- 3M Rocker Schutz

NOTE:

SOME ANTI-STONE ABRASION MATERIAL MAY REQUIRE A SLIGHTLY DIFFERENT MIXING PREPARATION, PROCEDURE AND APPLICATION. SOME ANTI-STONE ABRASION MATERIALS CAN NOT BE USED FOR SPOT REPAIR. CHECK WITH THE PAINT MANUFACTURER FOR

RECOMMENDATIONS ABOUT THEIR PRODUCT.

5. Allow the stone abrasion material to dry. Heat can be used to accelerate the drying time. Check the manufacturer's instructions.

COLOR COAT

The complete coated area, as well as the upper raw edge, must be covered with color coat. Mask off the upper margin line using "Fine Line" tape positioned 1/16 inch above the coating edge. Using appropriate service paint and application procedures, the protective coating area can now be finish painted with monocoat or a basecoat/clearcoat urethane system.

NOTE:

IF DAMAGED SHEET METAL EXTENDS ABOVE THE PROTECTIVE COATING AREA, NORMAL PRIME/COLOR PAINT PROCEDURES SHOULD BE FOLLOWED.

CAUTION:

OUR ENVIRONMENT IS PRECIOUS - PLEASE USE PROPER DISPOSAL TECHNIQUES FOR ANY VOLATILE ORGANIC COMPOUNDS (V.O.C.'s) OR EXCESS MATERIALS.

Refer to the Lower Body Stone Protection Chart, Figure 4, for the material and labor hours involved.

| LOWER BODY STONE PROTECTION CHART | | | | |
|---|----------------------------|-----------------|--------------|-----------------|
| <u>Softening and Scraping</u> | <u>Coating Application</u> | | <u>Total</u> | <u>Material</u> |
| | <u>Two Sides</u> | <u>One Side</u> | | |
| Door (2-door) | 0.3 | 0.1 | 0.4 hr. | 4/10 qt. |
| Door (4-door) | 0.2 | 0.1 | 0.3 hr. | 3/10 qt. |
| Rocker Panel | 0.3 | 0.1 | 0.4 hr. | 4/10 qt. |
| Fender | 0.2 | 0.1 | 0.3 hr. | 2/10 qt. |
| Quarter | 0.2 | 0.3 | 0.3 hr. | 2/10 qt. |
| Complete side (2-door) | 1.0 | 0.3 | 1.3 hrs. | 1 qt. |
| Complete side (4-door) | 1.1 | 0.4 | 1.5 hrs. | 1 qt. |
| <u>Operation No.</u> | | | <u>Labor</u> | <u>Material</u> |
| SP-19515-A78-Door (2-door) | | | 0.4 hr. | 4/10 qt. |
| SP-19515-B78-Door (4-door) | | | 0.3 hr. | 3/10 qt. |
| SP-19515-C78-Rocker Panel | | | 0.4 hr. | 4/10 qt. |
| SP-19515-D78-Fender | | | 0.3 hr. | 2/10 qt. |
| SP-19515-E78-Quarter | | | 0.3 hr. | 2/10 qt. |
| SP-19515-F78-Complete side (2-door) | | | 1.3 hrs. | 1 qt. |
| SP-19515-G78-Complete side (4-door) | | | 1.5 hrs. | 1 qt. |
| NOTE: THESE TIMES DO NOT INCLUDE METAL SERVICING OR COLORCOAT APPLICATION. | | | | |
| TB-2207-A | | | | |

Figure 4 - Article 91-18-1

(D) PROCEDURE FOR PVC BODY SIDE MOLDINGS

If replacement of the body side molding is necessary, some dealer service kits will be supplied "paint to match."

The painting procedures in the following instructions (also included with the part) address materials from five (5) major aftermarket paint suppliers. Use the paint system materials you are the most familiar with.

NOTE:

CAREFULLY READ ALL LABEL WARNINGS BEFORE APPLYING THESE PRODUCTS.

WARNING:

ALWAYS WEAR A NOISHA/MSHA RECOMMENDED VAPOR/PARTICULATE RESPIRATOR AND USE ALL OTHER RECOMMENDED SAFETY EQUIPMENT.

SIKKENS PRODUCTS

PREPARATION

1. Degrease with M600 wax and grease remover.
2. Scuff with #320 dry paper or Scotchbrite 7447 (red).
3. Repeat degreasing step.
4. Spray two medium coats of Plastoflex primer. Allow 5 to 10 minutes flash between coats.
5. Allow 20 minutes flash-off at 70° F before topcoating.

TOPCOATING

1. Mix Autocryl color with Elast-O-Actif 50:50 by volume.
2. Mix this material with 1.2.3 hardner and 1.2.3 reducer (use correct reducer for temperature) 100:50:30 by volume.
3. Apply three medium coats, allowing enough flash off to dry to a light touch.
4. Dry one hour at 140° F after 10 minutes flash off or dry 24 hours at 75°F.

PPG PRODUCTS

PPG MONO-COAT SYSTEMS

1. Solvent wipe with DX330 Acryli-clean.
2. Scuff with red Scotchbrite pad.
3. Repeat solvent wipe.

TOPCOATING

1. Mix and apply Deltron topcoat color with DX-369 Flexative per label instructions.
2. Use 40-50 PSI at the gun.

PPG BASECOAT/CLEARCOAT SYSTEMS

PREPARATION

1. Solvent wipe with SX330 Acryli-clean.
2. Scuff with red Scotchbrite pad.
3. Repeat solvent wipe.

TOPCOATING

1. Mix and apply Deltron basecoat color (DBU), with the recommended reducer for the temperature, per label instructions.
2. Mix and apply clearcoat material DBU-88 or DCU-2001, with DX-369 Flexative, per label instructions.

SHERWIN-WILLIAMS PRODUCTS

Ultrabase 7 Basecoat/Clearcoat or Ultra One Stage Acrylic Urethane Enamel

PREPARATION

1. Wash the material with a mild detergent and wipe dry.
2. Solvent wash with R7 K 156 and wipe dry.
3. Clean with a tack cloth.
4. Apply desired system with correct amount of Multi-flex, V6 V 299.

TOPCOATING

Prepare topcoating as follows:

- S-W Ultra One Stage: (Mono-coat)
 - 4 Parts Color
 - 3 Parts SSR 650 Reducer
 - 1 Part V6 V 440 or SSH 520
 - 2 Parts V6 V 299
- S-W UB7 Basecoat:
 - 8 Parts Basecoat Color
 - 8 Parts Stabilizer
 - 1 Part V6 V 299

- S-W UB7 Clearcoat:
 - 4 Parts T1 C 650 Clearcoat
 - 2 Parts T1 C 650 Reducer
 - 1 Part CCH 690
 - 1 Part V6 V 299
- S-W Ultra One Stage: (Mono-coat)
 - Apply 2-3 medium wet coats at 50 PSI
- UB7 Basecoat:
 - Apply 2-3 medium coats at 45 PSI
- UB7 Clearcoat:
 - Apply 2-3 medium coats are 50 PSI

DUPONT PRODUCTS

DUPONT CRONAR POLYOXITHANE MONOCOAT SYSTEM

PREPARATION

1. Wash the surface thoroughly with a mild detergent.
2. Clean with Prep Sol.

TOPCOATING

1. Add 8 parts of Cronar single stage enamel.
2. Add 1 part Cronar initiator 9404S.
3. Add two parts of (9475S, 9485S, or 9495S,) depending on shop temperature.
4. Add 2 parts flex-additive 9250S.
5. Mix thoroughly.
6. Spray at 45-55 PSI at the gun, 2-3 medium wet coats or until hiding.
7. If a clear coat is applied, use 9500S.

DUPONT CENTARI MONO-COAT ENAMEL SYSTEMS

PREPARATION

1. Wash the surface thoroughly with a mild detergent.
2. Clean with Prep Sol.

TOPCOATING (Follow Manufacturer's Recommendation)

1. Add 8 parts of Centari enamel color and 1 part 793S hardener.
2. Add 4 parts of (8022S, 8093S, or 8096S) reducer, depending on shop temperature.
3. Add 355S flex additive per label instructions.
4. Mix thoroughly.
5. Spray 2-3 wet coats, with 5 minutes flash time, at 50-65 PSI.

BASF PRODUCTS

The following procedure is applicable to 4 paint systems in the BASF paint line. Read individual "system" instructions carefully.

PREPARATION

1. Solvent wipe the molding with RM Pre-klean-o 900.
2. Sand with 400 grit sand paper and rinse with 901 pre-paint cleaner.

TOPCOATING BASECOAT

- "Glasurit" 54-line color 2 vol. parts
- 54-line reducer 1 vol. part
- "Diamont" basecoat color 2 vol. parts
- B R Diamont reducer 2 vol. parts
- "Miracryl" basecoat color 2 vol. parts
- BCR reducer 2 vol. parts
- "Supreme Gold" basecoat color 2 vol. parts
- LBR reducer 2 vol. parts

Apply basecoat color until hiding is achieved. Allow 3-5 minutes flash time between coats.

NOTE:

USE APPROPRIATE REDUCER FOR SHOP CONDITIONS. ALLOW 15 MINUTES FLASH-OFF BEFORE SPRAYING CLEARCOAT.

TOPCOATING

Apply clearcoat per manufacturer's label instructions:

CLEARCOAT REDUCTIONS

- DC-88 Diamont Clear 4 Vol. Parts
- DH-44 Diamont Hardener 1 Vol. Part
- MC-1000 Clear 4 Vol. Parts
- 894 Hardener 1 Vol. Part
- LC-1300 Supreme Gold Clear 4 Vol. Parts
- LH-1301 Hardener 1 Vol. Part
- 92354 Glasurit Clear 100 Parts
- 521-111 Elastifier 20 Parts
- 929-29 Hardener 60 Parts

Apply 2 wet coats with 5 to 10 minutes flash time between coats. Overnight dry or force dry at 140°F for 30 minutes.

CAUTION:

OUR ENVIRONMENT IS PRECIOUS - PLEASE USE PROPER DISPOSAL TECHNIQUES FOR ANY VOLATILE ORGANIC COMPOUNDS (V.O.C.'s) OR EXCESS MATERIALS.

(E) LOWER BODY-SIDE STONE CHIP PROTECTION PROGRAM

Ford Motor Company has recently initiated a program to provide improved stone-chip protection on some vehicles and to increase the corrosion protection on cars and trucks.

Some customers are unaware of body side anti-stone chip protection which appears as wavy orange peel texture on the lower body areas.

Ford is increasing the use of PVC (poly vinyl chloride) material which is applied in a thicker coating on the lower body-side. This material has been in use on vehicles destined for the Canadian market for many years.

This PVC material is now applied at the following plants on ALL vehicles.

- Edison - Ranger
- Hermosillo - Escort/Tracer
- Louisville - Ranger and Explorer
- Ohio Truck - Econoline
- Wayne - Escort/Tracer

This process is also planned for Kansas City, Oakville, Ohio Truck, Twin Cities and Wixom.

This material can be identified by the "orange peel" appearance and a visible "break-line" between protected

and unprotected areas in the lower body areas.

CAUTION:

THIS PROTECTION MUST NOT BE REMOVED IF VEHICLE IS EXPECTED TO MAINTAIN THE CORROSION PROTECTION.

Some customers have expressed concerns due to the appearance of the treated areas. These Customers did not know about the extra protection this material provides their vehicle. Once explained, customers were pleased with the added protection and accepted the orange peel finish.

NOTE:

DEALERS SHOULD ADVISE THEIR SALES PEOPLE, SERVICE PEOPLE, AND CUSTOMERS, OF THE REASONS AND BENEFITS OF THIS PROTECTION. CANADIAN DEALERS STRESS THIS AS A SELLING POINT WITH THEIR SALES PEOPLE. IT IS CONSIDERED A COMPETITIVE ADVANTAGE.

(F) SURFACE DEFECT REMOVAL WITHOUT REPAINTING

Exterior paint surface damage or imperfections, where the primer coat does not show through, should be restored without repainting. The restoration of gloss and luster, after the condition has been repaired, is possible with new techniques and improved materials.

The following procedure is applicable to surface conditions such as dirt particles, orange peel, runs, sags, industrial fallout stains, swirl marks, light scratches and other minor surface imperfections. For dirt particles or scratches in several localized areas, the entire panel should be refinished to maintain a uniform appearance.

PREPARATION

To repair the affected surface it must be clean and dry. Mask off adjacent panels, mouldings, stripe and character lines as required.

CAUTION:

EYE PROTECTION, AND FACE MASK SHOULD BE WORN. RINGS, BRACELETS, WATCHES AND BELT BUCKLES MUST BE REMOVED TO PREVENT ACCIDENTAL DAMAGE TO PAINT FINISH.

SERVICE PROCEDURE

1. Remove sanding marks with rubbing compound.
2. Swirl marks, evident after buffing, are removed by polishing.
3. Remove light scratches and small dirt particles with a power buffer and medium buffing compound followed with polishing.
4. Remove deeper scratches and heavy dirt particles or orange peel, by wet sanding.
5. Buff with compound to remove the sanding marks and then polish to remove the swirl marks from the buffing operation.

NOTE:

PERFORM A TRIAL REPAIR WITH A SMALL AREA. FIRST, TRY POLISHING; IF THIS IS NOT SUCCESSFUL, TRY BUFFING AND, FINALLY, USE WET SANDING TO REMOVE THE CONDITION. USE MOST EFFECTIVE TECHNIQUE ON REMAINDER OF AREAS. AN OUTLINE OF THE COMPLETE PROCEDURE AND REQUIRED MATERIALS FOLLOWS.

POLISHING - VERY MINOR SCRATCHES OR SWIRL MARKS AND/OR RESTORING A DULL FINISH

1. Apply a small amount of Meguiar's Mirror Glaze, or equivalent, to the affected panel (or pad).
2. Use a suitable electric or air powered polish/buffing wheel (1750 max. RPM) and a Meguiar's Finesse Polishing Pad, or equivalent, to polish the affected area until all swirl marks are gone and desired luster is obtained.
3. When polishing, keep the pad flat against the surface. Do not bear down. The weight of the buffer is sufficient.

CAUTION:

DO NOT MIX PRODUCTS! USE A SEPARATE, DEDICATED BUFFING PAD FOR EACH PRODUCT TO ACHIEVE DESIRED RESULTS.

Variable speed buffers are available in a variety of buffing speeds. The recommended speed range is (1200-1750 RPM).

COMPOUNDING - LIGHT SCRATCHES, SMALL DIRT PARTICLES, MINOR GRIND MARKS AND SANDING MARKS

1. Apply Meguiar's Rubbing Compound (medium) or equivalent to the panel with a clean compound pad on the wheel.
2. Spread the compound evenly and continue buffing until the condition is removed.
3. Keep the wheel flat to the surface and use light to moderate pressure and long strokes.
4. Periodically check the finish and add compound as required.
5. When buffing is complete, polish the panel as described previously.

Twisted wool cutting pads are the most effective compounding pads to use with Glaze Machine Cleaner for removing paint defects and heavy oxidation. Following the use of a wool compounding pad, it may be necessary to polish the finish with No. 2 Mirror Glaze Hi-Tech Cleaner using a Mirror Glaze Finesse Polishing Pad to remove the deep swirl marks.

GENERAL TECHNIQUES AND HINTS

- "Foam" buffing pads create added gloss and depth of color on all types of paint finishes without creating buffer swirl marks.
- When "buffing out" oxidation or other paint defects with a cleaning material, use a liberal amount of material, slower buffing motion and added downward pressure to increase cutting action.
- Always apply cleaner to buffing pad, not directly on the oxidized paint surface. Dry paint absorbs material into pores upon contact.
- Always keep the face of the buffing pad completely flat to the surface, reducing the risk of buffer swirl marks. Watch your pad, especially on angled surfaces, to be certain that it stays flat.
- Avoid short rapid strokes. Move the buffer slowly across the surface using long straight motions and overlap by 50% the buffing pattern left by the previous pass. This insures uniform coverage and allows both material and buffer to perform at maximum efficiency.

- Avoid buffing directly on raised character lines. The reduced paint film on these surfaces increases the risk of paint burn through. It is best to buff up to them from each side.
- Always use a "wet buff" technique on a basecoat/clearcoat finish. This is a precaution against buffer swirls. Stop buffing just after the product begins to break down and before an overall dry, glossy finish appears. After "wet buffing", use a towel to wipe off the excess material.
- Always use a "dry buff" technique on light colored, conventional paint finishes. Continue buffing until the material breaks down and only a slight film remains for final wipe off.
- If a paint blemish remains after buffing, reapply a small amount of material over the blemish. Confine your buffing strokes to the immediate area of the blemish while applying additional downward pressure and keeping the pad flat.

NOTE:

ALWAYS KEEP THE PAD MOVING AND LIMIT YOUR STROKES OVER THE BLEMISH TO PREVENT EXCESSIVE HEAT BUILD-UP AND POSSIBLE BURN THROUGH. STOP IMMEDIATELY IF THE SURFACE BECOMES TOO HOT TO LAY THE PALM OF YOUR HAND ON IT.

NOTE:

HEAT BUILD-UP: WHEN BUFFING CREATES EXCESSIVE HEAT, HAZING MAY APPEAR ACROSS THE SURFACE BEING BUFFED AND THE PRODUCT MAY DRY LIKE A FILM AND REFUSE TO BUFF OUT. TO REMEDY, WIPE THE AREA DOWN WITH COOL WATER, DRY THE SURFACE AND RESUME BUFFING...AT A LOWER RPM IF POSSIBLE.

NOTE:

STATIC: STATIC ELECTRICITY MAY BE PRESENT ON PAINTED FIBERGLASS/PLASTIC SURFACE BEING BUFFED, THE MATERIAL MAY DRY LIKE A FILM OR TURN "GUMMY" AND BEGIN TO BALL UP. TO REMEDY, GROUND THE SURFACE BEING BUFFED TO METAL.

WET SANDING

Paint defects and sanding marks must be completely removed without using compounds and abrasive cleaners that scar the finish.

Mirror Glaze Hi-Tech Finesse Sanding Papers provide uniformity in grit particle size and distribution. Using these precision made sanding papers, water sanding marks can be removed with Meguiar's cleaner and finesse polishing pads.

- Typical paint defects that are repaired with this system include: dirt-in paint, solvent pop, cratering, orange peel, drips, scratches, water spots, and acid rain.
- Always use the least abrasive (highest grit) sanding products possible to do this job.

The following wet sanding procedure utilizes light grit sand paper or sanding blocks for removal of surface damage. These materials cut quickly leaving a uniform finish requiring a minimum of buffing to restore gloss.

PROCEDURE

1. Squeeze water to flush the area to be sanded. Continue to flush water to the surface during sanding for maximum lubrication.
2. Use small circular motions to contain the abrasion to the immediate area of the defect. Keep the blocks in water when not in use.

3. If the sanding block is cutting too slow, switch to a lower grade block and resume sanding. When 90% of the defect is removed, switch to a 2000 grade Finesse Sanding Paper or Sanding Block to finish smoothing and prepare the surface for buffing.
4. Finesse Sanding Blocks can be shaped to work on any angle. When the block is wet, rub it against a dry sanding block for shaping.
5. When using Finesse Sanding Papers, wrap the paper tightly around a E-7200 Backing Pad. This pad evenly distributes pressure over the entire surface of the sanding paper. This creates a uniform sanding pattern.
6. Plan your strokes to limit the abrasion to the smallest area possible.

NOTE:

ALWAYS SAND IN ONE DIRECTION AND KEEP YOUR STROKES STRAIGHT.

7. Always finish sanding with 2000 Grit Finesse Sanding Paper. This eliminates the need for compounding.
8. Buff out sanding marks by applying Meguiar's Cleaner with a Finesse "Foam" Polishing Pad. Follow with a Mirror Glaze Polish for swirl-free gloss.

WARNING:

OUR ENVIRONMENT IS PRECIOUS - PLEASE USE PROPER DISPOSAL TECHNIQUES FOR ANY VOLATILE ORGANIC COMPOUNDS (V.O.C.'s) OR EXCESS MATERIALS

RUNS AND SAGS REMOVAL

This procedure consists of shaving the run or sag flush with a commercial single edge razor blade, shaving file or sanding with a hard block and then compounding.

NOTE:

IF IT IS NECESSARY TO SHAVE RUNS AND SAGS WITH A RAZOR BLADE, FIRST DULL THE CORNERS WITH SANDPAPER TO AVOID SCRATCHING THE ADJACENT PANEL FINISH.

OTHER APPLICABLE ARTICLES: 82-3-3

(G) COLOR COMPATIBLE SPRAY PRIMER CHART

Ford has released color compatible spray primers for exterior and some interior surfaces.

Colored sprayed primers are being used by our "Best-In-Class" competition and are now being implemented at Ford in order to improve process capability and to help in minimizing unsightly paint chipping from stone abrasion. Color keyed (matched) spray primer for exterior body colors is being used in an effort to help in the elimination of unsightly paint chipping from stone abrasion.

As with "Best-In-Class" competition, the engine compartment will be left with color compatible primer only and not be topcoated as per past practice.

When any paint repair is required, remember that the vehicle may have a colored primer. Refer to the Spray Primer Chart, Figure 5. This information may be of help in correction of exterior paint color match concerns.

| COLORED PRIMERS | | | | | | | | | | | | | | | |
|-----------------|------|---------|---------|----------|--------|------------|-------------|--------|------------|----------|-------------|-----------|------------|-------|-------|
| ASSEMBLY PLANT | | | | | | | | | | | | | | | |
| COLOR | M# | Atlanta | Chicago | Dearborn | Edison | Hermasillo | Kansas City | Lorain | Louisville | Oakville | Lorain Econ | St. Louis | St. Thomas | Wayne | Wixom |
| DK TITANIUM | 6507 | M | M | B | | | | M | | | B | | M | | M |
| LT TITANIUM | 6508 | | | C | | | | | | | | | M | | |
| WILD STRAWBERRY | 6510 | | | M | | | | | | | | | | | |
| ULTRA BLUE | 6511 | | | M | | | | | | | | | | | |
| LT CRYSTAL BLUE | 6512 | | | | | | | | | | B | | | | |
| TWILIGHT BLUE | 6513 | M | M | B | M | | M | | | | B | | M | | M |
| WHITE | 6514 | M | M | M | M | | | | M | | B | C | M | | B |
| JEWEL GREEN | 6516 | | | M | M | | | | | | | | | | |
| VERMILLION | 6517 | | | M | M | | | | M | | | | | | |
| TAUPE/WOODROSE | 6518 | S | S | C | S | C | S | S | | S | | C | B | C | |
| BLACK | 6519 | M | M | M | M | | | M | | | B | | M | | B |
| LT GREY | 6529 | | | | | C | | | | | B | | | C | |
| DK GREY | 6530 | | | | | | | | | | | C | | C | |
| MED GREY | 6531 | | | | | | | | S | | | | | C | |
| MED WOODROSE | 6532 | | | | M | | | | | | | | M | | |
| TITANIUM | 6534 | M | M | B | | | | M | | | | | | | B |
| REGATTA BLUE | 6535 | M | M | | | | | M | | | B | | | | |
| MED RED | 6536 | M | M | | M | | | M | | | B | | M | | B |
| MED CURRANT | 6537 | M | M | | | | | | | | | | M | | M |
| BISQUE | 6538 | | | | | | | | | | | | M | | |
| SANDALWOOD | 6539 | | | | | | | | | | | | M | | |
| CRYSTAL BLUE | 6541 | | | M | | | | | | | | | M | | |
| ALABASTER | 6543 | | | | M | | | | | | | | M | | |
| AMETHYST | 6568 | M | M | | | | | | | | | | | | M |
| LT CRANBERRY | 6569 | | | | | | | | | | | | | | M |
| MED MOCHA | 6570 | M | M | | | | | M | | | | | | | M |
| LT MOCHA | 6571 | M | M | | | | | M | | | | | | | B |
| DESERT TAN | 6573 | | | | | | | | | | B | | | | |
| AQUAMARINE | 6574 | | | | | | | M | | | | | | | |
| ATLANTIC BLUE | 6575 | | | | | | | | | | B | | | | |
| COLONIAL WHITE | 6576 | | | | | | | | | | B | | | | |
| PAWNEE TAN | 6577 | | | | | | | | | | B | | | | |
| SMOKE | 6579 | | | | M | | | | | | B | | | | |

M = Color Matched Interior Spray Primer (Exact Color Match-Lower Gloss)
C = Color Compatible Body Spray Primer (Compatible Color Family) (not same color)
B = Both Interior and Exterior
S = Single Color Body Spray Primer

TB-2209-B

Figure 5 - Article 91-18-1

(H) PAINT REPAIR FOR TINTED CLEAR COAT

Ford introduced (Early Spring, 1991) a new paint color using a tinted clearcoat. The first color to use this new system is Rio Red.

If a paint repair is necessary, refer to the following procedure for repair instructions.

BACKGROUND

The Probe production paint system for Rio Red includes a Medium Green E-Coat primer, a Light Gray spray primer, bright Rio Red (E4) basecoat and a slightly Red tinted clearcoat topcoat.

NOTE:

BEFORE ANY REPAIRS ARE BEGUN, IT IS CRITICAL THAT PRIMER, RED BASECOAT AND TINTED CLEARCOAT BE SPRAYED ON A TEST PANEL. THE COLOR MATCH IN EACH STEP IS VERY

IMPORTANT FOR A SUCCESSFUL REPAIR.

WARNING:

ALWAYS WEAR A NOISHA/MSHA RECOMMENDED VAPOR/PARTICULATE RESPIRATOR AND USE ALL OTHER RECOMMENDED SAFETY EQUIPMENT.

SMALL SPOT REPAIR PROCEDURE

1. Wash the vehicle with detergent soap and water.
2. Wipe the vehicle down with wax and grease remover.
3. Sand the spot using 400 grit paper. Do not sand through the E-coat.
4. Wipe the sanded surface again with wax and grease remover/pre-cleaner.
 - BASF Product # 90 Pre-Kleano
 - PPG Product # DX 330
 - S-W Product # R7-K156
 - DuPont Product # 3919 S
 - Sikkens Product # M 600
5. Mix and apply tintable (Light Gray) self-etching or epoxy primer per manufacturer's label instructions.

NOTE:

COLOR MATCH OF PRIME COAT IS KEY IN COLOR MATCH OF REPAIRED AREA.

- BASF Product # DE 17
 - PPG Product # DP 40
 - S-W Product # E2-G973
 - DuPont Product # 615S
 - Sikkens Product # 1016
6. Mix and apply bright Rio Red base coat material per manufacturer's label instructions.

NOTE:

COLOR MATCH OF BASE CLEAR COAT IS KEY IN COLOR MATCH OF REPAIRED AREA.

7. Mix and apply red tinted clearcoat material per manufacturer's label instructions.

NOTE:

COLOR MATCH OF TINTED CLEAR COAT IS KEY IN COLOR MATCH OF REPAIRED AREA.

FULL PANEL REPAIR PROCEDURE

1. Wash the vehicle with detergent soap and water.

2. Wipe the vehicle down with wax and grease remover.
3. Sand the complete panel and feather edge into the next panel using 400 grit paper. Do not sand through the E-Coat primer.
4. Wipe the sanded surface with wax and grease remover.
5. Mix and apply tintable (light gray) primer per manufacturer's label instructions.
6. Mix and apply Rio Red basecoat per manufacturer's label instructions.
7. Mix and apply Red tinted clearcoat per manufacturer's label instructions.
8. Mix and apply one coat of non-tinted clearcoat per manufacturer's label instructions.

NOTE:

COLOR MATCH OF EACH COAT ARE KEY TO COLOR MATCH OF FINISH REPAIR.

WARNING:

OUR ENVIRONMENT IS PRECIOUS - PLEASE USE PROPER DISPOSAL TECHNIQUES FOR ANY VOLATILE ORGANIC COMPOUNDS (V.O.C'S) OR EXCESS MATERIALS.

(I) PAINTABLE PLASTICS

The Paintable Plastics Chart, Figure 6, is a summary of widely used plastics in our industry. The standard symbol should be located on the part for ease of material identification.

| <u>Standard Symbol</u> | <u>Plastic - "Family" Name</u> | <u>Plastic - Common/Trade Name</u> | <u>Typical Application</u> | <u>Can Be Painted</u> |
|---------------------------------------|---|---|--|-----------------------|
| <u>Thermoplastics</u> | | | | |
| ABS | Acrylonitrile Butadiene Styrene | ABS, Cycolac, Lustran, Kralastic | "A" Pillars, Consoles, Grilles | Yes |
| EMA | Ethylene/Methacrylic Acid | Ionomer, Surlyn | Bumper Guards | Yes |
| PA | Polyamide | Nylon, Capron, Vydyn, Zytel Minlon, Bextoy C | | Yes |
| PAN | Polyacrylonitrile | | | |
| PBT | Polybutylene Terephthalate | Valox, Celanex, Gafite, Cpocan | Grilles, Nylon/sym | Yes |
| PC/PBT | Polycarbonate/ Polybutylene Terephthalate | Xenoy | Bumpers | Yes |
| PC | Polycarbonate | Lexan, Merlon, Calibre (Solvent) | Tail Light Lenses, IP Trim | Yes |
| PE | Polyethylene | Alathon, Dylan, Marlex, Lupolen | | |
| HDPE | High Density Polyethylene | | Not painted (non-visual parts) | No |
| LDPE | Low Density Polyethylene | | Not painted (non-visual parts) | No |
| LLDPE | Linear Low Density Polyethylene | | Non-visual chassis parts | No |
| PET | Polyethylene Terephthalate | Petra, Rynite | Luggage Rack | Yes |
| PMMA | Poly(methylmethacrylate) | Acrylic, Acrylite, Lucite, Plexiglas | Tail Light | Yes |
| POM | Polyoxymethylene | Acetal, Calcon, Delrin, Hostaform | | Yes |
| PTFE | Polytetrafluoroethylene | | | |
| PP | Polypropylene | Azdel, Hostalen, Marlex, Profax | Interior Trim/Door Panel, Wheel Splash Shields, Steering Column Shrouds | Yes |
| PA/PPO | Polyamide/Polyphenylene Oxide | | Mirrors (nylon) | Yes |
| PPO | Polyphenylene Oxide | Noryl | Grilles | Yes |
| PPS | Polyphenylene Sulfide | | | No |
| PPE | Polyphenylene Ether | Noryl, Prevex | Interior | Yes |
| PS | Polystyrene | Lustrex, Styron | Similar to ABS | Yes |
| HIPS | High Impact Polystyrene | | Similar to ABS | Yes |
| PVA | Polyvinyl Acetate | | | Yes |
| PVC | Poly(vinyl chloride) | Apex, Geon, Vinylite | Bodyside Moldings, Wire Insulation, Steering Wheels | Yes |
| PVDC | Polyvinylidene Chloride | | | Yes |
| SAN | Styrene Acrylonitrile | | | Yes |
| SMA | Styrene Maleic Anhydride | Cadon, Dylark | Visors (Similar to ABS) | Yes |
| <u>Thermoplastic Elastomer</u> | | | | |
| TES | Styrene Block Copolymer | Elexar, Kraton | Console Pads | Yes |
| TPO | Polyolefinic | Polytrope, Renflex, Santoprene, Telcar, Vistaflex | Bumper End Caps, Rub Strips, Sight Shields, Bodyside Cladding, Interior "B" Post | Yes* |
| TPU | Polyester Polyurethane | TPU, Hytrel, Texin, Estane | Bumper BSM, Similar to RIM | Yes |
| <u>Thermosetting Plastics</u> | | | | |
| PF | Phenol Formaldehyde | Phenolic, Bakelite, Durez, Genal | Ash Trays | Yes* |
| RIM | Reaction Injection Molded Polyurethane | RIM, Bayflex | Soft Front Fascias, Modular Windows | Yes |
| RRIM | Reinforced Reaction Injection Molded Polyurethane | | | Yes |

| | | | | |
|--------------------------|--|---|--|------|
| UP | Unsaturated Polyester Thermosetting | BMC (Bulk Molding Cpd), SMC (Sheet Molding Cpd), TMC (Transfer Molding Cpd), ZMC, IMC, XSMC (Compound) | Grille Opening Panel Liftgates, Flareside Fenders, Fender Extensions | Yes* |
| <u>Elastomers</u> | | | | |
| CR | Chloroprene | Neoprene | | No |
| EPDM | Ethylene/Propylene | EPDM, Nordel Vistalon | | No |
| NR | Natural Rubber | | | No |
| SBR | Styrene Butadiene Rubber | SBR, Buna S | | No |
| NBR | Nitrile Rubber | | | No |
| SI | Silicone | Silicone | | No |
| *Requires Prime Coat | | | | |
| TB-2210-A | | | | |

Figure 6 - Article 91-18-1

If painting or repair of these plastics is necessary, the following chart identifies those materials which can be painted. Refer to paint manufacturer for specific paint material recommendations.

NOTE:

MATERIALS MAY REQUIRE PRIME COAT SEE "YES", UNDER "CAN BE PAINTED" COLUMN.

(J) 1992 PAINT COLOR CODES

The 1992 Paint Color Codes are listed in Figure 7.

1992 PAINT COLOR

| "M" NUMBER | COLOR | CO/ NEW | CAR CODE | BASECOAT CLEARCOAT | PPG | DUPONT | SIKKENS | MARTIN SR. | RM | GLASURIT |
|---------------|--------------------------|------------|-------------|-----------------------|-----------|--------|---------|------------------------------------|---------|----------|
| | | | | | | | | ACME/ROGERS SHERWIN WILLIAMS | | |
| 1724 | Solid Black | CO | YC | | 9100/9300 | 99S | FA90YC | F10B1738 | STD PKG | 21-1240 |
| 5920 | Oxford White Solid | CO | YO | | 3620 | B8424 | FA90YO | 33631 | 14110 | FD-5920 |
| 6153 | Med. Red | CO | EM | | 3954 | B8778 | FA90EM | 36434 | 17151 | FD-6153 |
| 6156 | Med. Cabernet Solid | CO | EH | | 3936 | B8750 | FA90EH | 36357 | 17131 | FD-6156 |
| 6210 | White | CO | YY | | 3876 | B8687 | FA90YY | 35521 | 16185 | FD-6210 |
| 6263 | Med Regatta Blue C/C | CO | ME | * | 4060 | B8836 | FA90ME | 37274 | 18133 | FD-6263 |
| 6290 | Twilight Blue C/C | CO | MK | * | 4069 | B8835 | FA90MK | 37280 | 18141 | FD-6290 |
| 6325 | Currant Red Solid | CO | EC | | 4161 | B8903 | FA90EG | 39067 | 19051 | FD-6325 |
| 6327 | Crystal Blue C/C | CO | KA | * | 4165 | B8905 | FA90KA | 39070 | 19066 | FD-6327 |
| 6328 | Lt. Crystal Blue C/C | CO | MA | * | 4171 | B8916 | FA90MA | 39074 | 19052 | FD-6328 |
| 6329 | Past Titanium Solid | CO | YD | | 4261 | B9107 | FA90YD | 44040 | 20360 | FD-6329 |
| 6330 | Lt. Titanium C/C | CO | YF | * | 4121 | D8859 | FA90YF | 38806 | 18157 | FD-6330 |
| 6342 | Wild Strawberry C/C | CO | EL | * | 4166 | D8829 | FA90EL | 38461 | 18154 | FD-6342 |
| 6346 | Vermillion Solid | CO | EP | * | 4163 | B8902 | FA90EP | 39068 | 19060 | FD-6346 |
| 6373 | Ebony C/C | CO | UA | | 9700 | 99S | FA90UA | 38743 | 18183 | FD-6373 |
| 6383 | Ultra Blue | CO | MM | * | 4164 | B9021 | FA90MM | 41969 | 20071 | FD-6383 |
| 6392 | Pastel Alabaster Solid | CO | AH | * | 4208 | B9022 | FA90AH | 41961 | 20072 | FD-6392 |
| 6401 | Titanium Frost C/C | CO | YX | | 4216 | D0094 | FA90YX | 40299 | 19266 | FD-6401 |
| 6406 | Glacier White Solid | CO | ZC | * | 90677 | B8951 | FA90ZC | 41116 | 20083 | FD-6406 |
| 6414 | Deep Jewel Green C/C | CO | PA | | 4215 | B9025 | FA90PA | 41970 | 20082 | FD-6414 |
| 6415 | Clear Crystal Blue Frost | CO | MD | * | 4214 | B9026 | FA90MD | 41968 | 20070 | FD-6415 |
| 6421 | Woodrose C/C | CO | CD | * | 4212 | B9029 | FA90CD | 41966 | 20079 | FD-6421 |
| 6425 | Elect. Currant Red C/C | CO | EG | * | 4213 | B9031 | FA90EG | 41967 | 20078 | FD-6425 |
| 6441 | Atlantic Blue Solid | CO | K2 | | 4290 | B9108 | FA90K2 | 44083 | 21145 | FD-6441 |
| 6442 | Med.Titanium C/C | CO | YG | * | 4291 | B9115 | FA91YG | 43996 | 20359 | FD-6442 |
| 6443 | Lt. Cranberry C/C | CO | EW | * | 4293 | B9111 | FA91EW | 44084 | 21155 | FD-6443 |
| 6444 | Med. Cranberry C/C | CO | EX | * | 4287 | B9113 | FA91EX | 44085 | 21156 | FD-6444 |
| 6445 | Dark Cranberry C/C | CO | ER | * | 4288 | B9110 | FA91ER | 44086 | 21157 | FD-6445 |
| 6446 | Med. Amethyst Frost | CO | KB | * | 4286 | B9104 | FA91KB | 44087 | 21154 | FD-6446 |
| 6448 | Sandalwood Spice C/C | CO | AB | * | 4292 | B9112 | FA91AB | 43997 | 20361 | FD-6448 |
| 6450 | Med. Mocha C/C | CO | DC | * | 4283 | B9103 | FA90DC | 44091 | 21147 | FD-6450 |
| 6451 | Newport Blue C/C | CO | KP | | 4294 | B9105 | FA91KP | 44310 | 21165 | FD-6451 |
| 6453 | Lt. Mocha Solid | N | DB | | 4439 | B9208 | FA92DB | 45806 | 22004 | FD-6453 |
| 6454 | Med. Platinum C/C | CO | RC | * | 4296 | B9109 | FA91RC | 44094 | 21162 | FD-6454 |
| 6456 | Jewel Green Met. | CO | PB | | 4295 | B9116 | FA91PB | 44095 | 21159 | FD-6456 |
| 6464 | Aquamarine Frost C/C | N | PN | * | 4507 | B9102 | FA92PN | 45872 | 21143 | FD-6464 |
| 6465 | Mocha Frost C/C | CO | DD | | 4282 | B9101 | FA91DD | 44092 | 21146 | FD-6465 |
| 6466 | White | CO | YZ | * | 4289 | B9145 | FA91YZ | 44093 | 21158 | FD-6466 |
| 6470 | Vermillion C/C | CO | E4 | * | 4217 | B8954 | FA90E4 | 42497 | 19079 | FD-6470 |
| 6477 | Dark Mocha Met. | N | DW | * | 4442 | B9226 | FA92DW | 45855 | 22017 | FD-6477 |
| 6478 | M. Seafoam M. C/C | N | NC | * | 4470 | B9246 | FA92NC | 46011 | 22011 | FD-6478 |
| 6483 | Aqua Solid | N | PF | | 4508 | B9250 | FA92PF | 46007 | 22003 | FD-6483 |
| 6485 | Bimini Blue M. C/C | N | K3 | * | 4440 | B9204 | FA92K3 | 45755 | 22001 | FD-6485 |
| 6486 | Med. Aubergine C/C | N | GA | * | 4472 | B9205 | FA92GA | 45807 | 22005 | FD-6486 |
| 6487 | Cayman C/C | N | DA | * | 4438 | B9169 | FA92DA | 45687 | 22000 | FD-6487 |
| 6500 | Ultra Red Solid C/C | N | WH | * | 4441 | B9206 | FA92WH | 45805 | 22018 | FD-6500 |
| 6501 | Med. Opal C/C | N | WC | * | 4471 | B9202 | FA92WC | 45809 | 22007 | FD-6501 |
| 6504 | Med. Royal Blue C/C | N | LA | * | 4473 | B9207 | FA92LA | 45808 | 22015 | FD-6504 |
| 6505 | Silver C/C | CO | YN | * | 4262 | B8806 | FA90YN | 43638 | 21169 | FD-6505 |
| 6520 | Med. Mocha Met. | N | DJ | | 4505 | B9227 | FA92DJ | 45854 | 22016 | FD-6520 |
| 6563 | Lapis Met. C/C | N | KE | * | 4506 | B9236 | FA92KE | 46009 | 22009 | FD-6563 |
| 6572 | Dark Tourmaline C/C | N | NA | * | 4503 | B9239 | FA92NA | 46010 | 22010 | FD-6572 |
| 6584 | Chesapeake Blue M. | CO | PK | | 4429 | B9162 | FA92PK | 45361 | 22020 | FD-6584 |
| 6585 | Reef Blue | N | PC | | 4428 | B9169 | FA92PC | 45360 | 22019 | FD-6585 |
| 6597 | Lt. Smoke Met | N | MC | | 4494 | B9171 | FA91MC | 45708 | 21661 | FD-6597 |

| | | | | | | | | | |
|------|-----------------------|---|----|------|-------|--------|-------|-------|---------|
| 6598 | Smoke Met. | N | MS | 4495 | B9172 | FA91MS | 45710 | 21662 | FD-6598 |
| 6599 | Brit. Calypso C/C | N | PM | 4504 | B9173 | FA92PM | 45764 | 22002 | FD-6599 |
| 6609 | Dark Shadow Blue M. | N | MX | 4497 | B9174 | FA91MX | 45948 | 22013 | FD-6609 |
| 6596 | Brit. Regatta Blue M. | N | MW | 4496 | B9176 | FA91MW | 45709 | 21660 | FD-6596 |
| 6608 | Med. Lt. Mocha Solid | N | DH | 4561 | B9248 | FA92DH | 46008 | 22012 | FD-6608 |
| 6564 | Performance Red | N | EY | 4614 | | FA92EY | 46496 | 22006 | FD-6564 |

TB-2302-A

Figure 7 - Article 91-18-1

NOTE:

REFER TO THE SERVICE LABOR TIME STANDARDS MANUAL AND THE SPECIFIC PROCEDURE WITHIN THIS BULLETIN FOR REIMBURSEMENT.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

OASIS CODES: 106000



91-18, *Publication Date: SEPTEMBER 5, 1991*

| | |
|--|---------------------------------|
| Air Conditioning - Condensation Leaks Onto Floor - Availability Of New Evaporator Case Filter And Drain Kit | Article No. 91-18-15 |
|--|---------------------------------|

MEDIUM/HEAVY TRUCK:

1970-90 L SERIES

ISSUE:

A new air conditioning evaporator case filter and drain kit is now available to keep A/C condensate from dripping onto the vehicle floor.

ACTION:

Install a new A/C evaporator case filter and drain kit (FOHZ-19873-B), which includes the following items...

- (7) Screws - Quick Opening
- (7) Retainers
- (2) Brackets - Case Mounting
- (1) Filter - Air Inlet
- (1) Clip - Air Inlet Housing
- (1) Drain Pan
- (1) Clamp
- (1) Hose
- (1) Spout Assembly (nipple, lock nut, washer, grommet)
- (1) Instruction Sheet

Refer to the instruction sheet included in the kit for the installation procedure.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 208000, 208999



91-18, *Publication Date: SEPTEMBER 5, 1991*

| | |
|--|---------------------------------|
| Engine - 6.6L - Availability Of Service Kit For Installing Engine Service Block In 1986 Model Year Cargo Trucks | Article No. 91-18-16 |
|--|---------------------------------|

MEDIUM/HEAVY TRUCK:

1986 CARGO SERIES

ISSUE:

A service kit (E6HZ-6K007-B) is now available for installing the current 6.6L engine service block in the 1986 model year Cargo trucks.

ACTION:

If engine block replacement is required, use the new service kit (E6HZ-6K007-B) to install current 6.6L engine service blocks in 1986 model year Cargo trucks. Refer to the instruction sheet included in the kit for the installation procedure.

The (E6HZ-6K007-B) service kit includes the following items:

- (8) - Studs, 3/8-16x5/16-18x2.75
- (1) - Stud, 3/8-16x5/16-18x2.00
- (9) - Nuts, 5/16-8
- (4) - Nuts, 3/8-16
- (9) - Washers, 5/16
- (4) - Washers, 3/8
- (1) - Retainer Assembly
- (1) - Gasket
- (8) - Screws & Washers, 5/16-18x1.00 Hex
- (1) - Seal
- (4) - Bolts, 7/16-14x5-1/4 Hex Head
- (2) - Bolts, 3/8-16x3/4 Hex Head
- (2) - Washers, 3/8 Helical Spring Lk.
- (2) - Pins, 3/8x1-1/4 Dowel
- (1) - Plate - Camshaft Thrust
- (1) - Instruction Sheet

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 499000



Cooling System - Caterpillar 3176 - Upper Radiator Hose Damaged From Contacting Adjacent Components

**Article No.
91-18-17**

MEDIUM/HEAVY TRUCK:

1990-91 L-9000

ISSUE:

The upper engine-to-radiator coolant hose may become damaged from contacting near by components. This occurs because of insufficient hose support.

ACTION:

Install a second support (half clamps with clip) and position it as shown in Figure 1.

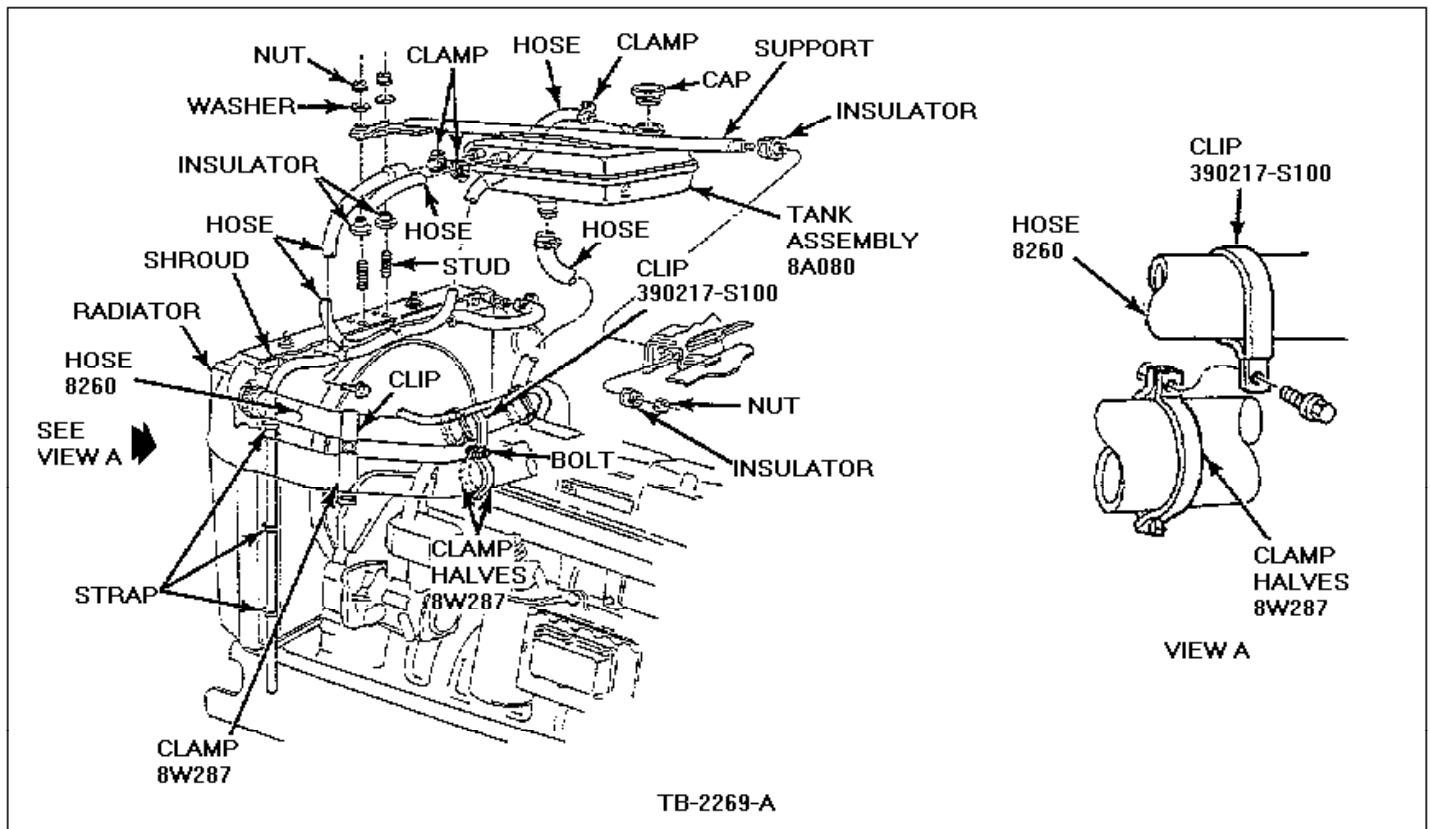


Figure 1 - Article 91-18-17

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 402000, 490000



91-19, *Publication Date: SEPTEMBER 18, 1991*

Engine - 6.6L And 7.8L Ford Diesel - Block Wear At Camshaft Drive Gear Surface

**Article No.
91-19-13**

MEDIUM/HEAVY TRUCK:

1986-89 CARGO SERIES

1987-89 F & B SERIES, L SERIES

This TSB article is being republished in its entirety to update the recommended service procedure.

ISSUE:

Engine block wear at the cam drive gear surface often can be repaired by machining the block and installing a new wear plate and adapter.

ACTION:

If block wear is suspect, checking the camshaft drive gear end play and inspection of the block will determine if a repair is required. Worn blocks can be repaired by machining the block and installing a new wear plate and adapter. Refer to the following procedure for service details.

INSPECTION

1. If camshaft drive gear end play is greater than 0.432 mm, (0.017 inches), rework is recommended.
2. Measure bore depth of dimension "X" at the 3,6,9 and 12 o'clock positions. Refer to Figure 1.

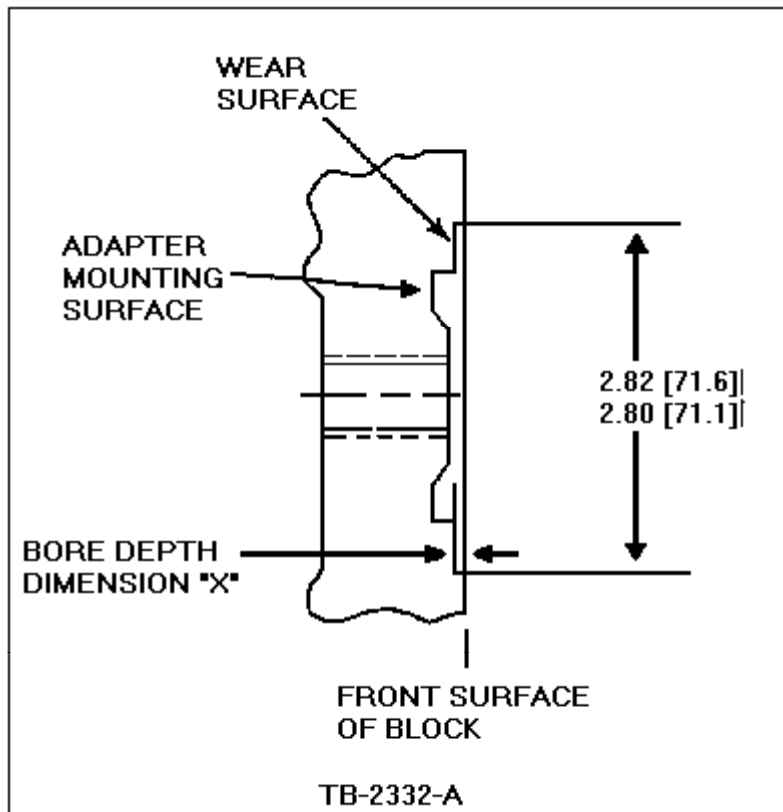


Figure 1 - Article 91-19-13

- a. If any two measurements differ more than 0.152 mm (0.006 inches), rework is recommended.
- b. If the "X" dimension is greater than 0.79 mm (.031 inches) at any point around the diameter, rework is recommended.

REWORK

Refer to the appropriate Medium/Heavy Truck Shop Manual, Section 22-12 for basic engine block service details.

1. Rebore the block dimension "X" to new depth of 2.34 mm (.092 inches). Refer to Figure 1.

NOTE:

THE FOLLOWING REWORK TOLERANCES APPLY:

- **BORE DEPTH TO BE HELD WITHIN A TOLERANCE OF 0.025mm (+0.001 INCHES).**
- **BORE TO BE CONCENTRIC WITH THREADED BOLT HOLE WITHIN 0.762mm (0.03 INCHES)**
- **BORE WEAR SURFACE TO BE PARALLEL TO ADAPTER MOUNTING SURFACE WITHIN 0.025mm (0.001 INCHES)**

Clean block thoroughly prior to re-assembly of parts.

ASSEMBLY AND INSPECTION OF PARTS

Refer to the appropriate Medium/Heavy Truck Shop Manual, Section 22-12 for basic engine block service details.

1. Assemble new adapter into gear. Refer to Figure 2.

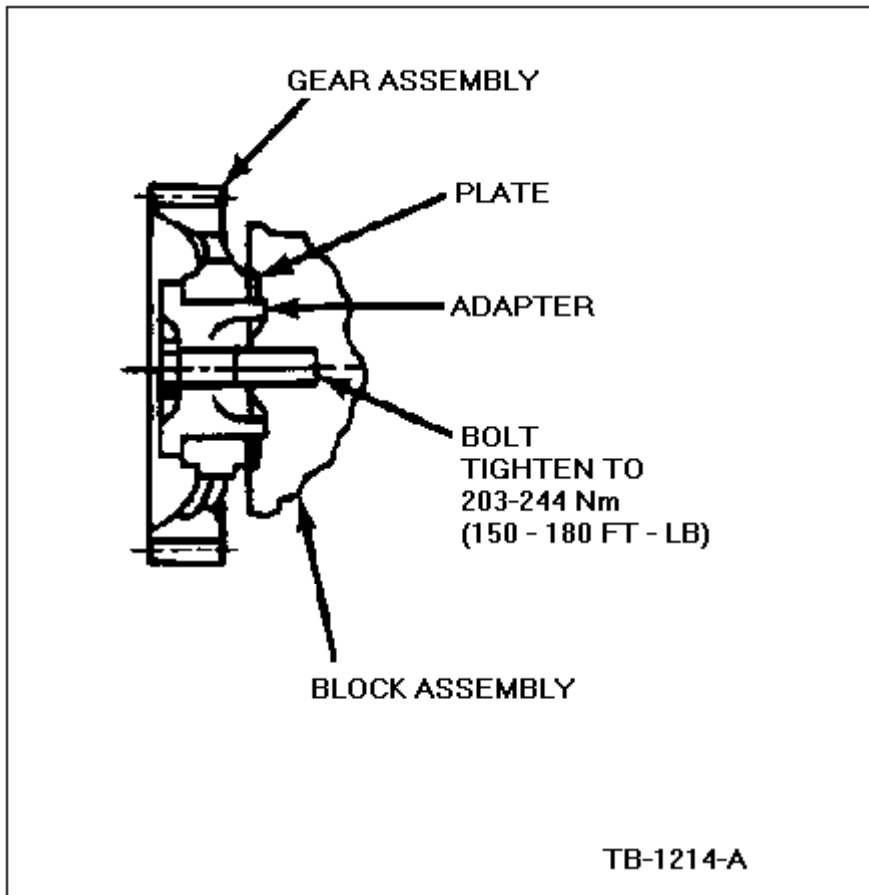


Figure 2 - Article 91-19-13

2. Assemble wear plate onto nose of adapter, with the chamfered edge of the wear plate toward the engine block.
3. Install the adapter as follows:
 - a. Insert the bolt through the adapter. Refer to Figure 2.
 - b. Assemble gear, adapter and wear plate to engine block. Refer to Figure 2.
 - c. Tighten the bolt to 150-180 lb.ft. (203-244 N-m). Refer to Figure 2.
4. Check the cam drive gear end play. The end play should be 0.05-0.38 mm (0.002-0.015 inches).

OTHER APPLICABLE ARTICLES: NONE

SUPERSEDES: 89-24-15

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 499000



Bulletin Contents

TSB Article 91-20-18 has been superseded by Article 92-23-8.



91-20, *Publication Date: OCTOBER 2, 1991*

| | |
|--|---------------------------------------|
| <ul style="list-style-type: none">• Accelerator Pedal - Cat 3406 PEEC And 3176 - Low RPM Throttle Control - Vehicles Built Through 4/30/91• Lack Of Power - Cat 3406 PEEC And 3176 - Difficult Low RPM Modulation Or Tip -In Concern - Vehicles Built Through 4/30/91 | Article No. 91-20-20 |
|--|---------------------------------------|

MEDIUM/HEAVY TRUCK:

1990-91 L SERIES

ISSUE:

A tip-in concern or difficulty in smooth low RPM initial acceleration may occur when pushing the accelerator pedal. This may feel like a sticking or binding accelerator pedal. There is no effect on the returnability of the pedal. This is caused by the geometry of the accelerator system which compresses the spring, internal to the rod connecting the pedal to the position sensor, during initial acceleration. The rod, being spring loaded, extends until it has enough force to rotate the pedal position sensor. The recoil in the spring then causes the sensor to turn quickly through the low RPM range making modulation difficult.

ACTION:

Replace the existing sensor bracket with a new sensor bracket (F1HZ-9F834-A) to lower the forces in the rod to prevent it from extending prior to sensor rotation, Figure 1. Refer to the 1991 L-Series Truck Service Manual, Section 25-60, for details.

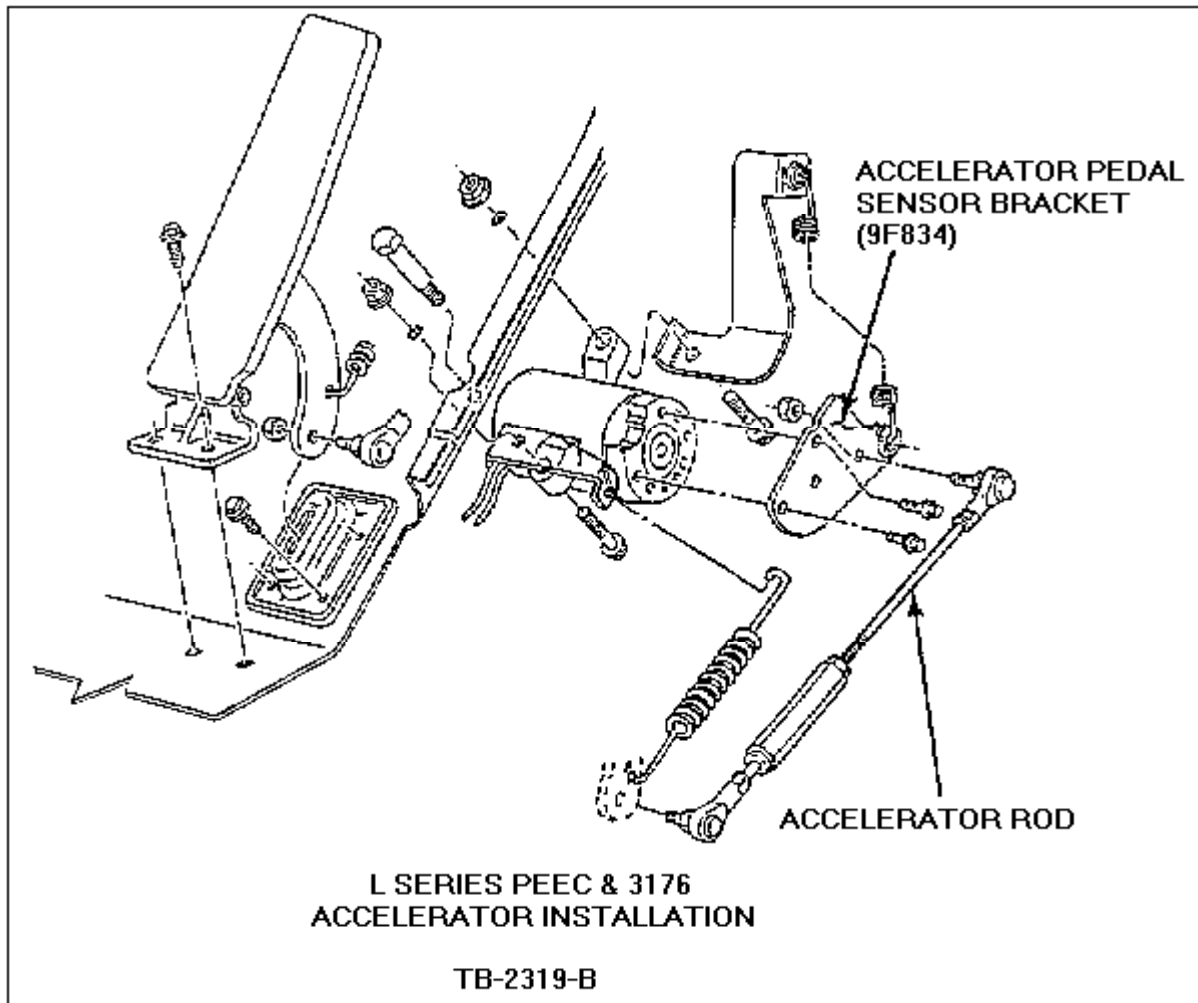


Figure 1 - Article 91-20-20

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 614000, 614500



91-20, *Publication Date: OCTOBER 2, 1991*

| | |
|---|---------------------------------|
| <ul style="list-style-type: none">• Engine - Cummins L10 - Air Intake - Interference Between Inlet Flange Of The Manifold And The Bracket Retaining The Turbo Hot Side Adaptor• Engine - Cummins L10 - Potential Engine Or Turbo Failure From Broken Adaptor Bracket | Article No. 91-20-21 |
|---|---------------------------------|

MEDIUM/HEAVY TRUCK:

1991 L SERIES

ISSUE:

An interference condition may exist between the inlet flange at the engine intake manifold and the bracket retaining the turbo hot side adaptor. In extreme cases, the bracket could fail and adversely affect the engine and turbo durability.

ACTION:

If service is required, modify the adaptor bracket by using the following service procedure.

SERVICE PROCEDURE

1. Check the adaptor bracket clearance to the engine intake manifold to see if there is a minimum clearance of 1/16" (1.588mm).
2. If this minimum clearance is not evident and the bracket is reusable, rework it as shown in Figure 1.

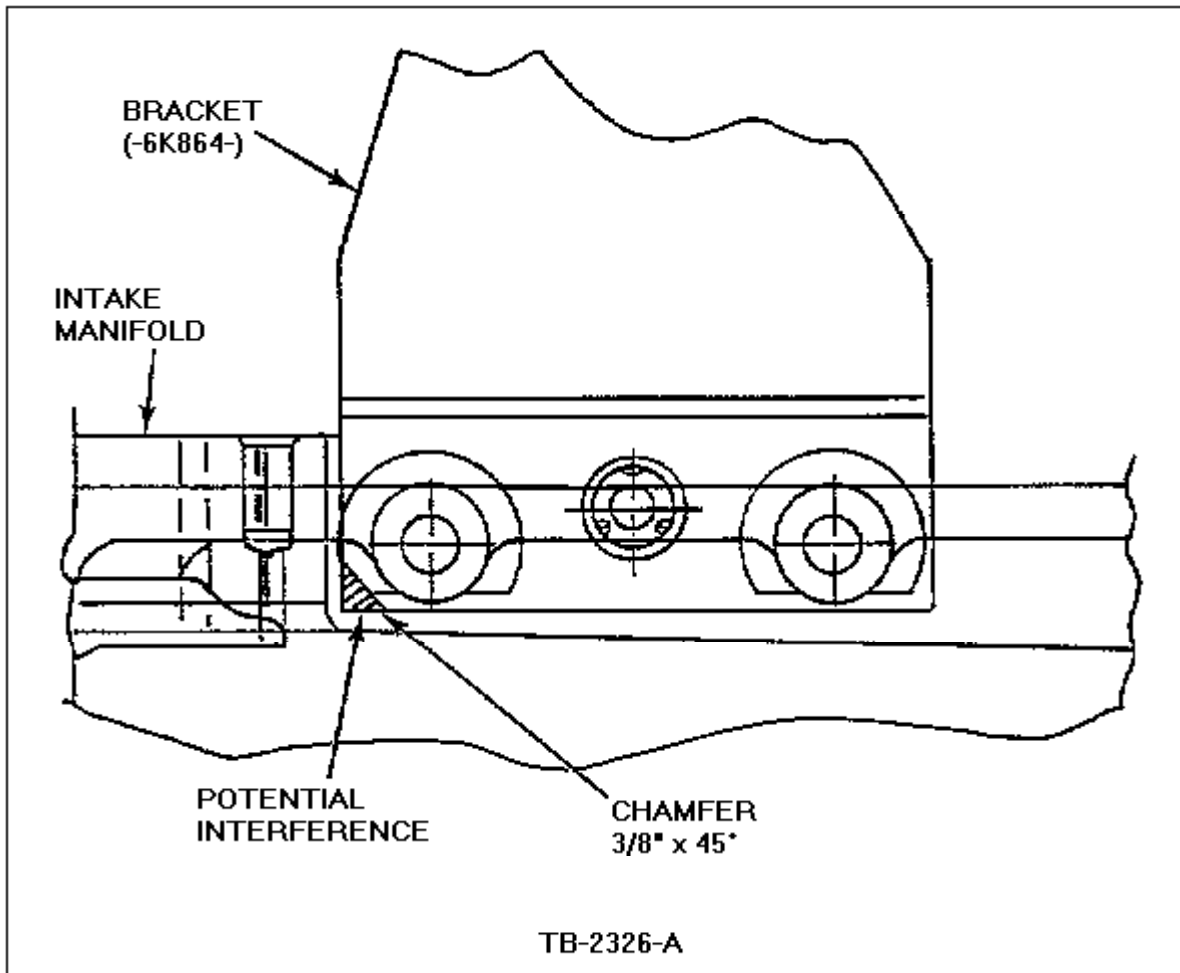


Figure 1 - Article 91-20-21

- a. Remove the bracket and grind the rear, lower corner providing a chamfer of 3/8" (9.525mm) x 45°.
- b. Reinstall the bracket using the existing fasteners. Tighten all fasteners to 16-24 lb-ft (27-33 N-m).
3. If the adaptor bracket is not reworkable, install a new bracket (F1HZ-6K864-C) which is already chamfered.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 499000



91-21, *Publication Date: OCTOBER 16, 1991*

| | |
|---|---------------------------------|
| Sleeper Cab - "Able Body Corporation" Parts And Service Manual Availability - Monocoque Construction | Article No. 91-21-12 |
|---|---------------------------------|

MEDIUM/HEAVY TRUCK:

1990 L SERIES

ISSUE:

Able Body Corporation has recently revised their Parts And Service Manual for all sleeper cabs, ("OLD STYLE" Skin-Over-Frame construction and the "NEW" Monocoque construction).

ACTION:

Heavy Truck Dealers that DID NOT receive a copy of the Parts And Service Manual may obtain a copy by contacting the following personnel at Able Body Corporation.

- Sherry Garde or Greg Kester at 1-800-538-1038 (U.S. Only)

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 111000



91-21, *Publication Date: OCTOBER 16, 1991*

| | |
|---|---------------------------------|
| Tire Wear - Front - 16,000 To 20,000 Lb. Axle with Non-Flotation Tires | Article No. 91-21-13 |
|---|---------------------------------|

MEDIUM/HEAVY TRUCK:

1982-90 L SERIES

ISSUE:

Front tires on L-Series vehicles with 16,000 to 20,000 lb. axles and non-flotation tires may exhibit excessive tire wear. This may be caused by the wheel "cut angle" and the design of the Ackerman arms.

ACTION:

To correct this, install new 1987 level Ackerman arms and adjust the wheel "cut angle" using the following service procedure.

SERVICE PROCEDURE

1. Replace the right hand Ackerman arm with (E7HZ-3130-K) and the left hand Ackerman arm with (E7HZ-3131-K). Reuse the original nuts and keys.
2. Torque the tie rod nuts to 110-150 lbs.-ft.(149-203N-m) and torque the Ackerman arm nuts to 540-730 lbs-ft.(732-990N-m).
3. Reduce the wheel "cut angle" from 40° to 35°. Refer to figure 1.

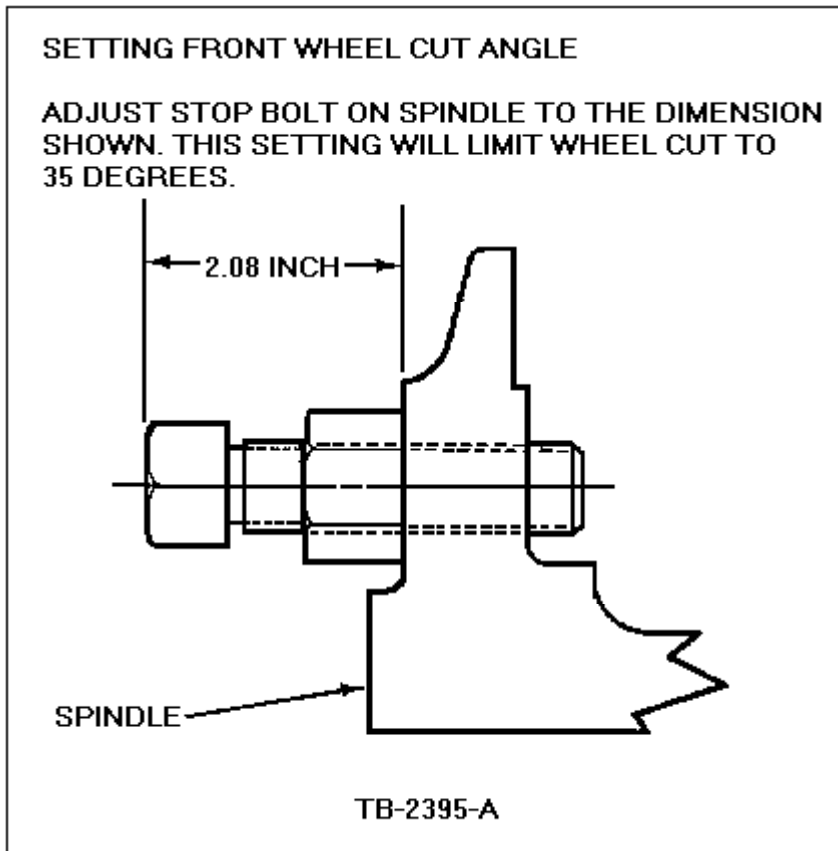


Figure 1 - Article 91-21-13

4. Reuse the original tie rod and adjust the toe-in after installation of the new Ackerman arms to the original $1/8" \pm 1/16"$ setting on Merrill dynamic alignment equipment.
5. Torque the tie rod clamp bolts to 50-70 lbs.- ft.(67-95N-m).

OTHER APPLICABLE ARTICLES: NONE

SUPERSEDES: 87-5-41

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 303000, 304000, 306000



91-21, *Publication Date: OCTOBER 16, 1991*

| | |
|---|---------------------------------|
| <ul style="list-style-type: none">• Misfire Or Stumble - 6.6L And 7.8L Ford Diesel Engine - Static Timing Advance Procedure• Exhaust - Blue/White Smoke - 6.6L And 7.8L Ford Diesel Engine - Static Timing Advance Procedure | Article No. 91-21-14 |
|---|---------------------------------|

MEDIUM/HEAVY TRUCK:

1991 CARGO SERIES, F & B SERIES, L SERIES

CALIBRATION:

0-80B-R00, 0-80A-R00, 0-85H-R00, 0-85G-R00, 0-85F-R00, 0-85E-R00, 0-85D-R00, 0-85C-R00

WARNING:

THIS MODIFICATION IS AUTHORIZED ONLY FOR THE LISTED ENGINE. PERFORMING THIS MODIFICATION ON OTHER ENGINE CALIBRATIONS IS UNAUTHORIZED AND COULD CREATE LIABILITY UNDER APPLICABLE FEDERAL OR LOCAL LAWS.

ISSUE:

The engine may misfire or stumble and there may be excessive blue/white exhaust smoke during all ambient temperatures. This is caused by the static timing not being properly advanced.

ACTION:

If service is required, advance the fuel injection pump timing 4° by using the following service procedure.

SERVICE PROCEDURE

1. Remove the injection pump access cover and basket.
2. Rotate the engine clockwise.
 - a. Set engine at correct static timing angle with number 1 piston on the compression stroke.
 - b. Fit Damper Aligning Pin (T87T-6379-A) through the timing bracket into the correct crankshaft damper groove, Figure 1.

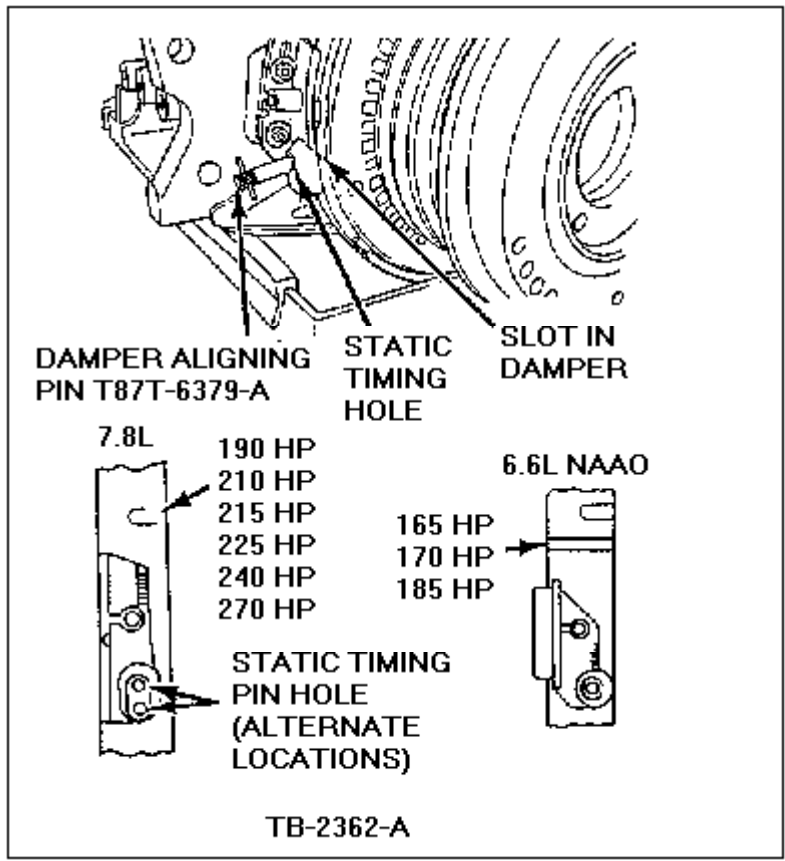


Figure 1 - Article 91-21-14

NOTE:
 WHEN UNABLE TO ACCESS THE FRONT DAMPER MOUNTING BOLT TO ROTATE THE ENGINE, REMOVE THE PLUG OR TACH SENSOR AT TOP OF FLYWHEEL HOUSING TO ROTATE FLYWHEEL RING GEAR WITH LARGE SCREWDRIVER, FIGURE 2.

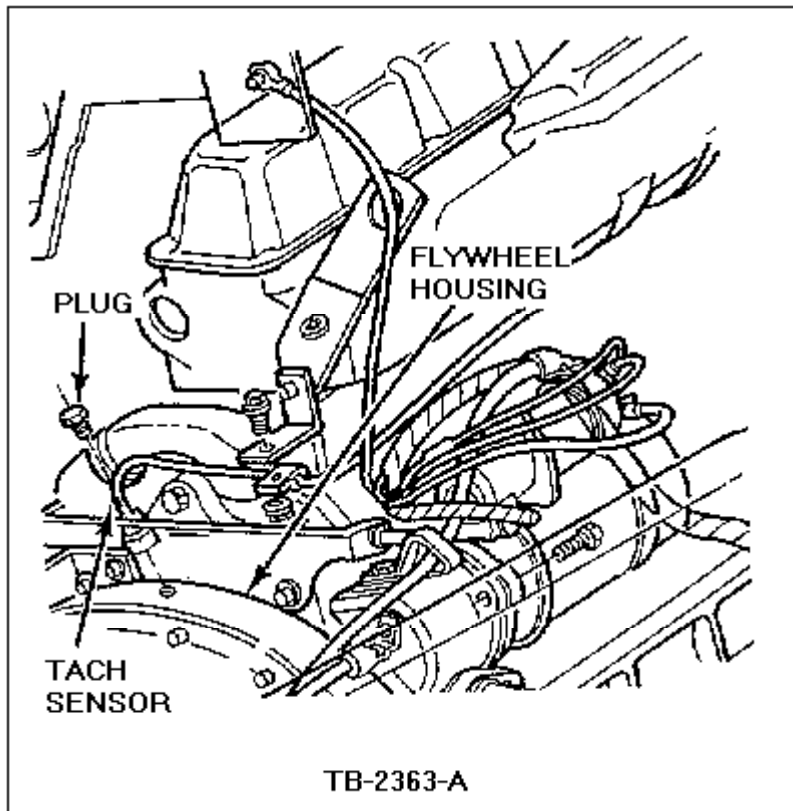


Figure 2 - Article 91-21-14

3. Insert the Injection Pump Aligning Pin (T91T-9000-A) through the gear plate, gear, hub and into the inner timing plate hole, Figure 3.

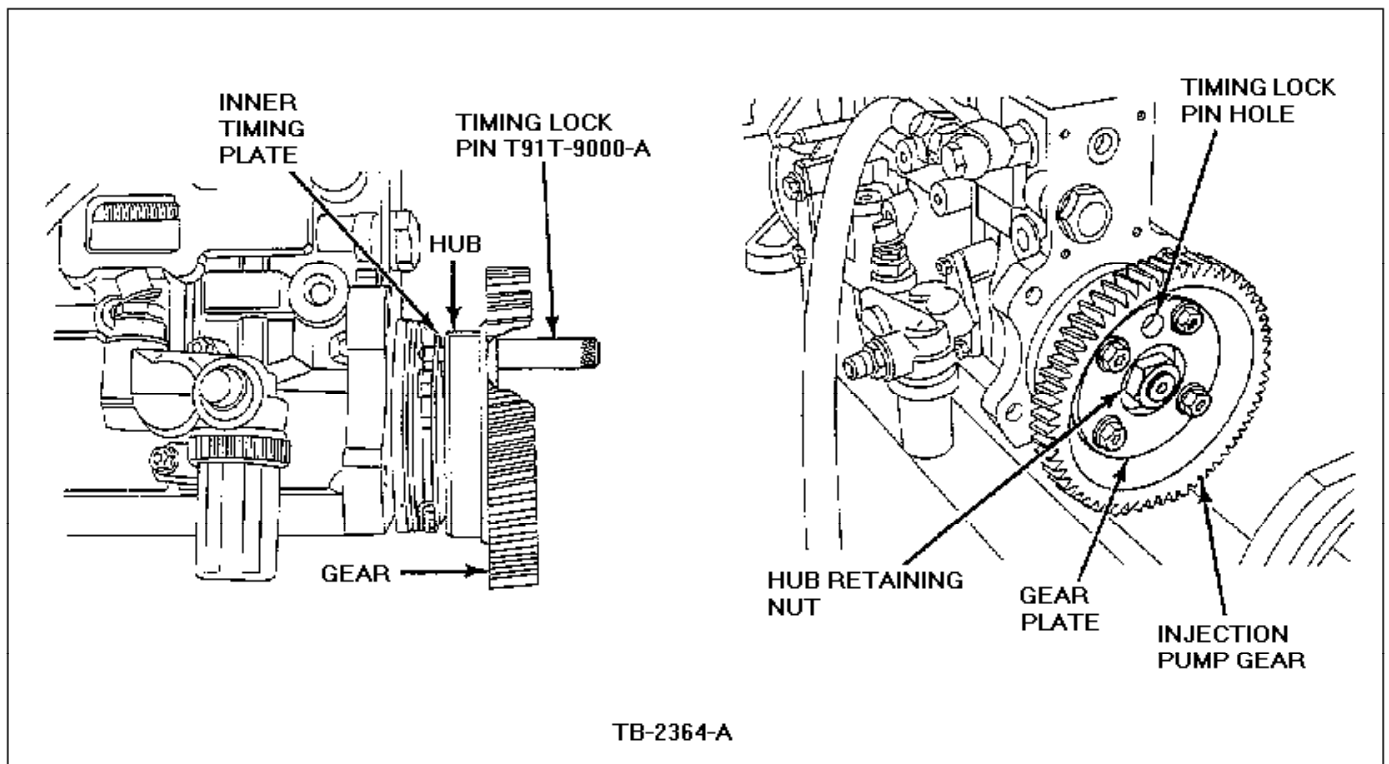


Figure 3 - Article 91-21-14

CAUTION:
 THE TIMING PIN SHOULDER SHOULD SEAT AGAINST THE GEAR PLATE FACE WHEN THE PIN

IS PROPERLY AND FULLY SEATED IN THE TIMING PLATE HOLE. THIS VERIFIES PROPER ENGINE TIMING.

4. Loosen the four (4) pump gear bolts, finger loose, so the plate can rotate from the gear.
5. Loosen the damper timing bracket at the front cover.
6. Insert a pointer into the front cover at point adjacent to degree marks on damper.

NOTE:

Hole diameter is about .125" (3.175mm).

7. Rotate the engine counterclockwise until it lightly contacts the pump timing pin.
8. With the injection pump timing pin still in place, carefully rotate the engine clockwise until the pointer indicates new timing mark from the following LFM07.8FPK9 Engine Family Timing Chart.

NOTE:

THERE IS SUFFICIENT CLEARANCE BETWEEN THE GEAR HOLES AND THE BOLTS TO ALLOW MOVEMENT WITHOUT BINDING ON THE BOLTS. THIS HAS ADVANCED THE STATIC TIMING TO THE NEW TIME AS SHOWN IN THIS CHART.


9. Turn the gear counter clockwise by hand to remove any backlash.
 - a. Tighten the four (4) bolts to 5 lb-ft (7N-m).
 - b. Remove the pump timing pin.
 - c. Tighten the four (4) bolts to 38-52 lb-ft (52-70N-m).

NOTE:

PREVENT GEAR FROM MOVING WHILE TIGHTENING

10. With the timing lock pin in the damper slot, tighten the timing bracket bolts to 7 lb-ft (9N-m).
11. Remove the damper aligning pin.
12. Chisel mark the timing bracket to the cover.

Obtain an Authorized Modifications Decal and list the date, dealer number, and summary of alterations performed. Select a prominent place adjacent to the Vehicle Emission Control Information Decal suitable for installing the Authorized Modifications Decal. Clean the area, install the decal, and cover it with a clear plastic decal shield.

| | |
|---|-----------------------------------|
|  | AUTHORIZED MODIFICATIONS |
| THE FOLLOWING MODIFICATIONS HAVE BEEN MADE: | |
| ADVANCED STATIC TIMING | |
| PER TSB 91-21-14 | |
| | |
| | |
| THESE MODIFICATIONS HAVE BEEN APPROVED, AS APPROPRIATE, BY EPA AND CARB. | |
| DEALER NUMBER: | DATE: |
| CHANGE AUTHORITY: | |
| FPS 8262 9178 | FORD MOTOR COMPANY Printed in USA |

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under California Emissions Warranty Coverage, Basic Warranty Coverage, Powertrain Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 403000, 609000, 609400, 609500, 611000, 611500

Bulletin Contents

TSB Article 91-21-15 has been superseded by Article 92-4-16.



91-21, *Publication Date: OCTOBER 16, 1991*

| | |
|--|---------------------------------|
| Light Bulbs - Owner's Guide - Specifications Chart Update | Article No. 91-21-16 |
|--|---------------------------------|

MEDIUM/HEAVY TRUCK:
1991 CARGO SERIES

ISSUE:
There are several incorrect bulb listings in the 1991 Cargo Owner's Guide.

ACTION:
A revised Specification Chart is now available, Refer to Figure 1 for details.

SPECIFICATIONS AND CAPACITIES

LIGHT BULB SPECIFICATIONS

| Lamp Description | No. of Bulbs Required | Trade No. |
|---|-----------------------|-----------|
| Exterior Lighting | | |
| Back-Up Lamp | 2 | P21W |
| Front Parking Lamp | 2 | P21-5W |
| Front Side Marker Lamp | 2 | <u>1/</u> |
| Headlamp (Halogen) | 2 | H6054 |
| Marker Lamp -- Cab Roof | 5 | <u>1/</u> |
| Rear Tail Lamp/Brakelamp/License Plate Lamp | 2 | P21-5W |
| Rear Turn Signal Lamp | 2 | P21-W |
| Instrument Panel Gauge Illumination | | |
| Air Pressure | 1 | 69 |
| Ammeter | 1 | 69 |
| Coolant Temperature | 1 | 69 |
| Fuel | 1 | 69 |
| Oil Pressure | 1 | 75 |
| Speedometer | 2 | 69 |
| Tachometer | 1 | 69 |
| Instrument Panel Warning and Indicator Lights | | |
| Air Pressure Low | 1 | 75 |
| Alternator | 1 | 75 |
| Cab Tilted | 1 | 75 |
| Coolant Low | 1 | 75 |
| Coolant Temperature | 1 | 75 |
| High Beam Indicator Light | 1 | 75 |
| Oil Pressure Warning Indicator Light | 1 | 75 |
| Parking Brake Applied | 1 | 75 |
| Turn Signal Indicator Light | 2 | 75 |
| Water-in-Fuel | 1 | 75 |
| Interior Lights and Instrument Panel Controls Illumination | | |
| Automatic Transmission Selector Light | 1 | 194 |
| Cigar Lighter Light | 1 | 74 |
| Dome Lamp -- Interior | 2 | <u>2/</u> |
| Heater Blower Switch Illumination | 1 | 74 |
| Heater Control Illumination | 1 | 256 |
| Instrument Panel Rheostat Illumination | 1 | 256 |
| Radio Illumination | 1 | 74 |

1/ BULB TYPE: T4W (12V) P/N D3RY-13466-B

2/ P/N E6HZ-13466-A

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 201000, 201200, 290000



91-22, *Publication Date: OCTOBER 30, 1991*

| | |
|--|---------------------------------|
| Fuel System - 6.6L And 7.8L Ford Diesel Engine - Availability Of Fuel Solenoid Retrofit Kit | Article No. 91-22-12 |
|--|---------------------------------|

MEDIUM/HEAVY TRUCK:

1986-90 CARGO SERIES, F & B SERIES, L SERIES

ISSUE:

A fuel solenoid retrofit service kit is now available for installing the current level fuel shut off solenoid in 1986-1990 model vehicles. The service kit includes a solenoid, bolt, nut, wiring pigtail, spacer, connector and washer.

ACTION:

If service is required, use a fuel solenoid retrofit service kit (F1HZ-9A594-A) to install a current level solenoid in 1986-1990 vehicles. Refer to the instruction sheet in the kit for installation details.

NOTE:

MAKE SURE THAT THE NEW SOLENOID IS PROPERLY ALIGNED TO THE THROTTLE LEVER AT THE INJECTION PUMP TO KEEP FROM BINDING. SIDE LOADING THE SOLENOID WILL NOT ALLOW IT TO RELEASE WHEN THE ENGINE IS SHUT OFF.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 404000



- Vibration - Cab/Sleeper Pitch And Harshness At 48-53 MPH (30-33 KM/H) - Trucks With Caterpillar 3406, Cummins N14 Or Detroit 60 Series Engines And Fuller 10 Or 15 Speed Transmissions
- Transmission - Fuller 10 Or 15 Speed - Location Of Spacer On Rear Transmission Support - Trucks With Caterpillar 3406, Cummins N14 Or Detroit 60 Series Engines

Article No.
91-22-13

MEDIUM/HEAVY TRUCK:

1981-92 LTL-9000

ISSUE:

Cab/sleeper pitch and vibration may occur at 1500-1600 rpm in 6th, 7th or 8th gear when the truck is loaded. This may be caused by improper assembly of the transmission support spring spacer. The location of the 3/8" (9.525mm) spacer on the rear transmission support is not shown in the 1992 L Series Service Manual.

ACTION:

Refer to Figure 1 for the correct locations of the wedges and support component parts. The 3/8" (9.525mm) spacer should be under the the support spring as shown in Figure 1.

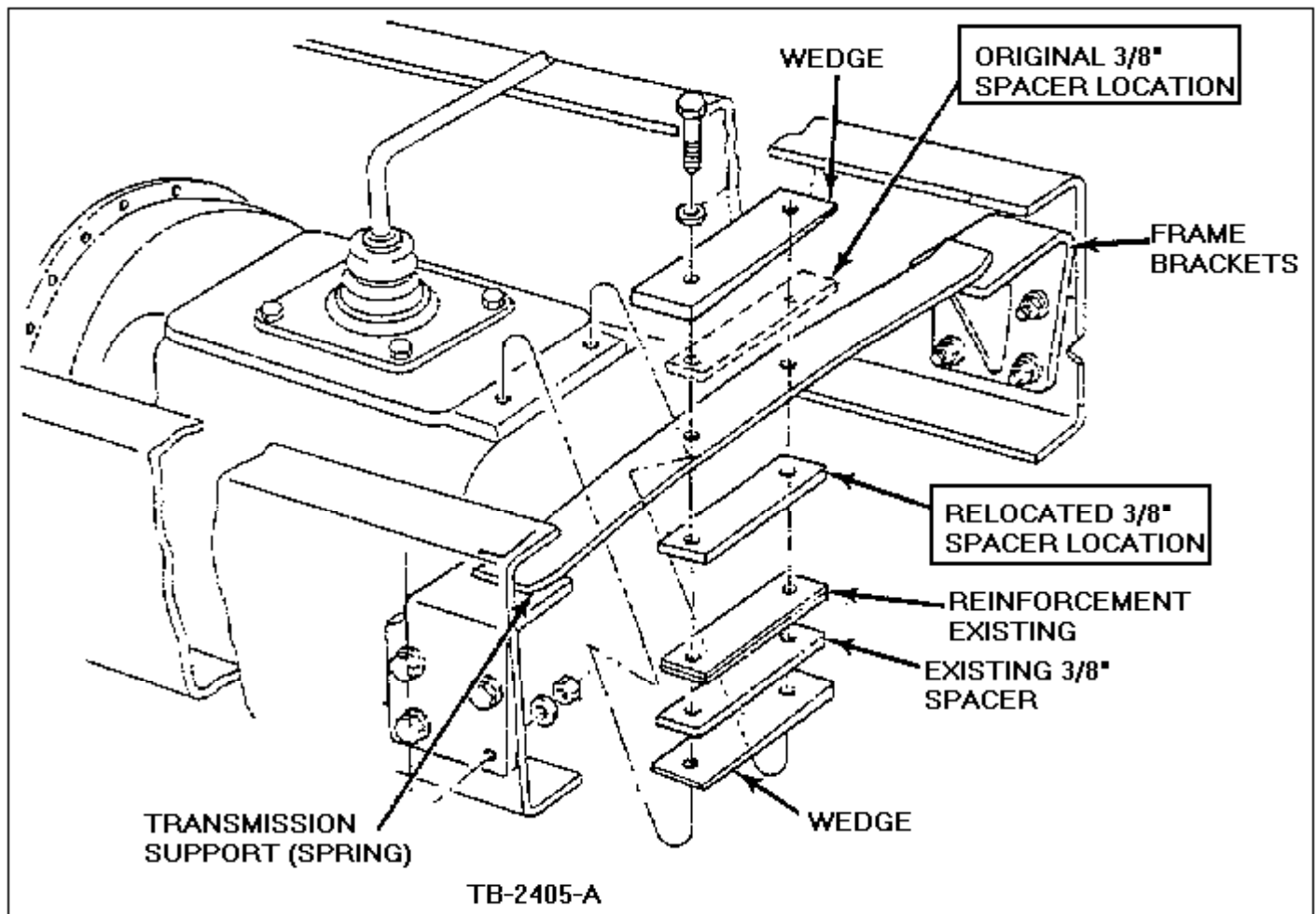


Figure 1 - Article 91-22-13

NOTE:

IF THE TRANSMISSION SUPPORT SPRING IS BOUND UP AND/OR BOTTOMING OUT, THE FRONT ENGINE SUPPORT SHOULD BE CHECKED FOR CORRECT ASSEMBLY.

OTHER APPLICABLE ARTICLES: NONE

SUPERSEDES: 84-5-23

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 703000, 703300



91-23, *Publication Date: NOVEMBER 13, 1991*

| | |
|--|---------------------------------|
| Clutch - Summary Of Most Common Service Issues And Service Tips | Article No. 91-23-13 |
|--|---------------------------------|

MEDIUM/HEAVY TRUCK:

1981-92 F SERIES, L SERIES
1986-92 CARGO SERIES

ISSUE:

A summary of the most commonly found clutch issues has been developed to assist the technician in identifying and resolving clutch concerns. A review of clutch hardware returned to the Warranty Parts Return Center has identified important indicators which show that in some cases clutch repairs and adjustments are not being properly performed. In addition, there appears to be some confusion about which repairs are warrantable.

ACTION:

If service is required, refer to the following summary of clutch repairs and service tips to determine which service items are most frequently overlooked or not properly performed. Also refer to the recommended practices on diagnosing, lubricating, installing and removing clutches which appear at the end of this article.

PRESSURE PLATE/FLYWHEEL

If damage is due to organic clutch disc rivets grinding into the friction surface, it indicates that the clutch is worn out. This is not a warrantable repair.

ORGANIC CLUTCH COVER AND/OR DISC

If the organic clutch cover and/or disc is blue and the lining is shredded, the clutch has been improperly adjusted and/or the driver is severely slipping the clutch. This is not a warrantable repair.

IMPROPER ADJUSTMENT OF CLUTCH/LINKAGE

Improper adjustment of the clutch/linkage as identified by the clutch release lever hitting the cover assembly and/or the clutch retainer hitting the rivets of the disc assembly is easy to detect.

- If the clutch release lever gets into the cover assembly and/or the clutch retainer hits the disc assembly rivets, the truck linkage system is being readjusted (rather than the clutch's internal adjustment system) to obtain proper clutch pedal freeplay.
- By adjusting the linkage for proper pedal freeplay, the fingers of the clutch release lever will become caught in the rotating cover assembly causing cover failure and breaking the release lever. If this does not occur secondary to tolerance stackup, the cover retainer digs into the rear disc and prevents complete or full plate load engagement (i.e., the clutch is no longer able to handle engine torque).

It is easy to identify rivets gouging into the aluminum clutch retainer. This is not a warrantable repair.

RELEASE BEARING FAILURE - INADEQUATE LUBRICATION

An examination of many returned parts indicates that when bearings got noisy and were replaced, they had not been greased since the initial lubrication during production. Refer to TSB «90-12-16» or the Owner Guide which outlines the lubrication requirements. Failure due to lack of maintenance is not warrantable.

REMANUFACTURED CLUTCHES

Some clutches, not manufactured by Spicer, have been returned for warranty payment. These parts must not be returned to the Warranty Parts Return Center. They must be returned to the proper remanufacturer.

CLUTCH COVERS - RETURN WITHOUT SHIPPING BLOCKS

All clutch cover assemblies (stamped or cast) must have the shipping blocks installed. Refer to TSB Article 90-12B-20.

- If the shipping blocks are not installed, the internal levers in the clutch will not be retained and proper inspection of the parts is not possible.
- ALL components removed must be returned to the Warranty Parts Return Center for review if the claim is requested (i.e., cover discs, intermediate plate, clutch brakes and pilot bearing if removed).
- The parts shipped must match the parts listed on the warranty claim or payment will be refused.

OIL/GREASE SATURATED MATERIAL

It is apparent that some failures are due to the transmission input shaft being lubricated and that the lubricant is migrating to the clutch disc. Lubricating the input shaft is not recommended.

CLUTCH DOESN'T RELEASE PROPERLY

The clutch may not release properly because of road element contamination. This frequently occurs when the flywheel or clutch housing inspection cover has been removed and not replaced. Without the cover, the clutch and its internal components are exposed to road elements leading to clutch release concerns or seized adjusting rings.

INTERMEDIATE PLATE ASSEMBLY SLOTS - 14-2 CAST CLUTCHES

Intermediate plate assembly slots in 14-2 cast clutches which show corner loading (cocked drive pins) lead to poor clutch release. This often occurs shortly after a new clutch is installed. Frequently, the intermediate drive slots are worn at the edges because the drive pin edges are not installed squarely to the flywheel friction surface.

For new clutches, the tolerance between the intermediate plate drive slots and the drive pins are close (.006" minimum clearance). The clutch will release properly if the drive pins are installed squarely.

CAUTION:

DO NOT UNDER ANY CIRCUMSTANCES ENLARGE THE DRIVE PIN SLOTS IN THE INTERMEDIATE PLATE.

Enlarging the drive pin slots will cause unequal loads on the pins. This is the frequent cause of poor or no release complaints. It can also cause a rattle or broken drive pins. These items are not warrantable.

RUSTED CLUTCHES

Extremely rusted clutches may not be able to be evaluated regarding the concern indicated on the Warranty claim. In some cases, extremely rusted clutches may not be warrantable.

CLUTCHES - ADJUSTED SEVERAL TIMES

Each time the adjusting ring on the clutch is turned, the internal levers leave a permanent impression on the pressure plate assembly. If the clutch is torn down and only one impression is observed, then only one adjustment has been made and that was the initial production adjustment.

ANTI-RATTLE STRAPS

Failure to install the three (3) anti-rattle straps with 14" pot type Spicer super duty clutches will cause a clutch malfunction.

If the three (3) straps were installed, there will be three (3) equally spaced shiny spots with rust between them on the intermediate plate's outside diameter. These straps perform the following functions.

- Support the additional weight of the intermediate plate over the standard pot clutch
- Reduce the gap between the flywheel and intermediate plate
- Reduce noise
- Assist in clutch release

Failure to use these straps will cause a clutch malfunction which is not an acceptable warranty item.

DIAGNOSING, LUBRICATING, INSTALLING AND REMOVING CLUTCHES

Always examine the clutch disc, intermediate plates, flywheel and cover assemblies. Wear patterns should be even for a normally operating clutch. Check for any broken components, seized adjusting ring or any damage to the assembly.

1. Always use shipping blocks when removing/replacing or installing a Spicer clutch cover assembly.
 - Failure to use shipping blocks allows the release bearing to move forward and bottom out on the cover. When the bearing is allowed to move forward, the internal levers in the clutch cover may partially come out of the groove in the retainer.
 - If the cover is reinstalled, internal binding of the clutch, loss of levers, or overstretching of the four (4) pressure plate return spring on the cast clutch can occur. These are detrimental to the performance of the clutch.

Refer to TSB Article 90-12B-20 for removal procedures.

2. Refer to TSB Article [«90-5-17»](#) for service tips about stamped clutch release concerns.
3. Refer to TSB Article [«90-12-16»](#) or the Owner Guide for information on the Ford recommended lubrication schedule for clutch and clutch linkage for F, B, L, CL and Cargo Series vehicles.
4. The four (4) roll pins in the intermediate plate assembly must be properly seated on the new 14" and 15 1/2" clutches used in 1992 Heavy Duty Trucks. This should always be checked. Refer to the 1992

L-Series Service Manual, Section 08-01, for service details.

5. Clutch readjustment should be performed whenever the pedal freeplay becomes less than 1/2" (12.7mm).

OTHER APPLICABLE ARTICLES: 90-12B-20

90-12-16

90-5-17

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 506000



91-24, *Publication Date: NOVEMBER 27, 1991*

| | |
|---|---------------------------------|
| Transmission - Eaton Fuller Air Shifted - New "Push To Connect" Fittings For Shifter Air Lines - Service Tips - Vehicles Built After 10/1/91 | Article No. 91-24-14 |
|---|---------------------------------|

MEDIUM/HEAVY TRUCK:

1992 L SERIES

ISSUE:

All 1992 L-Series Trucks, built after 10/1/91, are assembled with new "Push To Connect" fittings with 5/32" (3.969mm) O.D. tubing on the air shift systems. This replaces the old "compression" type fittings with 1/8" (3.175mm) O.D. tubing.

ACTION:

Use the new "Push To Connect" fittings on the air shift system whenever possible.

- If a vehicle currently has the "compression" type fittings and 1/8" O.D. tubing, the compression fittings may still be used for repairs.
- The "Push To Connect" fittings with 5/32" O.D. tubing are preferred because they make servicing easier and are consistent with current production.

NOTE:

ALTHOUGH THESE PARTS ARE NOT SERVICED BY FORD, THEY MAY BE PROCURED DIRECTLY FROM EATON FULLER.

CAUTION:

DO NOT MIX 1/8" AND 5/32" O.D. TUBING/FITTINGS.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 505000, 505200



91-25, *Publication Date: DECEMBER 13, 1991*

| | |
|--|---------------------------------|
| <ul style="list-style-type: none">• Misfire Or Stumble - 7.8L Ford Diesel Engine - Static Timing Advance Procedure - Certified To 1991 Emission Standards• Exhaust - White Smoke - 7.8L Ford Diesel Engine - Static Timing Advance Procedure - Certified To 1991 Emission Standards | Article No. 91-25-20 |
|--|---------------------------------|

MEDIUM/HEAVY TRUCK:

1991 CARGO SERIES, F & B SERIES, L SERIES

CALIBRATION:

1-85H-R00, 1-85G-R00, 1-85E-R00, 1-85D-R00

WARNING:

THIS MODIFICATION IS AUTHORIZED ONLY FOR THE LISTED ENGINE. PERFORMING THIS MODIFICATION ON OTHER ENGINE CALIBRATIONS IS UNAUTHORIZED AND COULD CREATE LIABILITY UNDER APPLICABLE FEDERAL OR LOCAL LAWS.

ISSUE:

The engine may misfire or stumble and there may be excessive white exhaust smoke during all ambient temperatures. This is caused by the static timing not being properly advanced.

ACTION:

If service is required, advance the fuel injection pump timing 1° on 1991 Phase II 7.8L Ford Diesel Engines by using the following service procedure.

SERVICE PROCEDURE

1. Remove the injection pump access cover and basket.
2. Rotate the engine clockwise.
 - a. Set engine at correct static timing angle with number 1 piston on the compression stroke.
 - b. Fit Damper Aligning Pin T87T-6379-A through the timing bracket into the correct crankshaft damper groove, Figure 1.

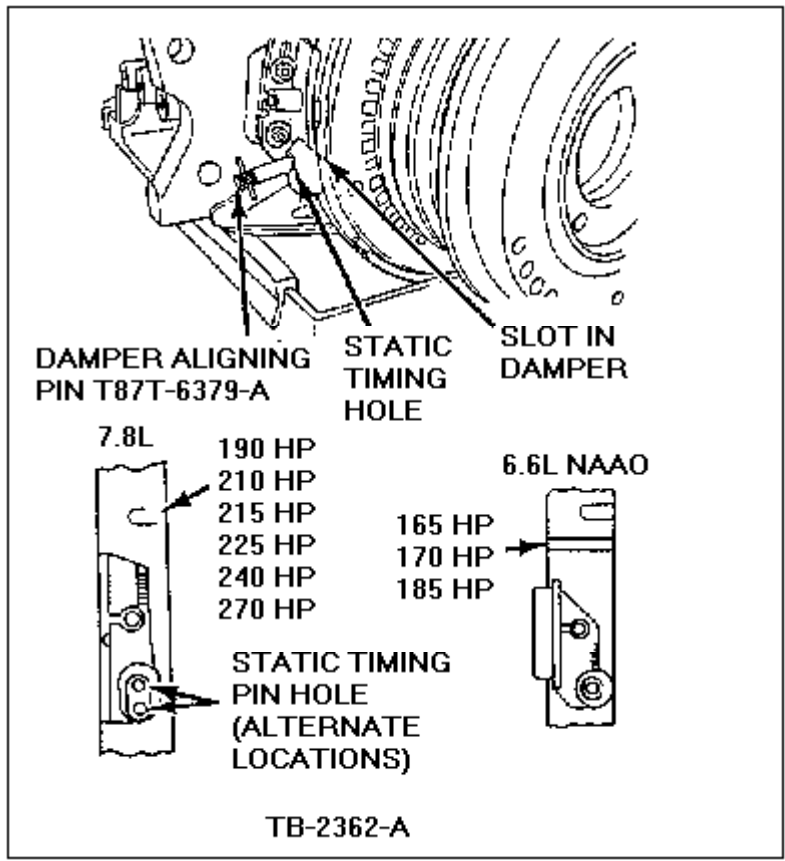


Figure 1 - Article 91-25-20

NOTE:
 WHEN UNABLE TO ACCESS THE FRONT DAMPER MOUNTING BOLT TO ROTATE THE ENGINE, REMOVE THE PLUG OR TACH SENSOR AT TOP OF FLYWHEEL HOUSING TO ROTATE FLYWHEEL RING GEAR WITH LARGE SCREWDRIVER, FIGURE 2.

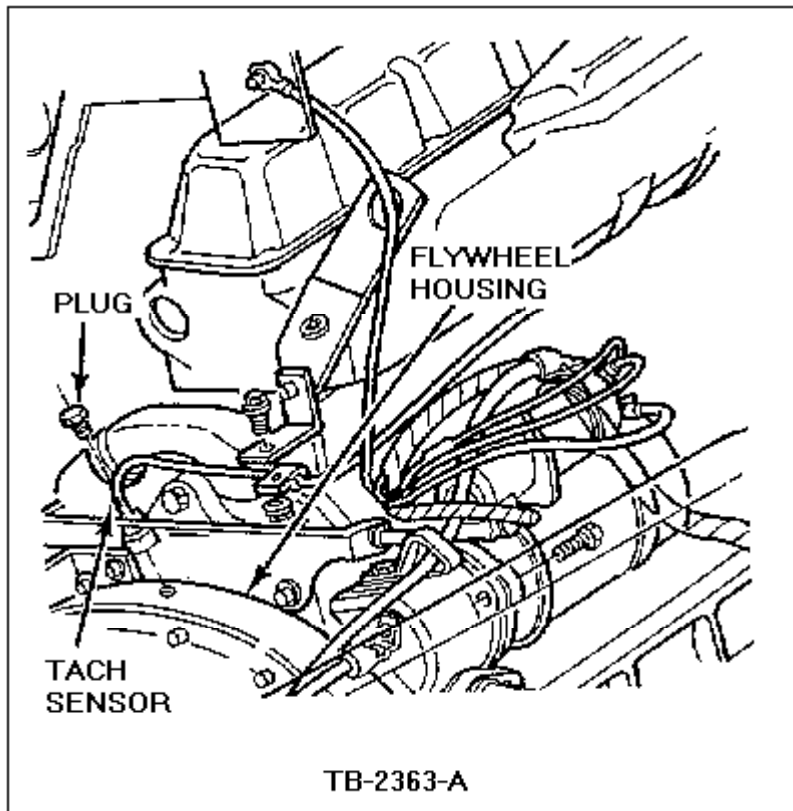


Figure 2 - Article 91-25-20

3. Insert the Injection Pump Aligning Pin T91T-9000-A through the gear plate, gear, hub and into the inner timing plate hole, Figure 3.

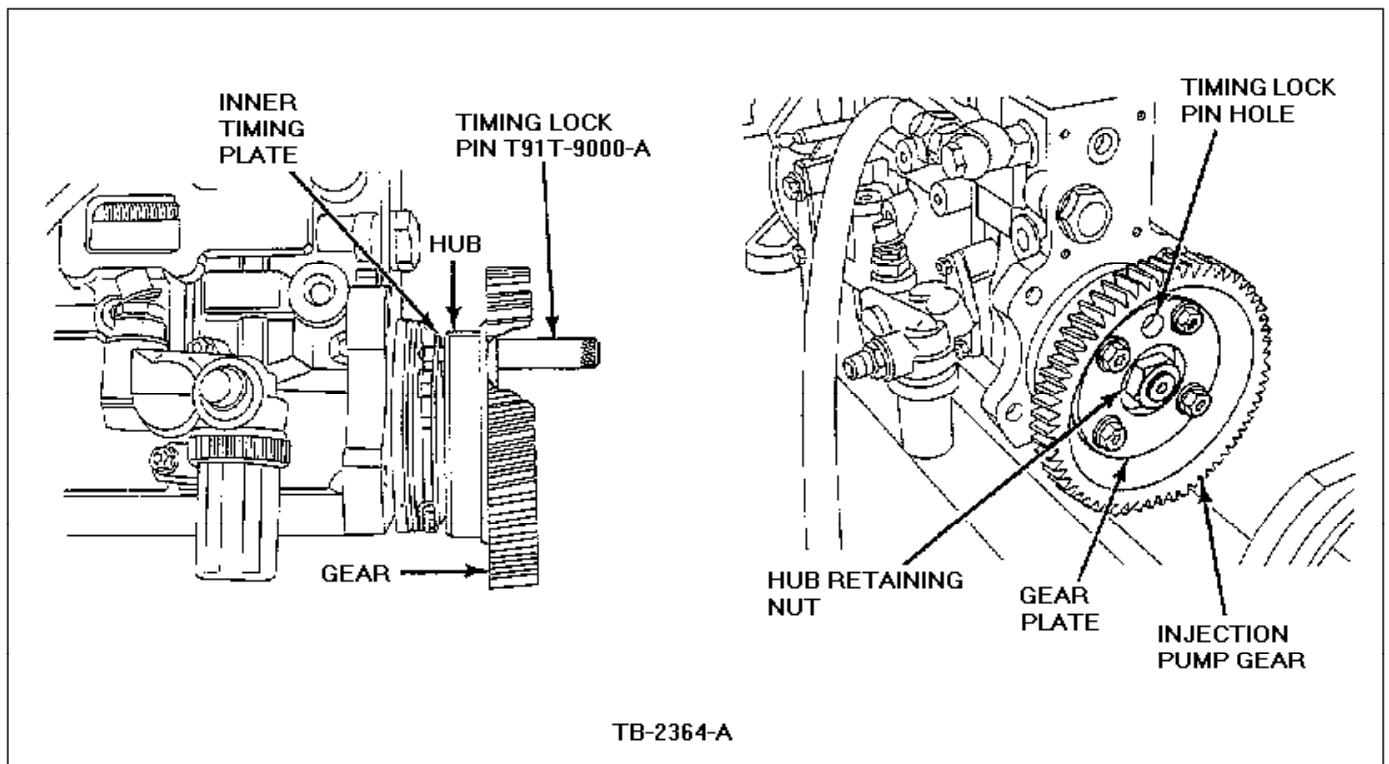


Figure 3 - Article 91-25-20

CAUTION:
 THE TIMING PIN SHOULDER SHOULD SEAT AGAINST THE GEAR PLATE FACE WHEN THE PIN

IS PROPERLY AND FULLY SEATED IN THE TIMING PLATE HOLE. THIS VERIFIES PROPER ENGINE TIMING.

4. Loosen the four (4) pump gear bolts, finger loose, so the plate can rotate from the gear.
5. Loosen the damper timing bracket at the front cover.
6. Insert a pointer into the hole in the front cover (.125"/3.175mm), adjacent to degree marks on damper.
7. Rotate the engine counterclockwise until it lightly contacts the pump timing pin.
8. With the injection pump timing pin still in place, carefully rotate the engine clockwise until the pointer installed in Step #6 indicates new timing mark from the following MFM07.8FPK8 Engine Family Timing Chart.

NOTE:

THERE IS SUFFICIENT CLEARANCE BETWEEN THE GEAR HOLES AND THE BOLTS TO ALLOW MOVEMENT WITHOUT BINDING ON THE BOLTS. STEP #8 HAS ADVANCED THE STATIC TIMING TO THE NEW STATIC TIME AS SHOWN IN THIS CHART.

9. Turn the gear counter clockwise by hand to remove any backlash.
 - a. Tighten the four (4) bolts to 5 lb-ft (7N-m).
 - b. Remove the pump timing pin.
 - c. Tighten the four (4) bolts to 38-52 lb-ft (52-70N-m).


NOTE:

PREVENT THE GEAR FROM ROTATING WHILE TIGHTENING THE GEAR BOLTS TO THE FINAL TORQUE VALUE.

10. With the timing lock pin in the damper slot, tighten the timing bracket bolts to 7 lb-ft (9N-m).
11. Remove the damper aligning pin.
12. Chisel mark the timing bracket to the cover.

Obtain an Authorized Modifications Decal and list the date, dealer number, and summary of alterations performed. Select a prominent place adjacent to the Vehicle Emission Control Information Decal suitable for installing the Authorized Modifications Decal. Clean the area, install the decal, and cover it with a clear plastic

decal shield.

| | |
|---|---------------------------------|
|  | AUTHORIZED MODIFICATIONS |
| THE FOLLOWING MODIFICATIONS HAVE BEEN MADE | |
| ADVANCED STATIC TIMING - | |
| CARGO, PER TSB 91-25-20 | |
| | |
| | |
| THESE MODIFICATIONS HAVE BEEN APPROVED, AS APPROPRIATE, BY EPA AND CARB. | |
| DEALER NUMBER: | DATE: |
| CHANGE AUTHORITY: | |
| FPS 8262 9/78 | FORD MOTOR COMPANY |
| PRINTED IN USA | |

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under California Emissions Warranty Coverage, Basic Warranty Coverage, Powertrain Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 403000, 609000, 609400, 609500, 611000, 611500
