



89-1, *Publication Date: JANUARY 11, 1989*

Air Conditioning - FS-6 Compressor Drive Belt Rolls Over Or Jumps Off Compressor Pulley - Vehicles With 6.6L And 7.8L Ford Diesel Engines	Article No. 89-1-17
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MEDIUM/HEAVY TRUCK:

1988 and prior F, B, L-SERIES, CARGO

ISSUE:

An air conditioning accessory drive belt that rolls over or jumps-off the A/C compressor pulley may be caused by undersized grooves in the pulley. This condition is more noticeable on trucks with larger horsepower engines.

ACTION:

Install a new narrower accessory drive belt that is 15/32" wide. Refer to the following drive belt application chart for the correct service part.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 2610



89-1, *Publication Date: JANUARY 11, 1989*

Engine - Piston Replacement On 6.6L And 7.8L Diesel Engines - Service Tips	Article No. 89-1-18
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MEDIUM/HEAVY TRUCK:

1986 CARGO

1987-89 F, B, C, L-SERIES, CARGO

ISSUE:

New and used pistons that have visible cracks in the top face or combustion bowl area should not be used in the 6.6L or 7.8L Ford diesel engine. Sometimes a new piston can be damaged during shipping and handling.

ACTION:

Before installing a new or used piston, inspect the top face and combustion bowl area for cracks. If cracks are found, do not install the piston.

OTHER APPLICABLE ARTICLES:

88-7-20

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 4700, 4800



89-2, *Publication Date: JANUARY 25, 1989*

Speedometer - Mechanical/Electronic - Inaccurate Speed Readings And Odometer Readings	Article No. 89-2-7
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FORD:

1989 and prior ALL CAR LINES

LINCOLN-MERCURY:

1989 and prior ALL CAR LINES

LIGHT TRUCK:

1989 and prior ALL TRUCK LINES

MEDIUM/HEAVY TRUCK:

1989 and prior ALL MEDIUM/HEAVY TRUCK LINES

ISSUE:

The accuracy of speedometer/odometer readings may be influenced by several vehicle components or systems. The information in this TSB article is intended to assist technicians in speedometer/odometer concern diagnosis.

ACTION:

Use the following supplemental information to assist in speedometer/odometer diagnostics.

OPERATION

A mechanical analog speedometer displays vehicle speed and the odometer displays total distance traveled. The speedometer/odometer assembly is cable driven by either a transmission or a transaxle. All speedometer/odometer assemblies, except for police vehicles are the same with respect to the speed accuracy tolerance used during calibration. The odometer gear ratio is fixed so that all are identical and have no error in the speedometer head.

Electronic digital operation is similar. It could use a drive cable or a speed sensor to drive the speedometer/odometer. An electronic signal is sent from a speed sensor to the digital speedometer/odometer assembly. The speed sensor is driven by a transmission or a transaxle, similar to a cable.

Several areas of concern that may affect speedometer/odometer readings are tires, axle gear ratio and speedometer/odometer drive and driven gears.

TIRES

Improper tire rolling radius and inflation pressure, temperature and size may contribute to inaccurate system readings. System accuracy testing should be performed after the tires are set at the correct pressure as shown on the safety compliance certification label. The tire should be warmed for a short period. Best results are obtained on smooth, dry pavement while driving at a constant speed within the posted speed limit.

AXLE/TRANSAXLE RATIO

The gear ratio of the rear axle or the final drive ratio of the transaxle must be known to select or check if the proper speedometer/odometer drive and driven gears are present. Various gear ratios are available, but usually are not a concern when dealing with speedometer/odometer concerns unless the gear ratio has been changed.

WARNING:

NEVER CORRECT SPEEDOMETER READINGS BY CHANGING GEARS UNLESS THE ODOMETER IS ALSO OFF.

DRIVE/DRIVEN GEARS

The speedometer/odometer drive gear is located inside the transmission, transaxle or transfer case and is not easily accessed for change. The driven gear rotates the speedometer cable. Rear wheel drive vehicles have several driven gears with various numbers of teeth available to correct input to the speedometer/odometer head. Front wheel drive vehicles generally do not offer different gears for correction.

GENERAL DESCRIPTION

The maximum allowable odometer system accuracy error is $\pm 3.75\%$ of the actual distance traveled. Ford Motor vehicles are well within those limits.

The speed indication is biased high, except on police vehicles with certified calibration speedometers/odometers. As a general rule, the indicated speed is equal to or greater than the actual speed. This is intended to protect the consumer against violating speed laws. Most customer concerns are related to speedometers reading too high at true speeds between 50 MPH and 65 MPH (80 - 105 Km/h). At that speed range, the worst case errors may indicate a speed that is 10% greater than true speed.

The speedometer head is an instrument which processes information sent to it by the rotating speedometer cable. If the system components send the wrong number of revolution per mile to the speedometer head, an inaccurate speed reading and amount of distanced traveled will be displayed. Since there is no error in the fixed gear ratio of the speedometer head odometer, start by checking the accuracy of the odometer even if the customer concern indicates a speed accuracy problem. Odometer accuracy can be checked by using roads established at mile increments or a known local course. If roads with mile markers are used, a five mile stretch is recommended to allow for inaccuracies. If an error is greater than 3.75%, a change to the transmission drive/driven gear selection, tire size, or tire inflation may need attention. The odometer should be checked again to verify any corrective action. If the indicated speed error exceeds 10% between 50 MPH and 60 MPH (80 - 105 Km/h), replace the speedometer/odometer assembly. Vehicles with transfer cases that have fluctuating readings may be due to slippage of drive gears, parts not splined or loose yoke nuts.

If the vehicle has speed control, the speed accuracy can be checked using the verified odometer vs. time. The formula is as follows:

$$3600 \text{ divided by TIME (seconds to cover one mile)} = \text{TRUE MPH(Km/h)}$$

EXAMPLES:

60 MPH (96 Km/h) requires 60 seconds to cover one mile

55 MPH (88 Km/h) requires 65 and 3/4 seconds to cover one mile

50 MPH (80 Km/h) requires 72 seconds to cover one mile

SUPERSEDES: 84-14-6

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 2300, 2310, 2400, 2500

Bulletin Contents

TSB Article 89-2-8 has been superseded by Article 96-24-6.



89-2, *Publication Date: JANUARY 25, 1989*

Paint - Aftermarket Supplier Cross Reference Chart - Heavy Truck Fleet Colors	Article No. 89-2-15
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MEDIUM/HEAVY TRUCK:

1989 and prior ALL MEDIUM/HEAVY TRUCK LINES

ISSUE:

An aftermarket paint supplier cross-reference chart has been developed to assist in resolving fleet paint concerns on all 1989 and prior Heavy Trucks. The chart is divided by color groups and then by shades within the specific color group.

ACTION:

Use the following aftermarket paint supplier cross-reference chart to assist in resolving paint concerns.

SERVICE REFINISH CODES

FORD CODE #	PPG	DuPONT	MARTIN SENOUR	ACME- ROGERS	SHERWIN WILLIAMS
WHITES					
W0021A	8706	7167	10000	17200	J5-1701
W0045A	8001	6538	10003	17203	J5-1703
W0046A	8709	6729	10004	17204	J5-1704
W0069A	8710	7168	10006	17206	J5-1706
W0071A	8712	94126	11627	17208	J5-1708
W0091A	8713	6733	10008	17209	J5-1709
W0115A	8717	508	10011	17213	J5-1712
W0136A	8719	7169	10013	17215	J5-1714
W0157A	8722	6886	10016	17217	J5-1717
W0330A	8835	7372	11008	26455	J5-3362
W0332A	8857	7331	11722	28490	J5-4944
W0616A	90551	H8939	38740	38740	38740
W0618A	90552	H8940	36764	36764	36764
W0619A	90553	H8941	1528	9343	JK-8618

FORD CODE #	PPG	DuPONT	MARTIN SENOUR	ACME- ROGERS	SHERWIN WILLIAMS
CREAMS					
W1006B	81625	7172	10018	17220	J5-1719
W1030B	81626	7173	10019	17221	J5-1720
W1100B	81629	1222	10022	17224	J5-1328
W1677B	26130	G8828	36907	36907	36907

FORD CODE #	PPG	DuPONT	MARTIN SENOUR	ACME- ROGERS	SHERWIN WILLIAMS
GRAYS					
W2007C	32663	7180	8729	16133	JX-9290
W2032C	32666	7183	10029	17232	J5-1336
W2101C	32671	6737	10034	17237	J5-1730
W2166C	31953	7190	9881	17244	J5-357
W2180C	32678	6739	10041	17245	J5-746
W2323C	32620	7808	11641	18271	J5-5029
W2510C	33846	7839	13831	34662	34662
W2618C	34514	H8942	38742	38742	38742
W2684C	34515	H8943	36762	36762	36762

FORD CODE #	PPG	DuPONT	MARTIN SENOUR	ACME- ROGERS	SHERWIN WILLIAMS
GRAY METALLICS					
W2813C	32683	6754	10196	17413	JX-7174
W2823C	32685	96547	10198	17415	J5-1857
W2828C	32686	97334	10199	17416	J5-1858
W2840C	8927	97210	4193	9672	JX-9530
W2866C	33848	B8147	13834	34665	34665

FORD CODE #	PPG	DuPONT	MARTIN SENOUR	ACME- ROGERS	SHERWIN WILLIAMS
BROWNS - BEIGES - TANS					
W3004N	22998	7195	10048	17253	J5-1741
W3028N	21601	7196	10050	17255	J5-1743
W3029N	23000	7197	488	17256	J5-1744
W3052N	23001	96932	10051	17257	J5-1745
W3053N	23002	7198	10052	17258	J5-1746
W3075N	23003	6742	8461	17259	JX-8085
W3121N	23007	7200	10056	17263	J5-1750
W3317N	81963	7814	11650	18216	J5-4957
W3341N	22675	74224	11651	16639	J5-4958
W3365N	32976	67258	11655	18252	J5-4961
W3381K	23685	20168	11566	13441	J5-4767
W3618N	26377	H8944	38744	38744	38744
W3622K	26131	G8830	36908	36908	36908
W3663M	26132	G8831	36909	36909	36909

FORD CODE #	PPG	DuPONT	MARTIN SENOUR	ACME- ROGERS	SHERWIN WILLIAMS
BROWN METALLICS					
W3827N	71669	7205	10205	17423	J5-3962
W3830N	23020	4793	10206	17424	J5-1866
W3833N	23021	97770	10207	17425	J5-1867
W3837M	23023	4807	10209	17427	J5-1868
W3860K	25533	C8223	13841	34672	34672
W3875N	26133	G8829	36910	36910	36910

FORD CODE #	PPG	DuPONT	MARTIN SENOUR	ACME- ROGERS	SHERWIN WILLIAMS
REDS					
W4519D	50886	7853	13844	34675	34675
W4520D	50887	7854	13845	34676	34676
W4632D	72984	G8834	36911	36911	36911
W4640D	72985	G8832	36912	36912	36912
W4650D	72986	G8833	36913	36913	36913
W4672D	72987	G8835	36914	36914	36914

FORD CODE #	PPG	DuPONT	MARTIN SENOUR	ACME- ROGERS	SHERWIN WILLIAMS
RED METALLICS					
W4860D	72686	45761	13849	34680	34680
W4861D	50789	6787	13850	34681	34681

FORD CODE #	PPG	DuPONT	MARTIN SENOUR	ACME- ROGERS	SHERWIN WILLIAMS
ORANGES					
W5607E	61154	G8838	36915	36915	36915
W5615E	61155	G8836	36916	36916	36916
W5628E	61198	H8945	38745	38745	38745
W5638E	61199	W8875	38626	38626	38626
W5651E	61156	G8837	36917	36917	36917
W5684E	61157	G8839	36918	36918	36918
W5685E	61158	G8841	36919	36919	36919
W5694E	61159	G8840	36920	36920	36920

FORD CODE #	PPG	DuPONT	MARTIN SENOUR	ACME- ROGERS	SHERWIN WILLIAMS
YELLOW					
W6210F	81661	6768	10121	17335	J5-1796
W6642F	82752	G8843	36922	36922	36922
W6644F	82824	K8858	38223	38223	38223
W6648F	82753	G8847	36923	36923	36923
W6675F	82754	G8849	36924	36924	36924
W6680F	82825	H8946	38627	38627	38627
W6684F	82755	G8848	36925	36925	36925
W6695F	82757	G8845	36927	36927	36927

FORD CODE #	PPG	DuPONT	MARTIN SENOUR	ACME- ROGERS	SHERWIN WILLIAMS
GREENS					
W7080G	43821	7233	10131	17345	J5-1127
W7094G	43824	94121	10133	17348	J5-1804
W7168G	43837	7240	10145	17361	J5-1814
W7202G	43844	54738	10152	17368	J5-1820
W7209G	43848	62006	284	1403	JX-8361
W7327G	44567	7373	11009	17851	J3-3363
W7343G	44568	7826	9560	18262	JX-8569
W7348G	44570	7827	11676	18299	J5-4981
W7361G	44572	7828	11678	18243	J5-498
W7385G	43273	96775	11685	15712	J5-4990
W7406G	44109	7722	11690	18244	J5-4994
W7514G	43812	6740	13862	34693	34693
W7566G	45853	K8256	13863	34694	34694
W7567G	45854	H8317	13864	34695	34695
W7600G	46172	G8851	36928	36928	36928
W7601G	46267	H8947	38746	38746	38746
W7602G	46268	H8938	38747	38747	38747
W7603G	46173	G8850	36929	36929	36929
W7604G	46269	H8948	38748	38748	38748
W7606G	46174	G8854	36930	36930	36930
W7627G	46270	H8949	38625	38625	38625
W7648G	46271	H8950	38233	38233	38233
W7658G	46175	G8852	36931	36931	36931
W7674G	46272	H8951	38749	38749	38749
W7682G	46176	H8952	36932	36932	36932
W7695G	46273	H8953	38750	38750	38750

FORD CODE #	PPG	DuPONT	MARTIN SENOUR	ACME- ROGERS	SHERWIN WILLIAMS
		GREEN	METALLICS		
W7809G	43856	95610	10212	17430	J5-1871
W7814G	43857	94886	10213	17431	J5-1872
W7819G	43858	6529	10214	17432	J5-1873
W7824G	43859	4814	10215	17433	J5-1814
W7847G	44272	15394	11694	18303	J5-4998
W7862G	45855	43517	13865	34696	34696
W7864G	45857	B8152	13867	34698	34698

FORD CODE #	PPG	DuPONT	MARTIN SENOUR	ACME- ROGERS	SHERWIN WILLIAMS
BLUES					
W8002H	13582	6544	10158	17375	J5-1825
W8025H	13585	7247	10161	17378	J5-1828
W8026H	12375	7248	10162	17379	J5-1274
W8049H	13588	7250	10165	17382	J5-1831
W8050H	12809	7251	10166	17383	J5-1832
W8096H	12908	29509	10172	17389	J5-1837
W8118H	13593	7253	10174	17391	J5-1838
W8119H	13594	24160	10175	17392	J5-1839
W8140H	13596	7255	10177	17394	J5-1840
W8141H	13597	7256	10178	17395	J5-1841
W8159H	13598	7258	10180	17397	J5-1843
W8161H	13599	7260	10182	17399	J5-1121
W8177H	13600	7262	10183	17400	J5-1844
W8191H	13601	7149	10184	17401	J5-1845
W8304H	14337	94937	11695	18233	J5-4999
W8319H	14340	6820	11702	18227	J5-5007
W8335H	14341	63189	8769	18313	JX-6842
W8342H	14343	7270	11539	18315	J5-4786
W8345H	13306	7844	11706	18231	J5-5010
W8347H	12902	97332	1627	9652	JX-9593
W8354H	13542	7845	11708	18251	J5-5012
W8355H	14344	7846	11709	18234	J5-5013
W8363H	14345	7847	11710	18316	J5-5014
W8364H	14346	7848	11711	14414	J5-5025
W8367H	14348	7675	11713	18240	J5-5016
W8381H	13898	63203	11716	18318	J5-5019
W8520H	15903	4953	13868	34699	34699
W8522H	15904	W8035	13869	34700	34700
W8528H	15907	H8334	13872	34703	34703

FORD CODE #	PPG	DuPONT	MARTIN SENOUR	ACME- ROGERS	SHERWIN WILLIAMS
BLUE METALLICS					
W8816H	13607	95604	10219	17347	J5-1878
W8826H	13609	97774	10221	17439	J5-1880
W8829H	13610	96926	10222	17440	J5-1881
W8832H	13611	95181	10223	17441	J5-1882
W8836H	13613	95805	10225	17443	J5-1884
W8847H	16563	H8954	38751	38751	38751
W8866H	15912	K8462	13877	34708	34708

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 1100



89-3, *Publication Date: FEBRUARY 8, 1989*

<ul style="list-style-type: none">• Brakes - Air - Front Lining "Squealing" And "Grinding" Noise - 12000 Lb. Front Axle• Noise - "Squealing" And "Grinding" From Front Brake Lining - 12000 Lb. Front Axle	Article No. 89-3-12
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MEDIUM/HEAVY TRUCK:

1986-89 CARGO CF 7000/8000

ISSUE:

A "squealing" and "grinding" noise from the front brake linings during light application may be caused by the wearing features of the current "Jurid L-220" air brake lining.

ACTION:

Install a new set of air brake linings which are made from a softer material. Refer to the 1986-89 Cargo Shop Manual, Section 12-48-6 for service details.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 3050, 3051, 7100, 7113



89-3, *Publication Date: FEBRUARY 8, 1989*

Cooling System - Use Of Low Silicate Coolant - Vehicles With Diesel Engines	Article No. 89-3-13
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MEDIUM/HEAVY TRUCK:

1989 and prior ALL TRUCK LINES

ISSUE:

Current worldwide shortages of antifreeze may result in the use of an antifreeze that does not meet Ford Motor Coolant specification. Ford Motor specifies the use of a low silicate antifreeze in the cooling system of Ford Medium/Heavy Trucks equipped with diesel engines to achieve optimum cooling system performance.

ACTION:

Use a low silicate coolant that meets Ford Motor coolant specification ESE-M97B18-C, such as Ford Heavy Duty Diesel Engine Cooling System Fluid (E6HZ-19549-A). Ford Motor coolant specification ESE-M97B18-C is similar to specification GM-6038M. Ethylene glycol coolants that meet the GM-6038M specification are more restrictive and can be used in diesel powered Ford Medium and Heavy trucks. Refer to TSB 87-22-22 for specific cooling system guidelines.

OTHER APPLICABLE ARTICLES: 87-22-22

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 4300, 4301



89-3, *Publication Date: FEBRUARY 8, 1989*

Exhaust - Muffler - Outlet Pipe Installation Procedure - Cummins L10, NTC And Formula Diesel Engines	Article No. 89-3-14
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MEDIUM/HEAVY TRUCK:

1988 L, LTL SERIES

ISSUE:

Exhaust system mufflers that crack above the outlet pipe welds may be caused by incorrect installation of the muffler outlet pipe. The muffler outlet pipe must be "bottomed out" against the stops inside the muffler.

ACTION:

If service is required, make sure the muffler outlet pipe is "bottomed out" against the muffler stops. Refer to the following procedure for service details.

SERVICE PROCEDURE

1. Install the muffler outlet pipe. Make sure the Ford part number and Ford logo are positioned at the muffler outlet, Figure 1.

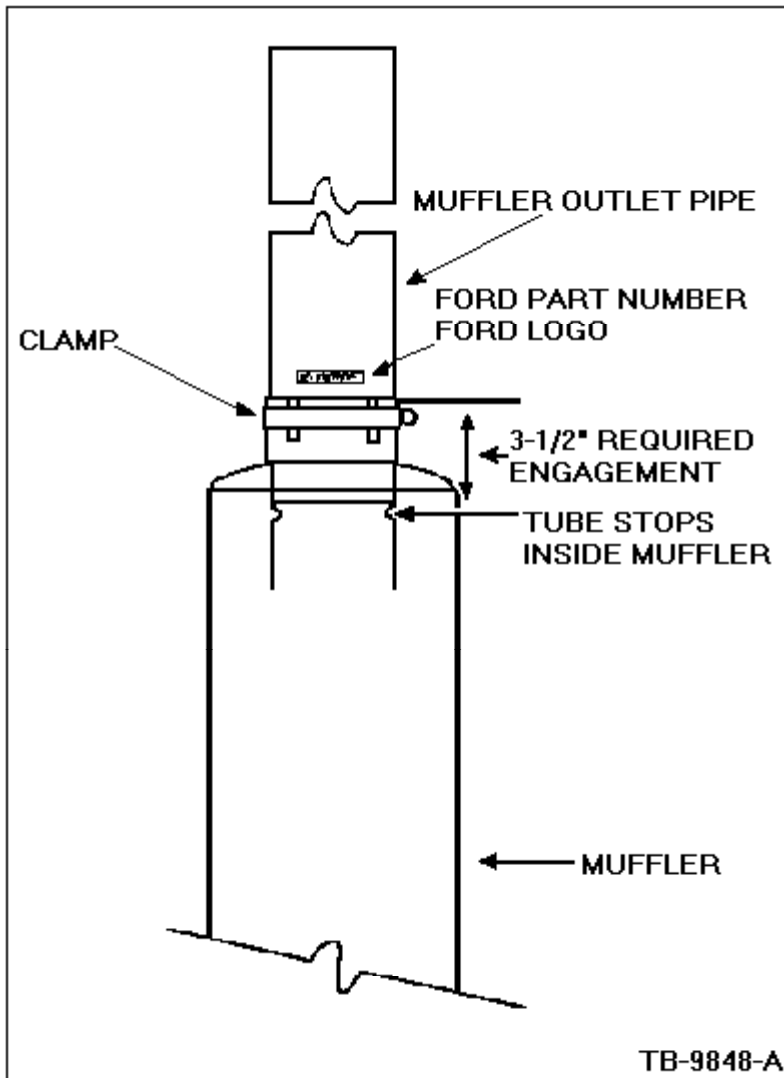


Figure 1 - Article 89-3-14

2. Insert the muffler outlet pipe into the muffler about 3 1/2", until it "bottoms out" against the stops inside the muffler.
3. Position the exhaust clamp about in the middle of the muffler outlet slots, Figure 1.
4. Tighten the clamp bolts to a torque of 10-12 lb.ft. (14-16 N-m).

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 4600, 4800



89-3, *Publication Date: FEBRUARY 8, 1989*

Axle - Rear - Eaton Two Speed Electrical Shift Motor - Resealing Of Cover After Service Is Performed	Article No. 89-3-15
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MEDIUM/HEAVY TRUCK:

1986-89 F, B, C, L, LN, CARGO

ISSUE:

Improper re-sealing of the Eaton two speed electric shift motor cover could allow contaminants to enter the assembly and cause the internal circuit board to fail.

ACTION:

Anytime the Eaton two speed electric shift motor cover is removed, install a new cover gasket and apply Ford non-acid silicone rubber sealant, Figure 1.

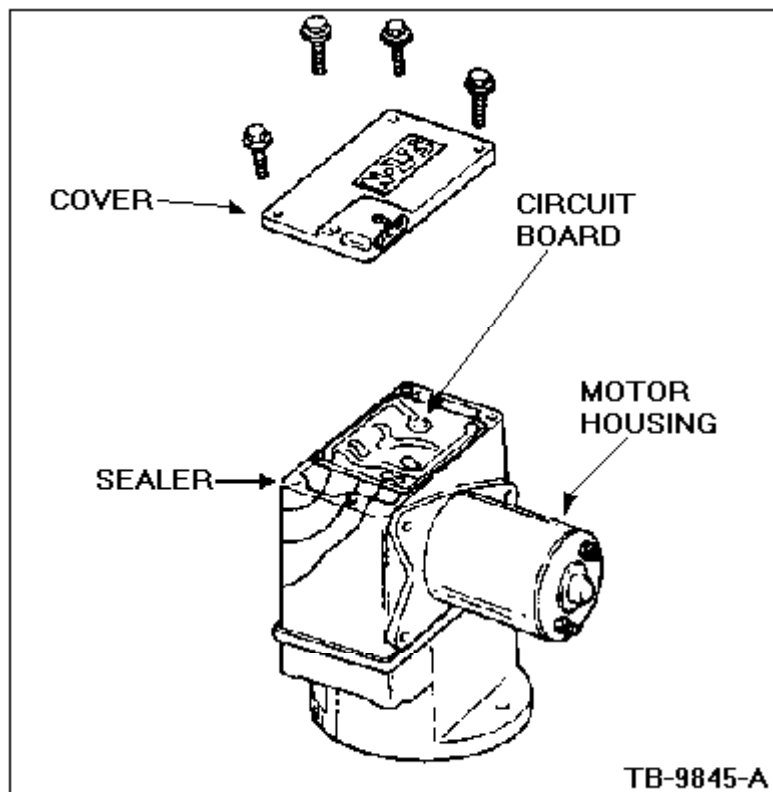


Figure 1 - Article 89-3-15

NOTE:

THE EATON TWO SPEED SHIFT MOTOR COVER REPLACEMENT KIT INCLUDES THE CORRECT FORD SILICONE SEALER IN THE EVENT REPLACEMENT IS REQUIRED.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 5960, 5970



Bumper - Front - Air Foil Loose And Vibrates

**Article No.
89-4-12**

MEDIUM/HEAVY TRUCK:

1989 LA, LTA 9000

ISSUE:

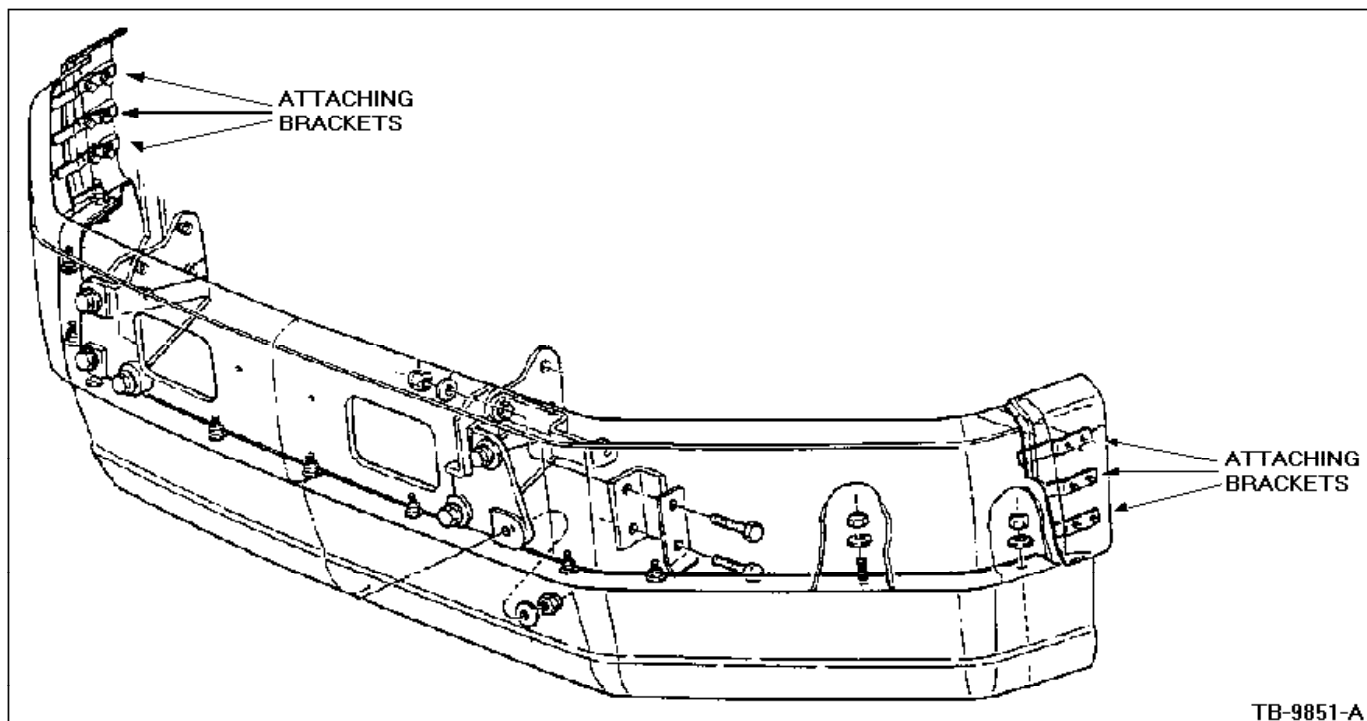
Loose and vibrating air foil ends on the front bumper of the Aero Max truck may be caused by the six (6) bracket attachment method used to hold the air foil to the front bumper.

ACTION:

Remove the three (3) brackets from each end of the air foil and install two (2) new nuts and bolts to hold the air foil to the front bumper. Refer to the following procedure for service details.

SERVICE PROCEDURE

1. Remove the three (3) brackets from the end of the air foil, Figure 1.



TB-9851-A

Figure 1 - Article 89-4-12

2. Properly align and hold the air foil end to the bumper.
3. Center punch the air foil end at the two (2) locations shown in Figure 2.

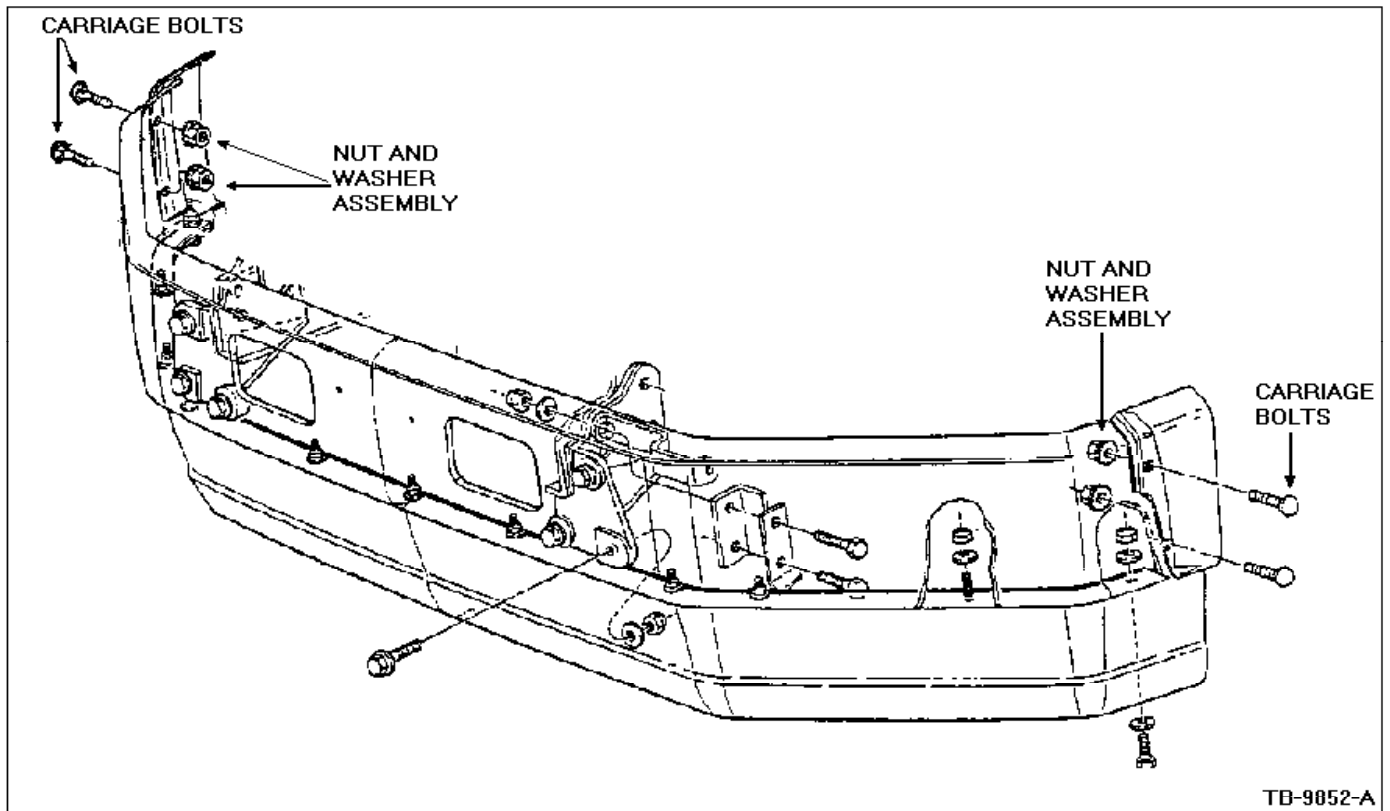


Figure 2 - Article 89-4-12

4. Drill the two (2) center punched marks with a 17/64" drill bit.
5. Install the two (2) 1/4" carriage bolts, (58803-S100) through the air foil end and bumper.
6. Install and tighten the two (2) 1/4" nut and washer assemblies, (34659-S36).
7. Repeat Steps 1 through 6 on the opposite end of the air foil.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 1050, 1052, 1200



89-4, *Publication Date: FEBRUARY 22, 1989*

Air Conditioning - "Sanden" Compressor Mounting Bracket Kits For FS-6 Compressor Replacement	Article No. 89-4-13
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MEDIUM/HEAVY TRUCK:

1988 and prior L, LTL, CL-SERIES

This TSB article is being republished in its entirety to correct the service part number for the "Sanden" A/C compressor and clutch assembly. The original service part number published in TSB 88-15-10 was for the A/C compressor only.

ISSUE:

New air conditioning compressor mounting brackets to adapt a "Sanden" A/C compressor to a vehicle originally equipped with a FS-6 A/C compressor are available for service. The A/C compressor freon hose connections used on the FS-6 A/C compressor and the electrical connections will have to be modified for use with a "Sanden" A/C compressor.

ACTION:

If service is required, modify the A/C compressor freon hose connections using the Motorcraft A/C refrigerant line fitting kits and bulk refrigeration hose listed in the charts in this article. Also splice the A/C compressor clutch electrical connector into the vehicle wire harness. Refer to the A/C compressor mounting adaptor bracket application chart in this article for the correct service part numbers.

NOTE:

THE NEW A/C COMPRESSOR MOUNTING ADAPTOR BRACKETS FOR THE SANDEN A/C COMPRESSOR ARE SERVICE ONLY ITEMS.

OTHER APPLICABLE ARTICLES: NONE

SUPERSEDES: 88-15-10

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 2610, 2800



89-4, *Publication Date: FEBRUARY 22, 1989*

Brake - Hydraulic Or Air-Over-Hydraulic-Expander Cylinder Service Procedures	Article No. 89-4-14
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MEDIUM/HEAVY TRUCK:

1984-88 F, B, C, L-SERIES

1986-88 CARGO CF-SERIES

This article is being republished to clarify the service part application chart and the article note about the expander casting bore diameters.

ISSUE:

The expander cylinder used on the "Lucas Girling A2LS" brake system may be honed to service a glazed hydraulic bore. In the event an expander cylinder is worn beyond repair, new expander cylinder castings are now available for service.

ACTION:

Use the following procedure to service the expander cylinder. Refer to the expander cylinder service parts application chart in this article for the correct seal kit and cylinder casting parts numbers.

SERVICE PROCEDURE

1. Inspect the expander cylinder hydraulic housing.

NOTE:

THE EXPANDER CYLINDER BORE MUST NOT HAVE A DIAMETER LARGER THAN 1.753" FOR THE FOLLOWING BRAKE ASSEMBLIES:

NOTE:

THE EXPANDER CYLINDER BORE MUST NOT HAVE A DIAMETER LARGER THAN 1.628" FOR THE FOLLOWING BRAKE ASSEMBLIES:

NOTE:

IF THE EXPANDER CYLINDER BORE IS LARGER THAN SPECIFIED ABOVE, EITHER BEFORE OR AFTER HONING, OBTAIN A NEW EXPANDER CYLINDER CASTING AND SEAL KIT.

2. Hone the expander cylinder using a 220 spring loaded wheel cylinder stone that gives a smooth finish. Do not remove more than .002" of material during the honing process.
3. Clean the expander cylinder with isopropyl alcohol to remove all honing residue.
4. Install a new seal kit. Refer to the appropriate Medium/Heavy Truck Shop Manual, Section 12-01 and 12-03.

OTHER APPLICABLE ARTICLES: NONE

SUPERSEDES: 88-20-16

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 3050, 3800



89-4, *Publication Date: FEBRUARY 22, 1989*

Clutch Brake - "Spicer" - Inspection And Replacement Procedure - Vehicles Built From 9/01/87 To 5/31/88	Article No. 89-4-15
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MEDIUM/HEAVY TRUCK:

1987-88 F-8000, L-8000/9000, CL-9000 SERIES

ISSUE:

A damaged input bearing cover or release bearing backing plate may be caused by the clutch brake. The clutch brake has a powdered metal facing that may cause the transmission input bearing cover or the release bearing backplate to wear excessively.

ACTION:

Inspect and adjust the clutch brake to determine if replacement is required. The new clutch brake has a paper facing to reduce input bearing cover and release bearing backing plate wear.

SERVICE PROCEDURE

NOTE:

THE NEW CLUTCH BRAKE CAN BE IDENTIFIED BY REFERRING TO FIGURE 1. THE OLD CLUTCH BRAKE CAN BE IDENTIFIED BY REFERRING TO FIGURE 2.

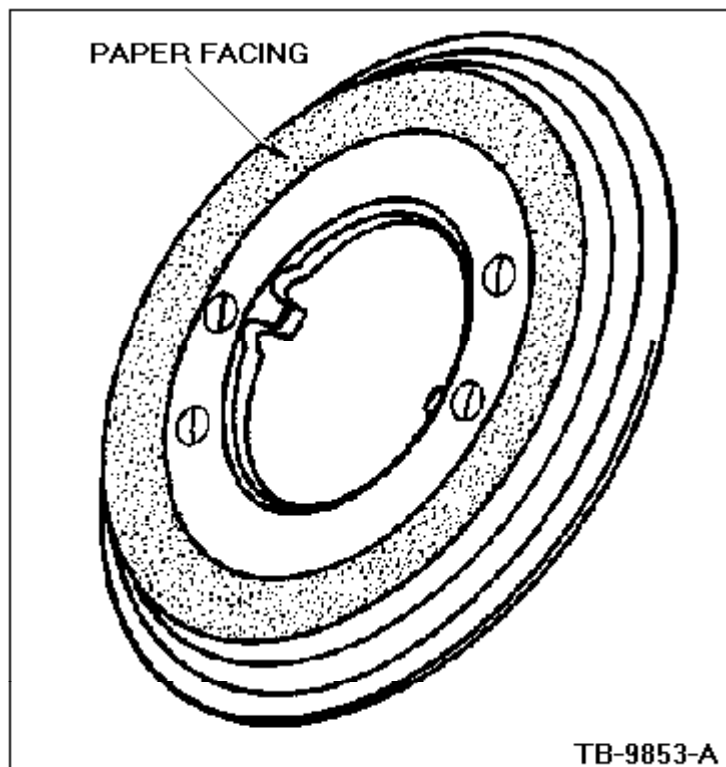


Figure 1 - Article 89-4-15

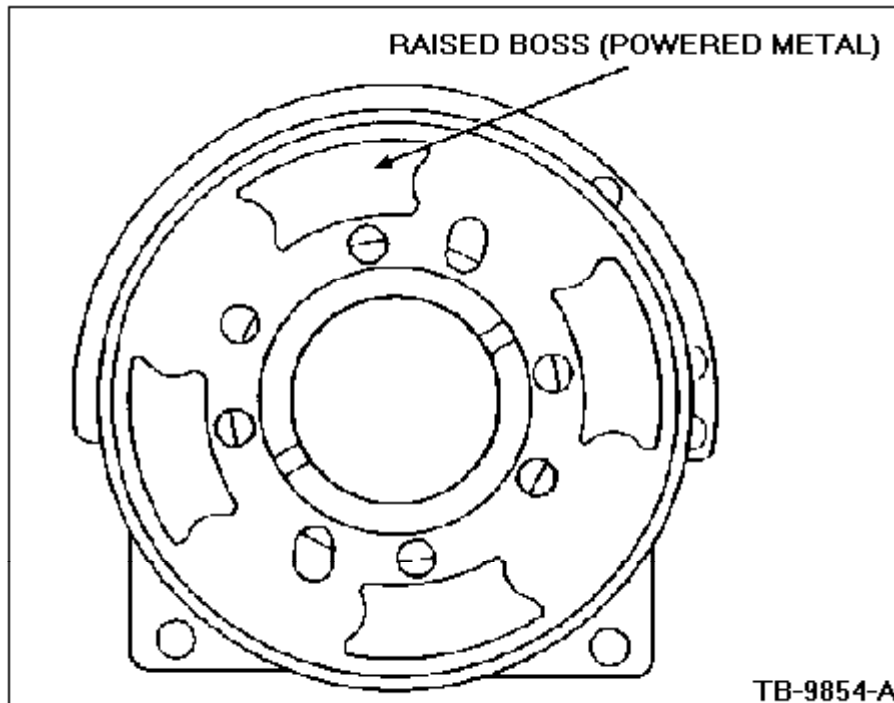


Figure 2 - Article 89-4-15

1. Inspect the clutch brake for proper adjustment. Refer to the appropriate Heavy Truck Shop Manual, Section 16-02 and note the following:
 - a. The clutch brake should be activated at the last inch of pedal travel.
 - b. The clutch brake adjustment is done by adjusting the external linkage.
 - c. If adjustment cannot be achieved, proceed to Step 2.
2. Remove the transmission clutch housing inspection cover and look for the following:
 - a. Check for an excessive amount of casting dust in the bottom of the clutch housing.
 - b. Inspect the transmission input bearing cover and clutch release bearing backplate. If the surface contacted by the clutch brake is deeply scored or grooved, proceed to Step 3.
3. Remove the transmission and proceed as follows:
 - a. Remove and replace the front bearing cap, gasket, and oil seal if one is used. Refer to Ford Master Parts Catalog for the correct service parts.
 - b. Remove the old clutch brake.
 - c. Install a new clutch brake. For 1-3/4 inch diameter shaft, use E7HZ-7E434-A (Spicer # 127740). For 2 inch diameter shaft, use D8HZ-7E434-A (Spicer # 127760)
 - d. If the backplate which contacts the clutch brake is scored, replace the release bearing and sleeve assembly also. Refer to Ford Master Parts Catalog for the correct service parts.
 - e. Reinstall the transmission and make the necessary adjustments. Refer to the appropriate Heavy Truck Shop Manual, Section 16-02. Check the clutch brake and clutch for proper operation.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 5550



89-5, *Publication Date: MARCH 8, 1989*

Cooling System - 6.6L And 7.8L Ford Diesel Engines - Coolant Conditioner Charge	Article No. 89-5-17
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MEDIUM/HEAVY TRUCK:

1986-89 CARGO SERIES

1987-89 F & B SERIES, L SERIES

ISSUE:

The amount of engine cooling system conditioner during the initial fill has been increased to improve operating qualities of the cooling system. Complete engine coolant replacement will require that the new recommended amount of conditioner be added.

ACTION:

When complete coolant replacement is necessary, use one of the following ways to make sure the correct amount of engine coolant conditioner has been added.

- Install Ford Coolant Conditioner Filter, (E7HZ-8A424-C) which has (12) DCA units of conditioner.
- Install Ford Coolant Conditioner Filter, (E7HZ-8A424-B) which has (2) DCA units of conditioner. Also add an additional 2 1/2 pints (10 DCA units) of Motorcraft FW 15 Cooling System Additive.

OTHER APPLICABLE ARTICLES:

88-5-19

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 4300, 4800



89-5, *Publication Date: MARCH 8, 1989*

- Noise - "Fuller" Transmission Shift Lever Vibrates
- Transmission - "Fuller" - Shift Lever Vibrates

Article No.
89-5-18

MEDIUM/HEAVY TRUCK:

1984-89 L SERIES, LTL-9000

ISSUE:

A "rattling" or "buzzing" noise in the passenger cab may be caused by a shift lever that vibrates.

ACTION:

Install an isolator on the shift lever. Refer to the following service procedure for service details.

SERVICE PROCEDURE

1. Remove the gear shift lever, Figure 1. Refer to the L-Series Shop Manual, Section 16-57 for removal instructions.

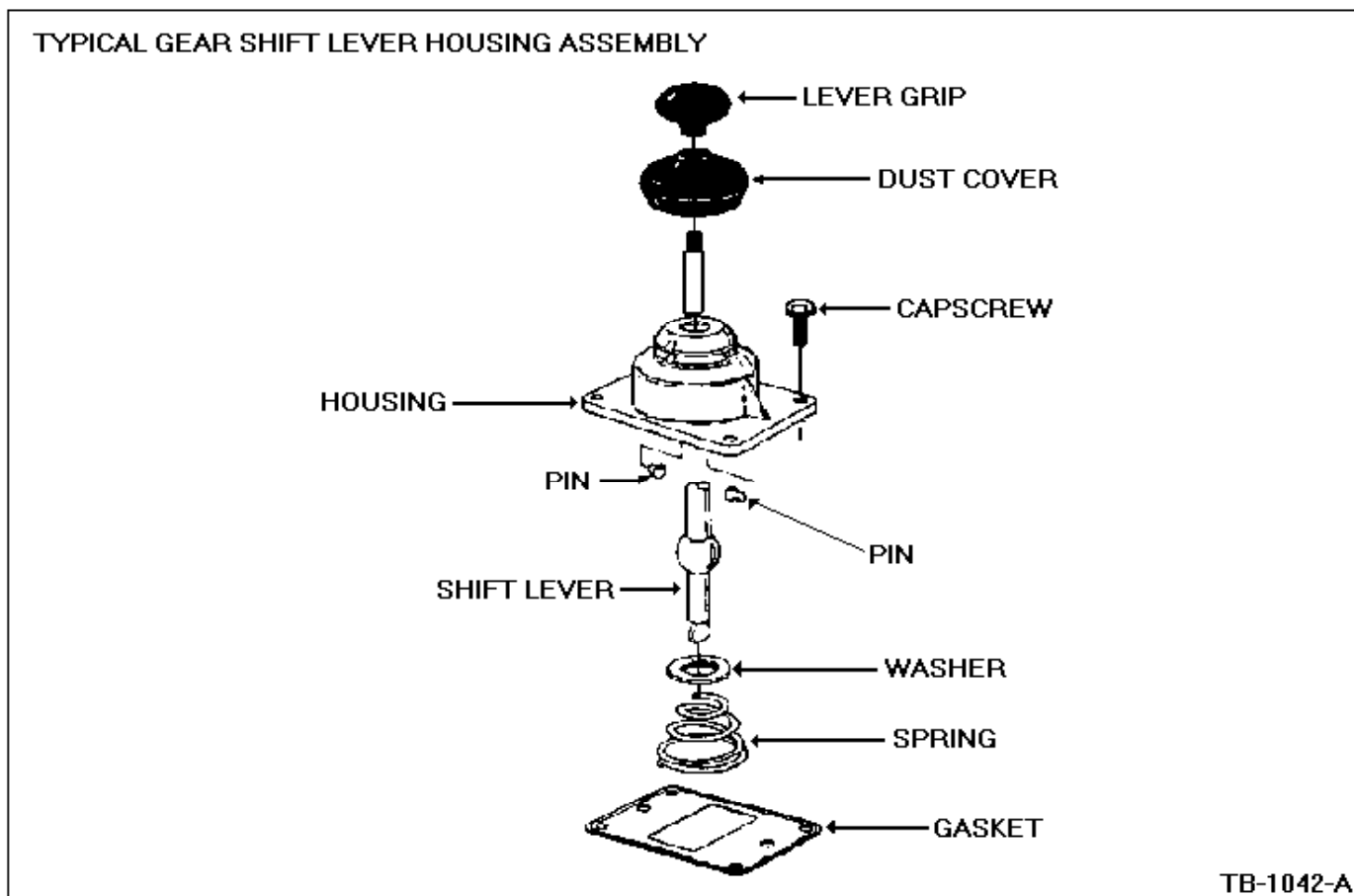


Figure 1 - Article 89-5-18

2. Scribe a location line along the gear shift lever center line at midpoint in the keyway, Figure 2.

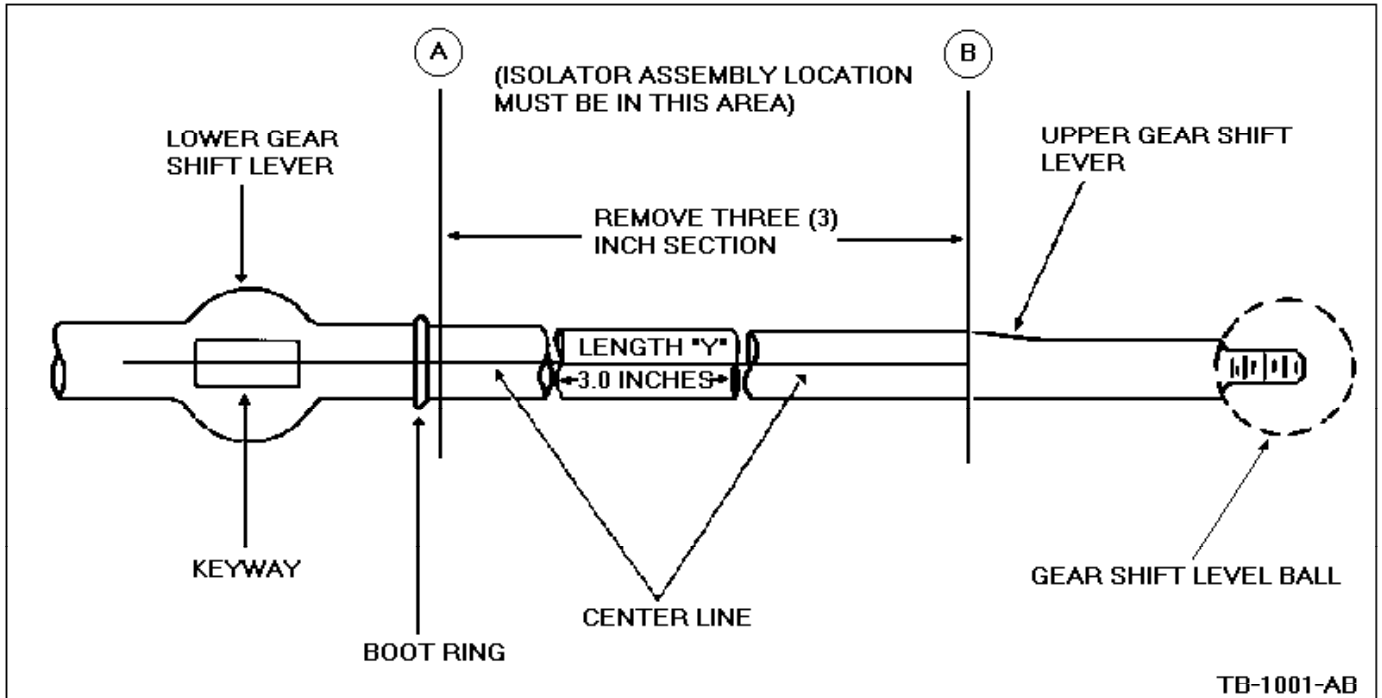


Figure 2 - Article 89-5-18

3. Cut out a three (3) inch section of the gear shift lever from between point A and point B, Figure 2.

NOTE:

THE LOCATION OF LENGTH "Y" MAY VARY DEPENDING UPON DIMENSIONAL ACCESSABILITY AND SPACE REQUIREMENTS. THE ISOLATOR SHOULD BE NO MORE THAN ONE (1) INCH ABOVE THE BOOT RING.

4. Scribe a location line along the isolator assembly center line and through the cross pin center, Figure 3.

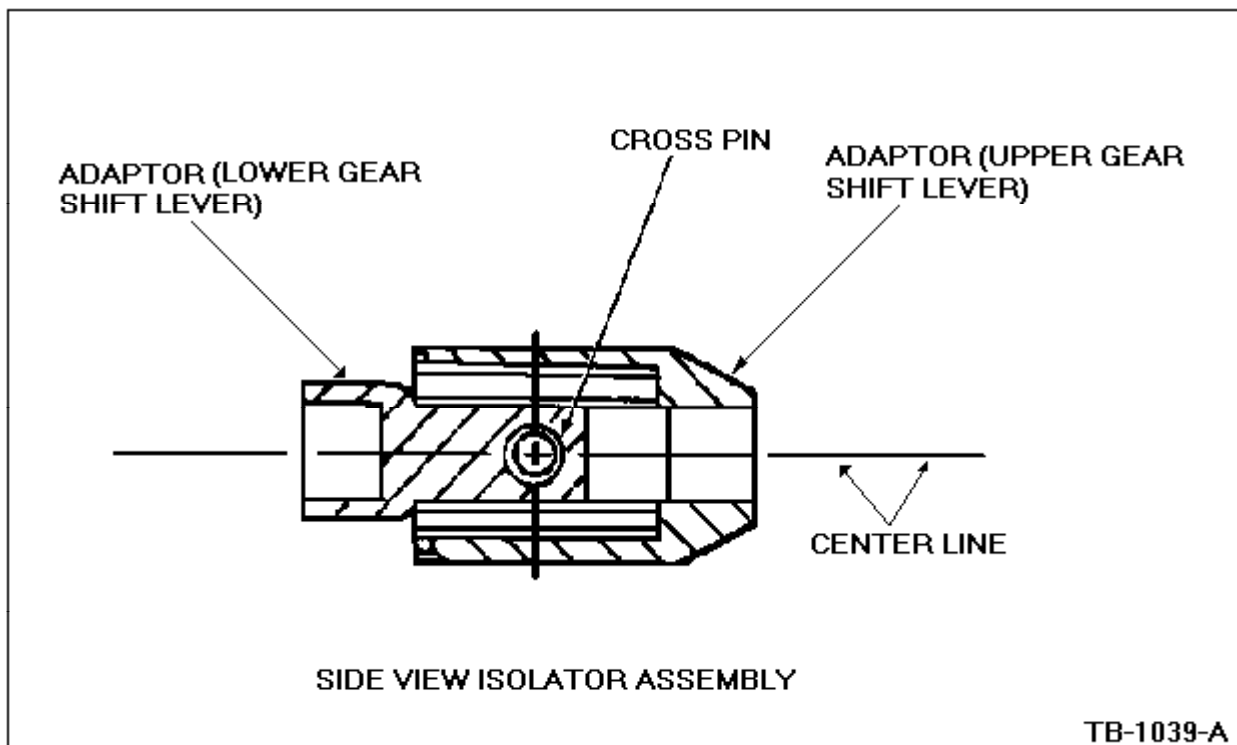


Figure 3 - Article 89-5-18

5. Install the lower gear shift lever into the adaptor and line up the scribe lines made in Steps 2 and 4.
6. Apply a 1/4 inch bevel weld (weld point 2) as shown in Figure 4. Use Lincoln rod "Jetweld I E-7024" or equivalent.

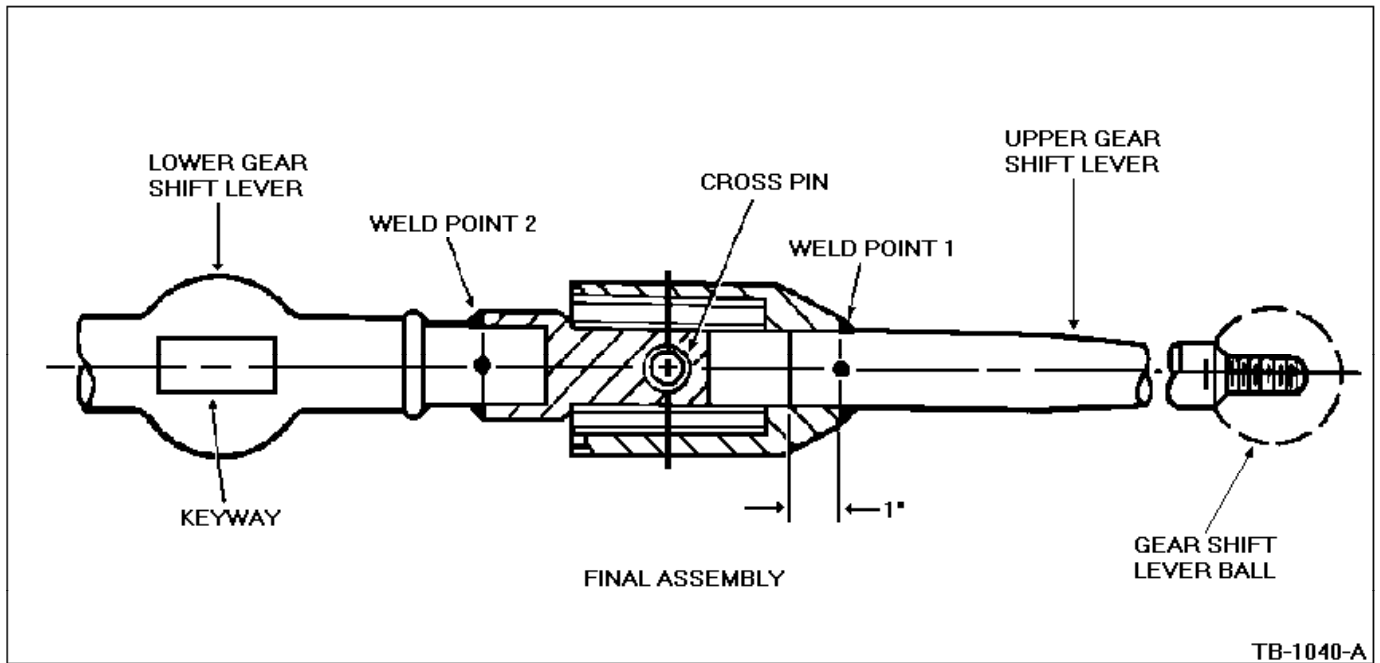


Figure 4 - Article 89-5-18

NOTE:

ARC WELD ONLY. DO NOT GROUND THE ARC WELDER THROUGH THE ISOLATOR.

7. Position the upper gear shift lever into the adaptor one (1) inch and line up the scribed lines made in Steps 2 and 4.
8. Apply a 1/4 inch bevel weld (weld point 1) as shown in Figure 4.

CAUTION:

PLACING THE UPPER GEAR SHIFT LEVER INTO THE ADAPTOR MORE THAN ONE (1) INCH WILL CANCEL THE EFFECT OF THE ISOLATOR.

NOTE:

THE CROSS-PIN MUST BE INSTALLED IN THE SAME DIRECTION AS THE PIVOT BALL KEYWAY.

9. Disassemble the gear shift lever and isolator, E3HZ-7L288-A as follows:
 - a. Remove the "E" ring, Figure 5.

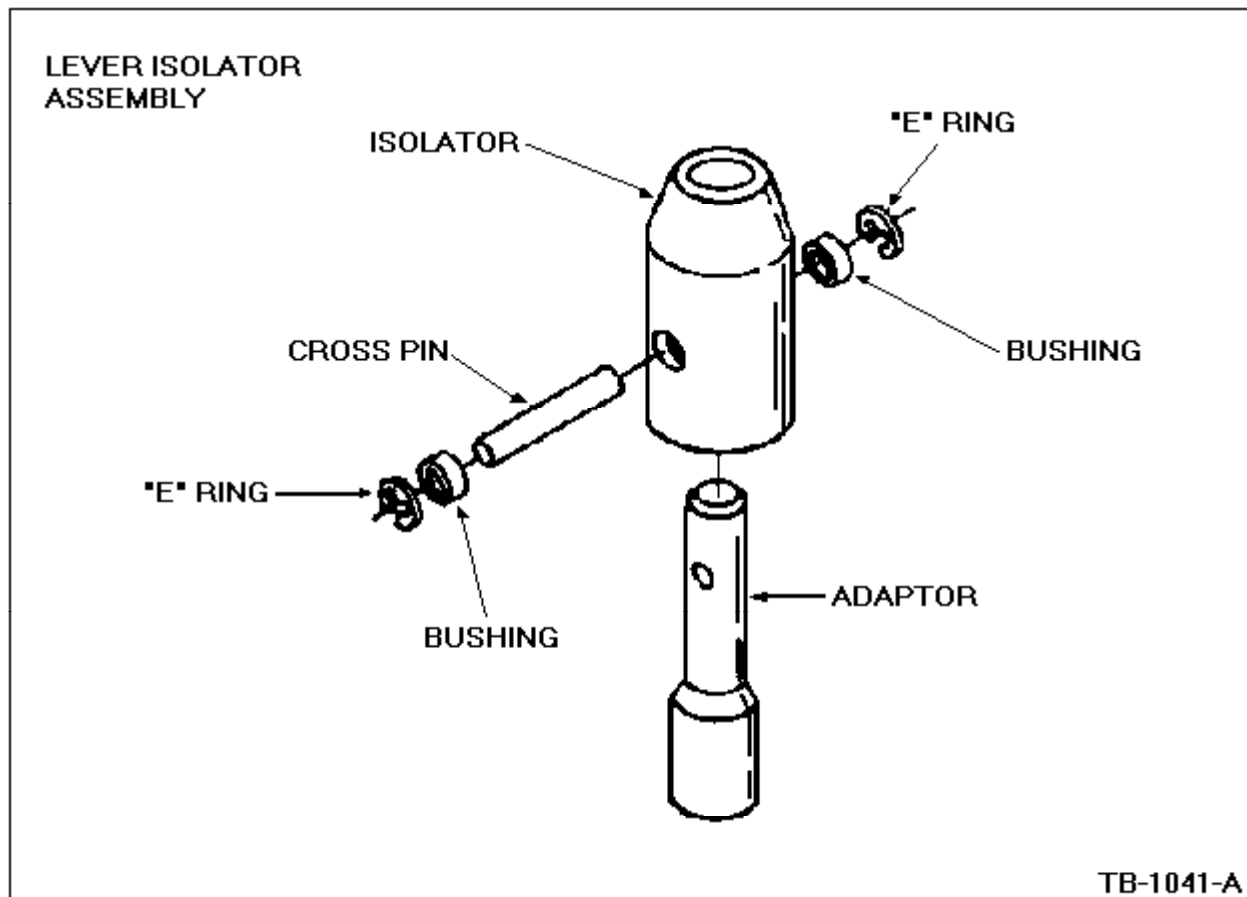


Figure 5 - Article 89-5-18

- b. Drive out the cross-pin.
 - c. Remove the lower gear shift lever and adaptor from the upper gear shift lever and adaptor.
10. Install the lower gear shift lever in the gear shift lever housing, Figure 1. Refer to the L-Series Shop Manual, Section 16-57 for installation instructions.
 11. Re-install the upper gear shift lever to the lower gear shift lever by reversing Step 9 a through c, Figure 5.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 5104, 5500, 7100, 7113, 7210



89-6, *Publication Date: MARCH 22, 1989*

<ul style="list-style-type: none">• Engine - Performance Chart - 6.6L And 7.8L Ford Diesel Engines - Publication Correction• Engine Performance Chart - 6.6L And 7.8L Ford Diesel Engines - Publication Correction	Article No. 89-6-20
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MEDIUM/HEAVY TRUCK:

1987-89 CARGO SERIES, F & B SERIES, L SERIES

ISSUE:

Engine Performance Charts recently distributed to dealers that are authorized to service 6.6L and 7.8L Ford diesel engines are incorrect. The specification in test step 8b under the heading "Guideline Data" was omitted.

ACTION:

Until a new distribution of Engine Performance Charts can be made, the correct specification to insert in test step 8b under the "Guideline Data" heading is **103-207 kPa (15-30 psi)**.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 4700, 4800



89-7, *Publication Date: APRIL 10, 1989*

Clutch - "Spicer" - Pedal Free Play Setting - Vehicles Built After 1/03/89	Article No. 89-7-14
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MEDIUM/HEAVY TRUCK:

1989 L SERIES

ISSUE:

The clutch pedal free play setting at the factory has been changed from 1.9 - 2.5 inches to 1.5 - 2.0 inches. The specification change was made to eliminate customer concerns of too much clutch pedal free play.

ACTION:

No corrective action is required.

GENERAL INFORMATION

The specification of 1.9 - 2.5 inches will not be revised in the Owner Guide or L-Series Shop Manual. The L-Series truck is designed for chassis/body deflection that may require clutch free play setting of 1.9 - 2.5 inches to provide enough clearance between the clutch fork and release bearing on certain off road applications. Clearances between clutch fork and release bearing below .135" setting may result in clutch slippage at severe chassis/body deflections. The specification change to 1.5- 2.0 inches will not cause a noticeable difference in the feel of clutch engagement. As the clutch pedal nears the end of its travel the clutch brake will be engaged.

OTHER APPLICABLE ARTICLES:

88-26-18

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 5550, 5800

Bulletin Contents

TSB Article 89-8-17 has been superseded by Article 89-11-12.



89-9, *Publication Date: MAY 3, 1989*

Turbocharger - Caterpillar 3406B Diesel Engine With Air-To-Air Aftercooling - Air Hoses Disconnect From Aluminum Air Tubes

**Article No.
89-9-19**

MEDIUM/HEAVY TRUCK:

1987-88 CL-9000, L-9000, LTL-9000

This TSB article is being republished in its entirety to add a new adapter and a new adapter gasket to the service procedure. The intake manifold to aftercooler air tube will not fit unless a new adaptor is installed.

ISSUE:

Turbocharger air hoses connecting the air tubes of the air-to-air aftercooler to the engine may disconnect from the aluminum tubes. Overtightening of the hose clamps can cause the air tubes to collapse and come loose.

ACTION:

Install new design air tubes which have reinforced sleeves to prevent them from collapsing. Also install a new design adapter and adapter gasket on the intake manifold. Refer to the following procedure for service details.

SERVICE PROCEDURE

1. Remove the existing turbocharger to aftercooler air tube, Figure 1.

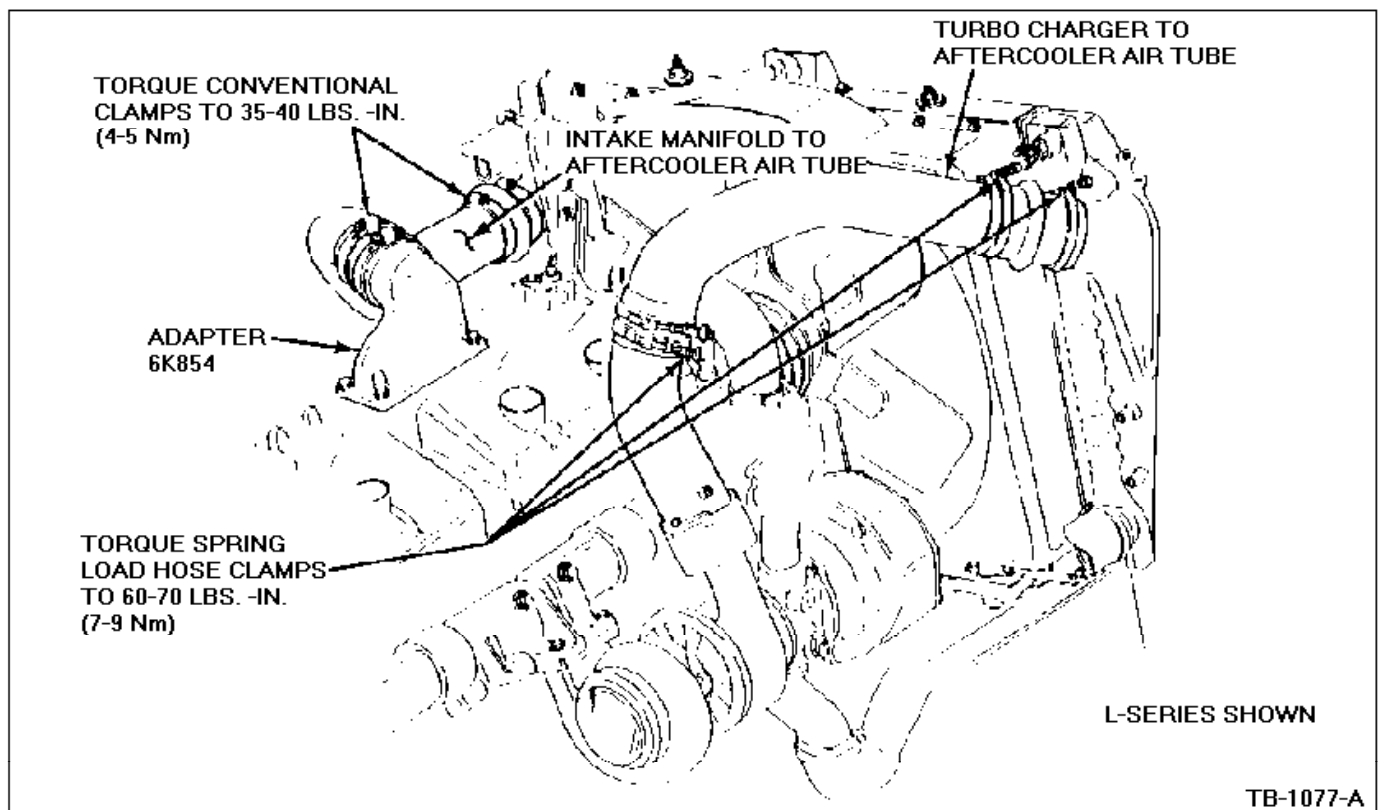


Figure 1 - Article 89-9-19

2. Remove the existing intake manifold to aftercooler air tube, Figure 1.
3. Remove the existing intake manifold air tube adapter.
4. Clean the gasket surface on the intake manifold.
5. Install a new adapter gasket and air tube adapter on the intake manifold.
6. Install a new turbocharger to aftercooler air tube as shown in Figure 2.

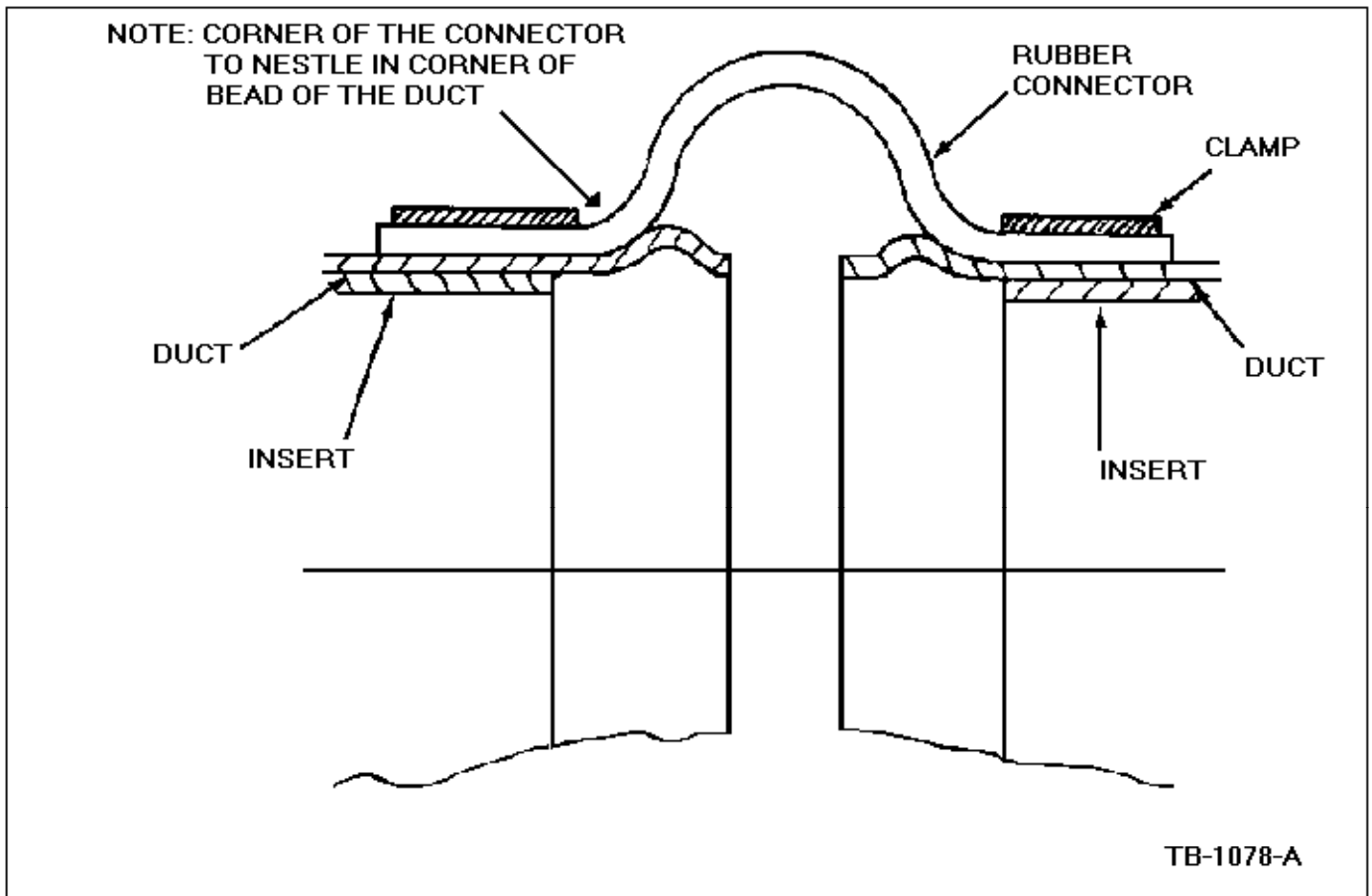


Figure 2 - Article 89-9-19

7. Install a new intake manifold to aftercooler air tube as shown in Figure 2.
8. Tighten the spring loaded clamps on the turbocharger side of the system to a torque of 60-70 lb.in. (7-8 N-m).
9. Tighten the conventional hose clamps on the intake manifold side of the system to a torque of 35-40 lb.in. (4-5 N-m).

NOTE:

MAKE SURE THE HOSE CLAMPS DO NOT INTERFERE WITH THE TILT HOOD CHECK CABLES OR CONTACT OTHER NEAR BY COMPONENTS. THE HOSE CLAMPS MUST BE POSITIONED SQUARELY AROUND THE CIRCUMFERENCE OF THE AIR TUBES TO PREVENT SHIFTING AND LOOSENING OF THE CLAMPS.

NOTE:

THE GASKET FOR THE ADAPTER ASSEMBLY MUST BE ORDERED DIRECTLY FROM A CATERPILLAR DEALER. THE CATERPILLAR PART NUMBER FOR THE GASKET IS 7C6188.

OTHER APPLICABLE ARTICLES: NONE

SUPERSEDES: 88-13-13

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 4400, 630400, 630401, 630402



89-10, *Publication Date: MAY 17, 1989*

Brakes - Hydraulic - Disc Rotor Minimum Replacement Thickness Cast Dimension Is Incorrect	Article No. 89-10-14
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MEDIUM/HEAVY TRUCK:

1984-89 F & B SERIES, L SERIES

ISSUE:

Front disc brake rotors may have an incorrect cast minimum replacement thickness dimension of 1.480 inches (37.59mm) marked on them. The affected vehicles and service parts are:

- Trucks with cast spoke wheels on 8000, 9000, 10,000 or 12,000 lb. front axles, built between 8/29/83 and 1/09/89.
- Service replacement rotors produced during this time period may also have the incorrect replacement dimension.

Rotors produced after 1/10/89 have the correct minimum replacement thickness dimension of 1.415 inches (35.94mm). Rotor minimum replacement thickness information is also published in the appropriate Medium/Heavy Truck Shop Manual, Section 12-27.

ACTION:

No corrective action is required.

OTHER APPLICABLE ARTICLES: NONE

SUPERSEDES: 86-6-88

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 3050



89-10, *Publication Date: MAY 17, 1989*

<ul style="list-style-type: none">• Fuel System - 6.6L And 7.8L Ford Diesel Engine-Water Separator/Filter Restricted• Performance Poor - 6.6L And 7.8L Ford Diesel Engine-Water Separator/Filter Restricted	Article No. 89-10-15
--	---------------------------------

MEDIUM/HEAVY TRUCK:

1986-89 CARGO SERIES

1987-89 F & B SERIES, L SERIES

ISSUE:

Poor performance in temperatures of 0° F (-18° C) may be caused by fuel "waxing" inside the fuel/water separator. This condition limits the amount of fuel that can travel through the filter. The filter restriction causes the engine to starve for fuel which results in poor performance.

ACTION:

Install a new design fuel/water separator that does not have a filter in the system. The new design element cannot be used with the current production fuel/water separator bowl. Although the new fuel/water separator does not have a filter, maintenance is required to remove large particle from the bottom of the element. Refer to the appropriate Medium/Heavy Truck Shop Manual, Section 25-06 for service details.

NOTE:

FUEL "WAXING" COULD OCCUR IN THE ENTIRE FUEL SYSTEM IF WINTER GRADE DIESEL FUEL IS NOT USED.

NOTE:

THE NORMAL DAILY MAINTENANCE CYCLE REQUIRES THE OPERATOR TO DRAIN/CHECK BOTH THE OLD AND THE NEW TYPE WATER/FUEL SEPARATORS. REPLACEMENT FOR THE OLD TYPE ELEMENT IS REQUIRED AT THE FIRST 6000 MILES AND THEN AT 24,000 MILE INTERVALS. THE NEW TYPE ELEMENT REQUIRES REPLACEMENT EVERY TWO (2) YEARS OR 100,000 MILES.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 4500, 630400, 630401



89-11, *Publication Date: JUNE 1, 1989*

<ul style="list-style-type: none">• Air Conditioning - New Evaporator Case Filter To Prevent Condensation Leaks• Leak - Air Conditioning Condensate In The Cab - New Evaporator Case Filter	Article No. 89-11-12
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MEDIUM/HEAVY TRUCK:

1970-89 L-SERIES

This article is being republished in its entirety to expand the model year coverage to include 1970 through 1989 model year L-Series Trucks.

ISSUE:

Condensation (water) leaking on the floor of the cab on the passenger's side of the truck may be caused by lint accumulating and clogging the evaporator case condensation drain. A new evaporator case filter is now available to prevent lint from entering the A/C housing and clogging the condensate drain. The new evaporator case filter is serviced from inside the cab and it can be removed to wash off trapped lint.

ACTION:

Install an air conditioning evaporator case filter to prevent lint from clogging the A/C condensate drain. Refer to the following procedure for service details.

SERVICE PROCEDURE

NOTE:

FAILURE TO PERIODICALLY CLEAN THE FILTER COULD LIMIT THE QUANTITY OF AIR ENTERING THE EVAPORATOR CASE. THIS WILL REDUCE THE OUTPUT AIR SUPPLY TO CAB.

1. Remove the existing grille from the A/C evaporator case housing. Be careful not to break off the corners when prying up the plastic studs.
2. Remove the existing clips that hold the grille to the evaporator case housing.
3. Position the grille on the evaporator case housing by inserting the grille studs into the housing locator holes.
4. Drill seven (7) 13/64" holes through the grille and evaporator case housing in the locations shown in Figure 1, View "Z".

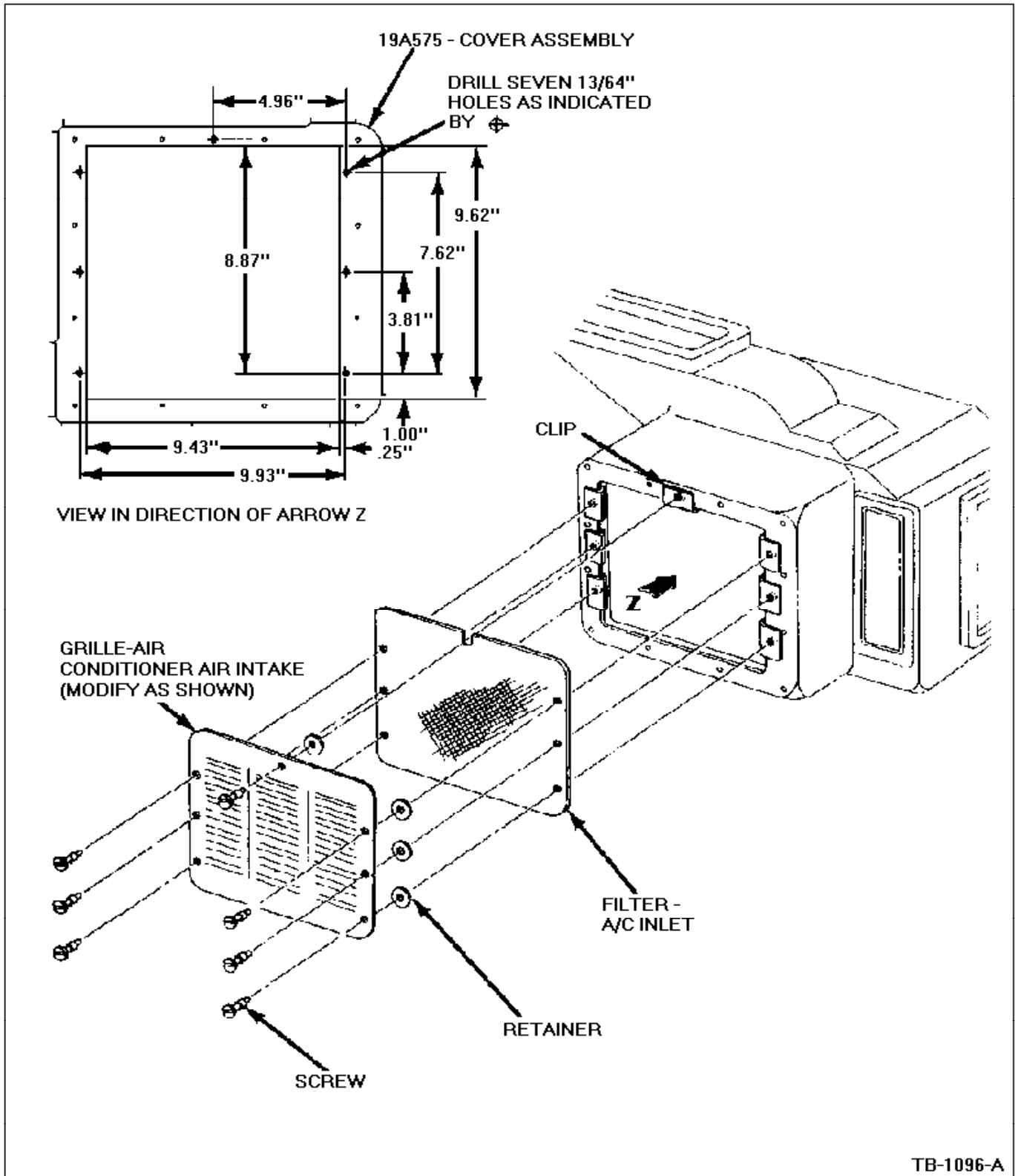


Figure 1 - Article 89-11-12

NOTE:

BE CAREFUL NOT TO DRILL INTO THE EVAPORATOR REFRIGERANT COIL.

5. Remove the grille and enlarge the seven (7) holes that were drilled in the evaporator case housing. Use a 17/64" drill.

6. Install seven (7) "J" clips, (E9HZ-19150-A) on the evaporator case housing, Figure 1.
7. Insert seven (7) screws, (EOHZ-8N122-A) through the front of the grille.
8. Install seven (7) retainers, (EOHZ-8N108-A) on the screws from the backside of the grille, Figure 1.
9. Position the new filter, (E9HZ-19D556-A) over the screws.
10. Install the grille and filter as assembly on the evaporator case housing.

OTHER APPLICABLE ARTICLES: NONE

SUPERSEDES: 89-8-17

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 2610, 2612



89-11, *Publication Date: JUNE 1, 1989*

- Radiator - Loose Support Bar Attaching Bolts
- Radiator - Loose, Missing Or Cross-Threaded Brace Attaching Bolts

Article No.
89-11-13

MEDIUM/HEAVY TRUCK:
1987-89 L SERIES

ISSUE:

A loose radiator support bar or radiator brace may be caused by loose, missing or cross-threaded attaching bolts. This condition could allow the radiator to shift rearward and contact the engine cooling fan.

ACTION:

Secure the radiator support bar and radiator brace. Refer to the following procedures for service details.

RADIATOR BRACE

1. Inspect the bolts that hold the radiator brace to the radiator, Figure 1.

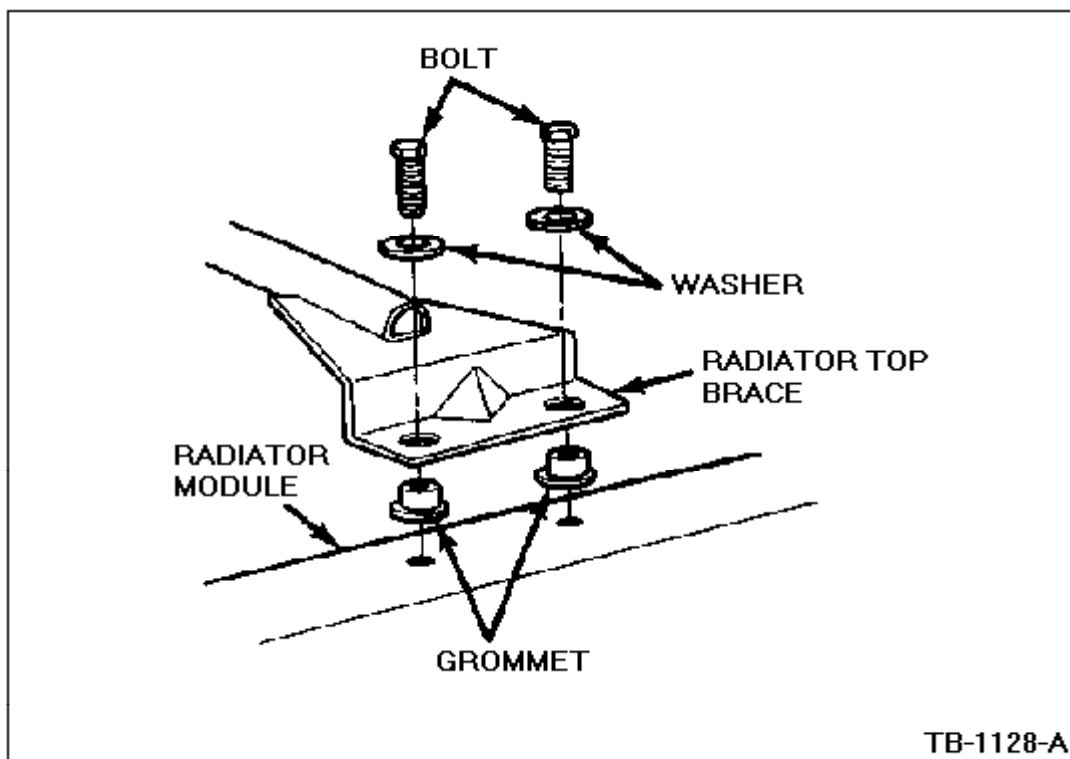


Figure 1 - Article 89-11-13

2. Determine if the bolts are loose, missing or cross-threaded in the upper aluminum extrusion of the radiator.
 - a. If the bolts are missing, check the radiator and fan for damage.
 - b. If the radiator or fan is damaged, replace as necessary. Refer to L-Series Heavy Truck Shop

Manual for service details.

- c. If bolts are loose or cross-threaded, check to make sure they are okay. If the bolts are damaged, throw them away.
 - d. Clean the threads of reusable bolts with a wire brush or threadchaser (die).
 - e. Make sure the bolts are 1.25" long.
3. Clean and repair the threads in the aluminum extrusion with a threadchaser (tap). If the threads are badly damaged, or if more than two threads are stripped out, use a helicoil to repair the threads.

CAUTION:

BE CAREFUL NOT TO DAMAGE THE RADIATOR UNDER THE EXTRUSION.

4. Inspect the grommets, Figure 1.
 - a. Replace the grommets if they are damaged, cracked or worn.
 - b. Apply rubber lubricant on the grommets before inserting them into the radiator brace.
 - c. Make sure the grommets are fully seated.
5. Apply Ford Threadlocker on the bolts.
6. Install the bolts and tighten them to a torque of 20 lb.ft. (27 N-m).

CAUTION:

EXCESSIVE TORQUE WILL DAMAGE THE GROMMETS.

RADIATOR SUPPORT BAR

1. Inspect the ends of the radiator support bar, Figure 2.

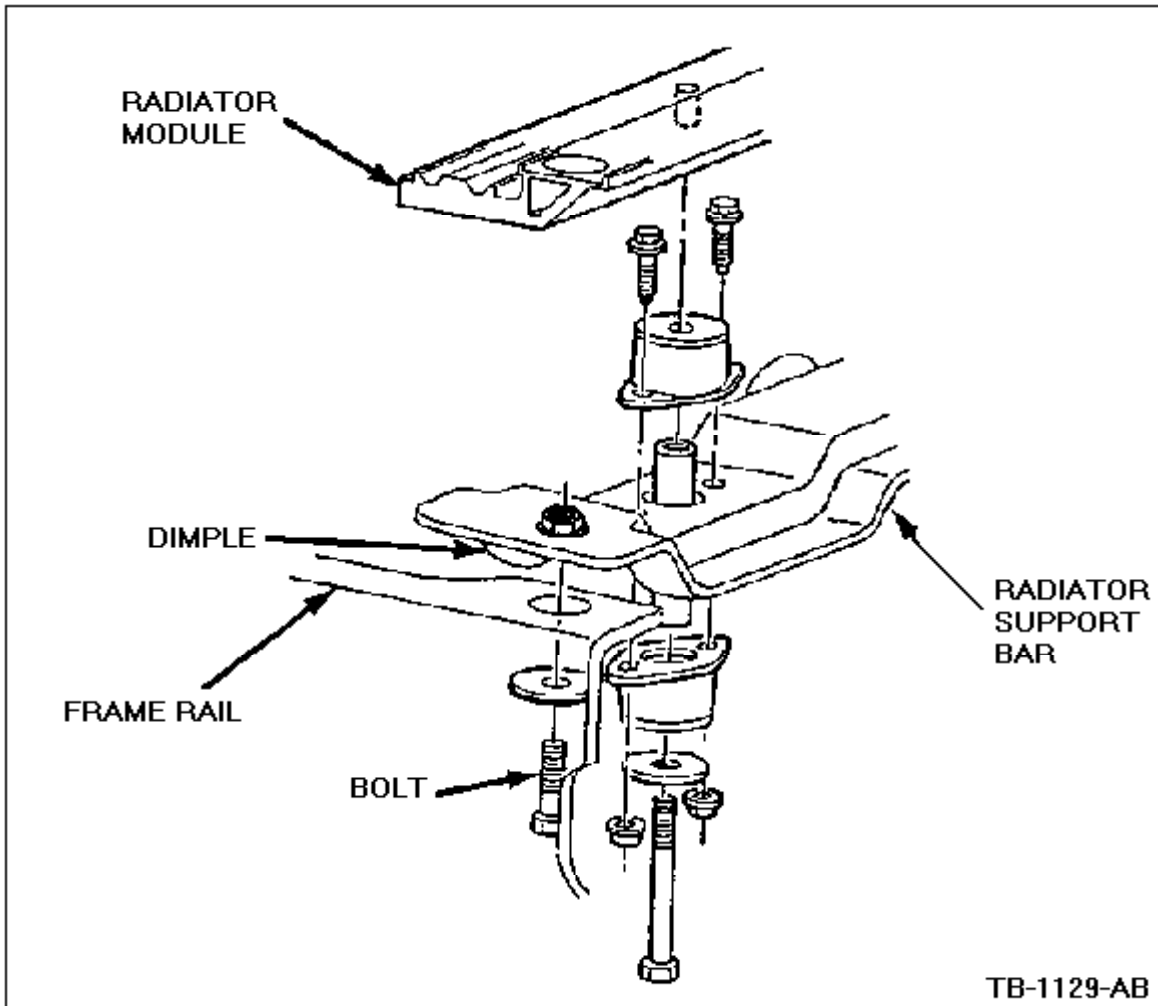


Figure 2 - Article 89-11-13

2. Make sure the bar is flush on top of both frame rails, Figure 2. If the bar is not flush, proceed as following:
 - a. Check the radiator and fan for contact damage.
 - b. If the radiator and fan are damaged, replace them as necessary. Refer to L-Series Heavy Truck Shop Manual for service details.
 - c. If the bar is loose or mispositioned, or if the bolts are loose, remove the bolts, Figure 2.
 - d. Reposition the radiator support bar, if necessary. The dimples on the underside of the bar surrounding the weld nuts should be completely seated in the frame rail holes.
3. Clean the threads of the bolts and the weld nuts on the bar with a wire brush or with a thread-chaser (tap or die). If bolts are missing or damaged in any way, install new bolts (58674-S100)
4. Apply Ford Threadlocker to the bolts.
5. Install the bolts and tighten them to a torque of 75-105 lb.ft.(102-142 N-m).

OTHER APPLICABLE ARTICLES:

88-20-18

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 4300



89-12, *Publication Date: JUNE 14, 1989*

<ul style="list-style-type: none">• Steering - Adhesives And Sealants - Availability And Usage• Engine - Adhesives And Sealants - Availability And Usage• Adhesives And Sealants - Availability And Usage• Transmission - Adhesives And Sealants - Availability And Usage	Article No. 89-12-2
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FORD:

1989 and prior ALL FORD LINES

LINCOLN-MERCURY:

1989 and prior ALL LINCOLN-MERCURY LINES

MERKUR:

1989 and prior ALL MERKUR LINES

LIGHT TRUCK:

1989 and prior ALL LIGHT TRUCK LINES

MEDIUM/HEAVY TRUCK:

1989 and prior ALL MEDIUM/HEAVY TRUCK LINES

ISSUE:

Various adhesives and sealants are used to perform many service repairs. A partial list of these Ford products that are available through the Ford Parts System along with their proper use and application is shown below.

ACTION:

If adhesives and sealants are required to perform a service repair, refer to the following product information and the appropriate Shop Manual.

Ford Stud And Bearing Mount (EOAZ-19554-BA) / Ford Threadlocker 262 (E2FZ-19554-B)

These adhesives are high strength threadlockers. They are used for locking all fasteners that must withstand:

- Heavy shock and vibration.
- Extreme chemical and environmental conditions, such as solvents, oils, and water immersion.

They prevent fluid/vacuum leaks and seal out rust or corrosion. Their typical applications include securing the following items.

- Intake manifold bolts
- Power steering pump adjusting bolts
- Engine studs
- Ring gear bolts
- Seat bolts

- Cup plugs

To use these adhesives, clean the fastener threads with a wire brush and a non-petroleum based solvent. Apply one or two drops to the threads and torque to the required specifications.

NOTE:

THESE ARE HIGH STRENGTH THREADLOCKERS AND THEY REQUIRE SPECIAL EFFORT FOR REMOVAL.

Ford Threadlock And Sealer (EOAZ-19554-AA)

This product is a medium strength threadlocker and sealer which stops air, oil, and fuel leakage. It is a hand tool removable adhesive and is used on aluminum threads. It prevents fluid/vacuum leaks and seals out rust or corrosion. Its typical applications include sealing and securing the following items.

- Oil pan bolts
- Valve cover bolts
- Flywheel attaching bolts
- Door latch attaching bolts

To use this adhesive, clean the fastener threads with a wire brush and a non-petroleum based solvent. Apply one or two drops to the threads and torque to the required specifications.

Ford Pipe Sealant With Teflon (D8AZ-19554-A)

This product seals and locks air, oil, fuel and hydraulic threaded fasteners. This light paste sealant instantly seals without fouling. It is non-shredding and operates in temperatures up to 400°F. It prevents corrosion of fitting/fastener threads and locks against vibrational loosening. Its typical applications include sealing the following items.

- Transmission oil coolant lines
- Fuel inlet fittings
- Intake manifold vacuum switches
- Engine oil galley plugs

To use this sealer, clean off residual oil, coolant and other contaminants from the threads. Apply sealer completely around the second and third threads. Install the part and torque to the required specifications.

Ford Gasket Maker (E2AZ-19562-B) And Ford Gasket Eliminator (E1FZ-19562-A)

These products cure in the absence of air. They are used to gasket two machined surfaced flanges. Each product will fill a gap up to .010". The sealants will not cure until the parts are assembled. Once cured, they will remain pliable and flex with movement of the parts. Their typical applications include sealing the following items.

- Oil dip stick tubes

- MTX case halves (Gasket Eliminator)
- Water Pumps
- Input bearing retainers
- Rear main bearing parting lines

To use these sealants, make sure all the old gasket material has been removed.

CAUTION:

AVOID USING METAL SCRAPERS BECAUSE THEY CAN ETCH THE SURFACES AND PREVENT A GOOD SEAL.

Clean both surfaces with a non-petroleum based solvent to remove all oil, grease and other contaminants. Apply a small bead of sealant continuously around one surface only and then put the pieces together.

NOTE:

REMEMBER, THESE PRODUCTS CURE IN THE ABSENCE OF AIR, SO PLENTY OF TIME IS AVAILABLE TO DO A THOROUGH JOB.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY



89-12, *Publication Date: JUNE 14, 1989*

<ul style="list-style-type: none">• Brakes - Hydraulic - Improved Sealing Of Rear Brake Expanders And Adjuster Cylinders• Brakes - Hydraulic - Rear - Fluid Leakage	Article No. 89-12-10
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MEDIUM/HEAVY TRUCK:

1984-89 C SERIES, F & B SERIES, L SERIES
1986-89 CARGO SERIES

ISSUE:

Improved rear hydraulic drum brake expanders cylinders, adjuster cylinders and dust excluders for the expander cylinders are available for service. The expander cylinders and adjuster cylinders have improved sealing qualities that reduce the possibility of brake fluid leakage. The new dust excluders for the expander cylinders reduce dust entry.

ACTION:

If service is required, install new expander cylinders, adjuster cylinders and/or expander service kit to improve brake seal effectiveness. Refer to the brake component application chart below for the correct service parts. Use the appropriate Medium/Heavy Truck Shop Manual, Sections 12-01 and 12-03 for service details.

OTHER APPLICABLE ARTICLES: 85-17-17

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 3500, 3050

Bulletin Contents

TSB Article 89-13-13 has been superseded by Article 89-17-18.



89-14, *Publication Date: JULY 14, 1989*

Air Cooler - "Thermag" Aluminum Charge Air Coolers - Repair Procedures	Article No. 89-14-21
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MEDIUM/HEAVY TRUCK:

1983-89 CL-CLT-9000 SERIES, F & B SERIES, L SERIES

ISSUE:

A damaged or cracked "Thermag" aluminum air cooler can result in:

- Loss of engine power
- Decreased turbo charger boost pressure
- Increased exhaust pyrometer temperature

ACTION:

Use the following new service procedures to repair a "Thermag" Aluminum Charge Air Cooler.

SERVICE PROCEDURE

Listed in the following charts are the components of the air cooler system and the types of damage that occur. Some damage can be repaired while others cannot. The corrective action is shown for each type of damage. In some cases, the cooler should be replaced not repaired.

COMPONENTS	DAMAGE	COMMENTS	REPAIR
Tubes	Dents/Kinks/ Bends	Resulting in a tear.	Replace cooler.
		Resulting in a sharp edge (radius less than 1/32" or 1 mm) but no tear or crack.	Weld or epoxy.
		Resulting in a round edge (radius greater than 1/32" or 1 mm).	No repair required.
	Holes	Less than 1/32" or 1 mm in all directions on the tube surface.	Weld or epoxy to fill.
External Fins	Crushed or Bent	No more than 1/32" or 1 mm height reduction per fin row and the side member to side member dimension is within specification (26 3/4" or 687 mm).	No repair required.
	Pushed In	With no tearing.	Straighten.
		With tearing less than 3/8" or 10 mm deep from core face. Also tearing is less than 20% of a given fin row and less than 5% of the total fin rows.	Remove loose fin material and straighten.
		With tearing of more than 3/8" or 10 mm from core face or more than 20% of a given fin row or more than 5% of the total fin row.	Replace cooler.
Side Members	Bent, Dented		First straighten side member to original form. If the tubes are dented or the fins are crushed, use the appropriate repair procedure described above.
	Cracked	Surface crack or broken through.	Repair by welding as described further on in this chart.

COMPONENTS	DAMAGE	COMMENTS	REPAIR
Headers	Bent or Dented	Resulting in 3 or fewer tube or tube-to-header leaks and cracks are less than 1/16" or 2 mm.	Weld. Note: If crack is less than 1/32" or 1 mm, you can also repair with epoxy.
		With more than 3 tube or tube-to-header leaks or a crack width greater than 1/16" or 2 mm.	Replace cooler.
Tanks	Cracked		Replace cooler.
	Dented	Wall not cracked or broken through and fit or function of cooler is not affected.	No repair required.
		Fit or function of cooler is affected.	Straighten the dent if possible otherwise replace cooler.
	Cracked	Crack is no more than 1/16" or 2 mm wide and 3/4" or 20 mm long.	Weld.
		Crack is more than 1/16" or 2 mm wide or 3/4" or 20 mm long.	Replace cooler.
	Puncture	Hole is no more than 3/16" or 5 mm in all directions on tank surface.	Weld.
Hole is more than 3/16" or 5 mm in any direction on the tank surface.		Replace cooler.	
Welds - Tank to Header.	Cracked or Porous		Weld. CAUTION: Repair welds must not start or stop where a production weld ends.

COMPONENTS	DAMAGE	COMMENTS	REPAIR
Tapped Holes	Stripped Threads		Drill out stripped threads and tap to accept the proper helicoil insert of the same diameter and thread pitch of the original hole.
Bosses and Mounting Brackets	Cracked or Broken Off	Crack or fractured surface does not go into the tank wall. Crack goes into the tank wall.	Weld. Replace cooler.
Mounting Pins or Other Hardware	Cracked, Broken or Otherwise Damaged	Repair <u>will not</u> affect function, fit or durability. Repair <u>will</u> affect function, fit or durability.	Replace to original condition. Replace cooler.

REPAIR	COMPONENT	COMMENTS
Straightening	Fins	Use a pointed object no more than 0.5 mm in diameter at the tip that will allow access to apex of the fin. Straighten the fins, taking care not to damage the louvers or distort the louver angle.
	Side Members	Using pliers, vice-grips or similar tool, straighten the side member from the sides only. Never pry against the tubes or header. Care must be taken not to damage the fins, tubes or headers when straightening the side member.
Welding	Tanks, Side Members or Mounting Brackets	MIG Weld.
	Tubes or Tube Header Joints	TIG Weld using aluminum wire designated Alcan mig electrode wire, 3/64" or 1.20 mm diameter, 4043 aluminum alloy, or equivalent. CAUTION: Care must be taken not to melt the fins or the tube to header braze joint. If welding near the core, the core should be shielded with a large steel plate. This protects it from sparks and weld spatter and will act as a heat sink.
	Surface Preparation	All surfaces to be welded must be free of all paint, oil grease and water, and foreign matter in the area of the weld so the weld repair will adhere directly to bare aluminum and will not be contaminated.
	Tubes	TIG weld only; use 1/16" or 1.6 mm diameter or smaller 4043 wire.
	Side Members	Prepare crack by cutting a "V" groove along the crack to a depth equal to the side member thickness. Fill the groove with weld and grind the excess weld material away to provide a flat side member.
	Tanks	Heat the crack to chase the ends until they stop. Mig weld to fill the crack using wire as described above. Weld to 1" or 25 mm past the ends of the crack. Wire brush and grind the weld bead to blend with the tank surface.

REPAIR	COMPONENT	COMMENTS
<p>Epoxy</p> <p>Painting</p> <p>Cleaning</p>	<p>Surface Preparation</p>	<p>High temperature epoxy may be used only where specified in the previous chart.</p> <p>The recommended epoxy is a resin (CIBA GEIGY ARALDITE AV 138M) and a hardener (CIBA GEIGY HV 998) or equivalent. Mix and cure instructions on the label must be followed.</p> <p>Remove all paint, oil, grease, water and other foreign matter in the area of the epoxy repair so the epoxy will adhere to the bare aluminum.</p> <p>Clean all repaired surface areas. Wash thoroughly with water, allow to dry and paint the repaired area.</p> <p>If any epoxy or weld repair is done to tubes or tanks, the repaired cooler must be flushed out to remove all debris that may have dropped inside the unit.</p> <p>The recommended procedure for cleaning is to power flush the cooler with water at 5' or 1.5 m / sec. through the tubes for three minutes. To assure that the debris travels as short a distance as possible to exit the cooler, the cooler is to be oriented vertically with the tank containing the repair or closest to the repair point, at the bottom. The flushing water is to be introduced in the opposite tank at the top. When complete, invert the unit and power flush in the opposite direction.</p> <p>If power flushing is not possible, the unit may be flushed by hand. The unit should be laid flat with the inlet and outlet pointing up. Fill the unit to 40% of its volume with water, seal off the inlet and outlet and agitate the cooler so the water flushes all the internal surfaces at least ten times. Empty the cooler. Repeat the flushing process until no debris is found in the flushing water.</p> <p>After flushing, drain the cooler of all water and allow to air dry prior to installing in the vehicle.</p>

REPAIR	COMPONENT	COMMENTS
Repair Leak Test	Note: To assure proper performance, the repaired unit must be leak tested and pressure checked.	<p>Connect an air gauge in one port of the unit and a stop / air supply in the other port.</p> <p>Apply 50 psig air pressure to the unit. Reduce the air pressure to 29 psig and plug the unit.</p> <p>Let the unit sit for a couple of minutes and note any loss of air pressure.</p> <p>Loss of air pressure should not be more than 1.5 psi per minute. If it is, the cooler should be checked, repaired and tested again until it passes the test.</p> <p>There should be no permanent distortion of the unit. If there is, the cooler should be replaced.</p>

OTHER APPLICABLE ARTICLES:

88-15-14

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 4600, 630400, 630401, 630402



89-16, *Publication Date: AUGUST 9, 1989*

<ul style="list-style-type: none">• Cooling System - Overheating - Cummins NTC 444 - Recalibrated Schwitzer DD-34 Fan Clutch• Fan Clutch - Schwitzer DD-34 - Cummins NTC 444 - Bi-metallic Disc Installation Procedure	Article No. 89-16-15
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MEDIUM/HEAVY TRUCK:

1988-89 CLT-9000, LTL-9000

ISSUE:

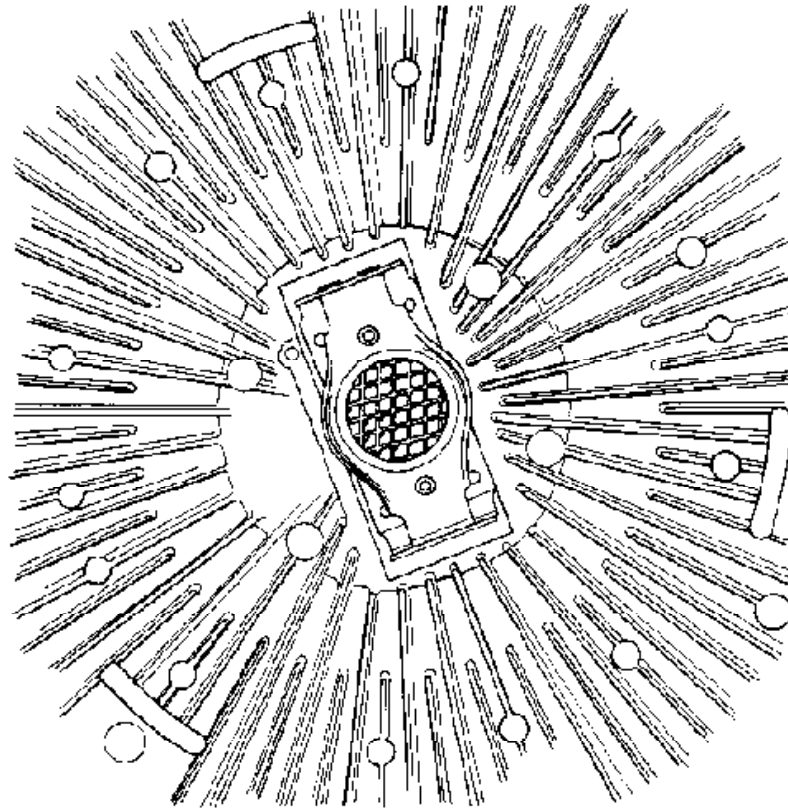
Engine overheating on trucks with engine warning or shutdown systems that are operated in high load, low speed applications may be caused by the Schwitzer DD-34 fan clutch not engaging soon enough.

ACTION:

Install a new low engagement temperature bi-metallic disk and a new coolant temperature switch with a higher nominal temperature setting to improve engine operating temperatures. Refer to the following procedure for service details.

BI-METALLIC DISK REMOVAL PROCEDURE

1. Remove the fan drive from the truck. Refer to Section 27-09 of the appropriate Truck Shop Manual for service details.
2. Set the fan drive down on a flat stable surface with the bi-metallic disk and disk holder pointing upward, Figure 1.



SCHWITZER DD-34 FAN CLUTCH

TB-1153-A

Figure 1 - Article 89-16-15

3. Remove the bi-metallic disk holder from the fan clutch by pressing down on the disk holder near the rivets, Figure 2. Do this until the disk holder right arm is below the retaining tab of the disk holder bracket, Figure 3.

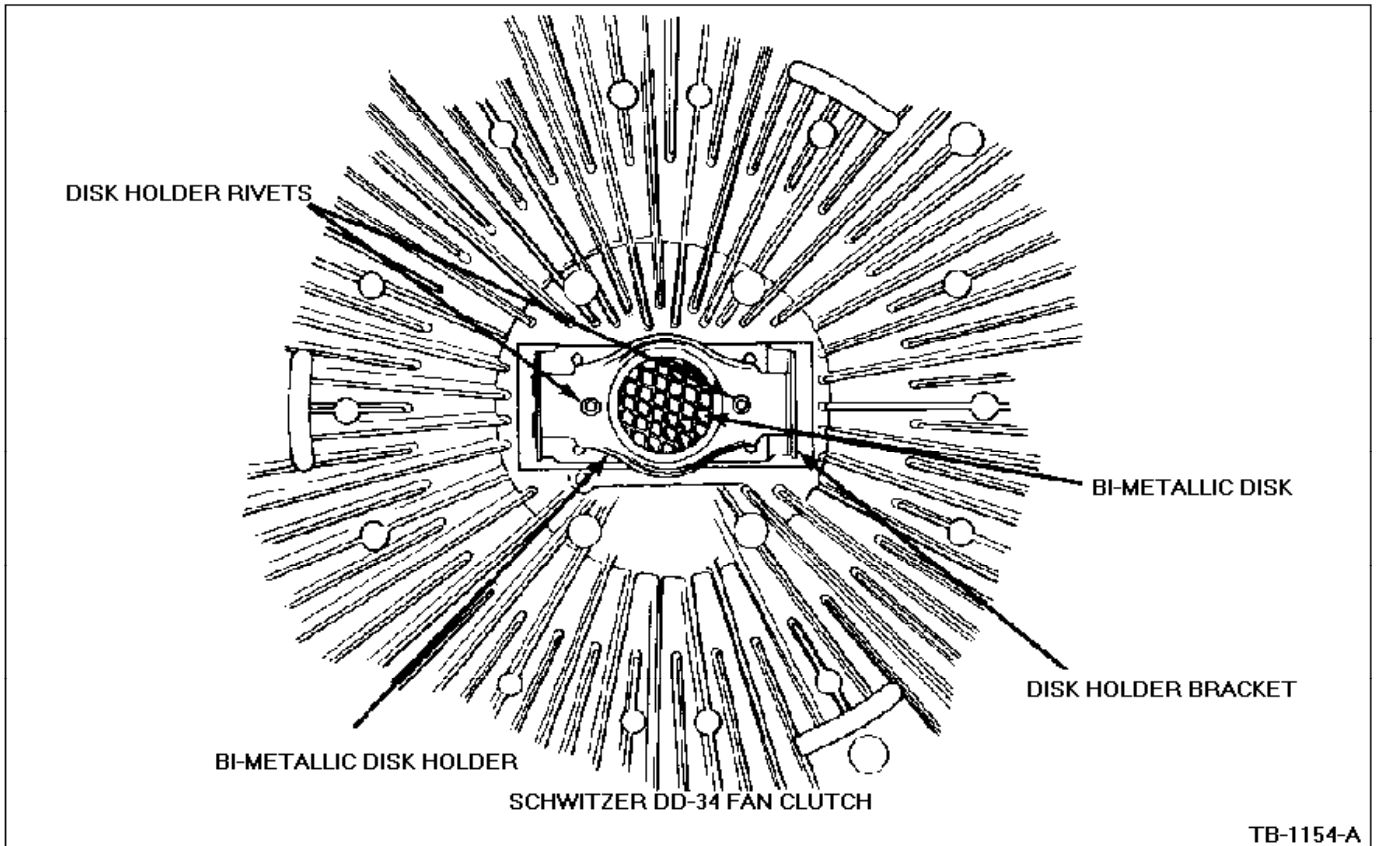


Figure 2 - Article 89-16-15

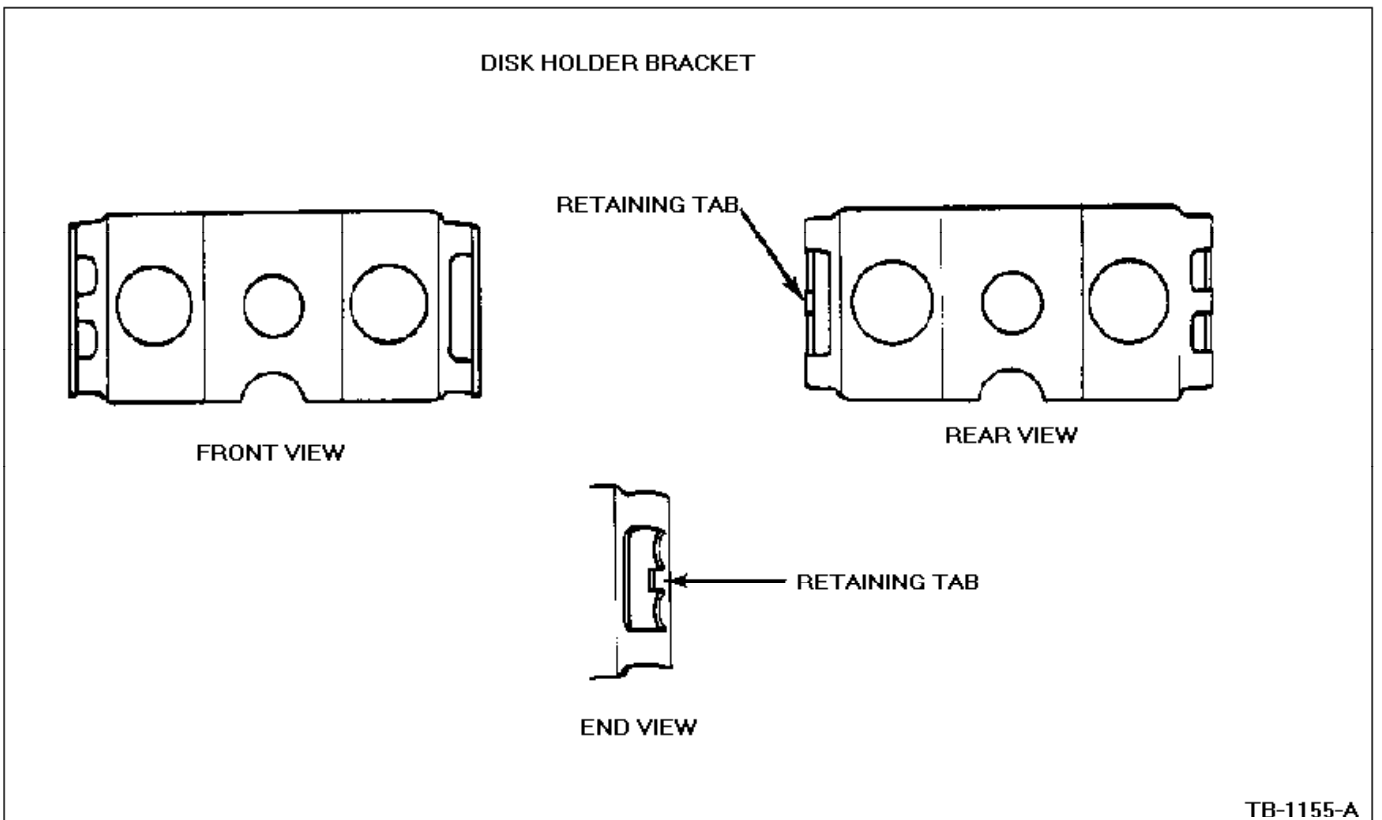


Figure 3 - Article 89-16-15

4. Push the disk holder parallel along the face of the fan clutch, to the right. Do this until the left side of the disk holder arm is free of the disk holder bracket, Figure 4.

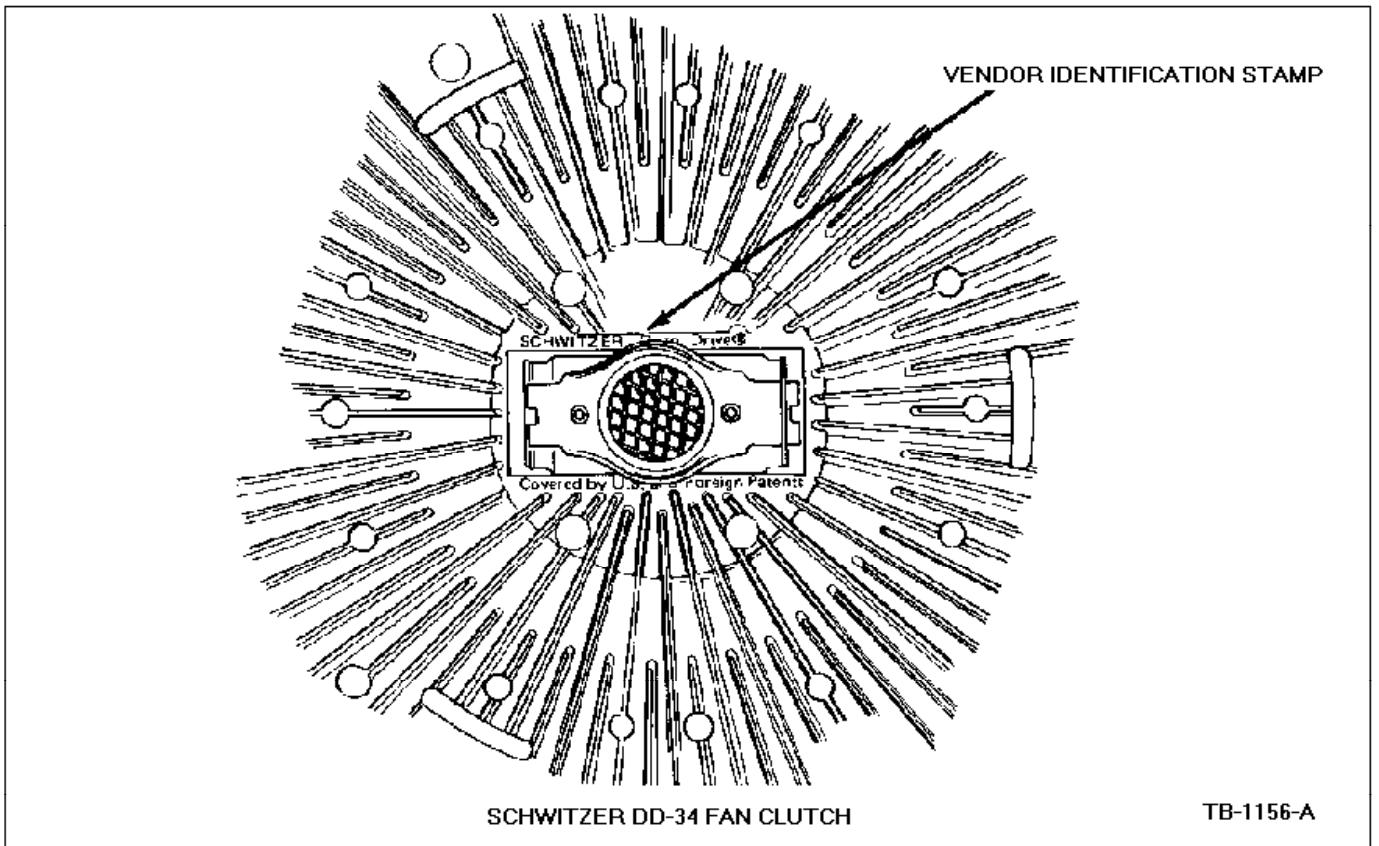
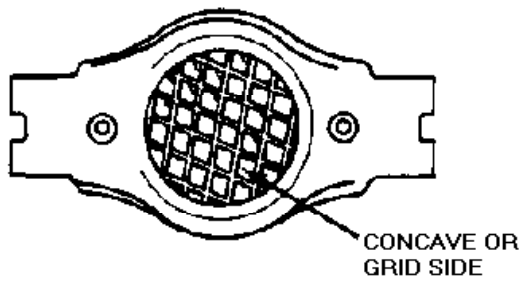


Figure 4 - Article 89-16-15

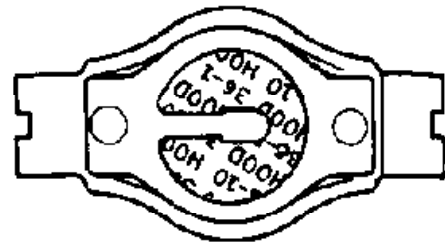
NOTE:

THE SUPPLIER IDENTIFICATION STAMP SHOULD BE IN THE UP-RIGHT POSITION FOR PROPER REFERENCE OF MOVING TO THE LEFT OR RIGHT.

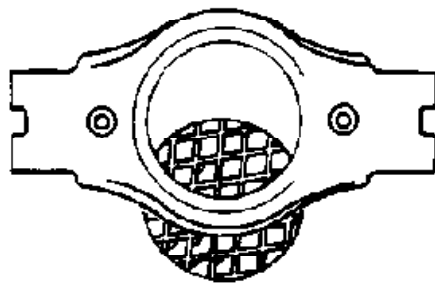
5. Remove the bi-metallic disk holder by lifting upward from the disk holder bracket.
6. Remove the bi-metallic disk from the disk holder by gently pushing down on the concave side or grid side of the disk. Do this while sliding the disk outward from between the disk holder and the disk wear plate, Figure 5.



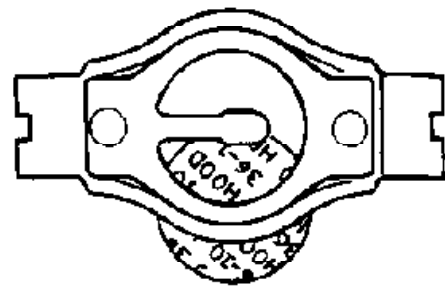
STEP #1



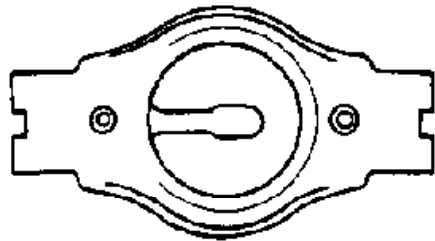
STEP #1



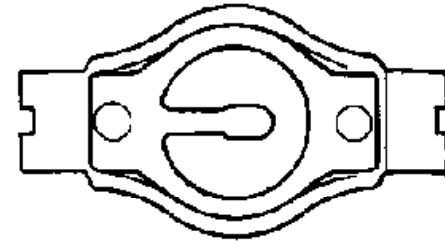
STEP #2



STEP #2



STEP #3
FRONT VIEW



STEP #3
REAR VIEW

BI-METALLIC DISK AND DISK HOLDER

Figure 5 - Article 89-16-15

7. Throw away the old metallic disk.

BI-METALLIC DISK INSTALLATION PROCEDURE

1. Install a new bi-metallic disk into the disk holder. Slide the new disk, concave side or grid side up, between the disk wear plate and disk holder.
2. Rotate the bi-metallic disk to assure that it turns freely and is properly seated in the pocket of the disc holder.
3. Replace the bi-metallic disk holder in its bracket.
4. Repeat removal Step 4 while moving the disk holder in the opposite parallel direction (to the left) for installing it, Figure 4.
5. Reinstall the fan drive on the vehicle. Refer to Section 27-09 of the appropriate Truck Shop Manual for service details.

NOTE:

A COMPLETE RECALIBRATED LOW ENGAGEMENT TEMPERATURE SCHWITZER DD-34 FAN CLUTCH ASSEMBLY (E9HZ-8A616-B) IS ALSO AVAILABLE FOR SERVICE. USE THESE ASSEMBLIES IN CASES WHERE THE ORIGINAL FAN CLUTCH IS DAMAGED OR CANNOT BE RETROFITTED WITH A BI-METALLIC DISK.

COOLANT TEMPERATURE SWITCH

1. Install a new coolant temperature switch. Refer to the appropriate Truck Shop Manual, Section 33-43 for service details

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 4300, 4301



89-17, *Publication Date: AUGUST 23, 1989*

Air Cleaner - Mounting Straps Break	Article No. 89-17-17
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MEDIUM/HEAVY TRUCK:

1988-89 CL-CLT-9000 SERIES

ISSUE:

A broken air cleaner mounting strap in the area of the stainless steel "T-bolt" clamp may be caused by the strap breaking at the weld.

ACTION:

Install new improved straps that have pinch bolts and nuts to clamp the air cleaner to the mounting bracket.

The new strap is a direct "bolt-in" replacement and does not require any new attaching parts. The pinch bolt and nut are included with the strap and should be torqued to 24-48 in.lb. (2.7-5.5 N-m) when clamping the air cleaner.

NOTE:

IT IS IMPORTANT THAT THE STRAPS BE REPLACED IN PAIRS EVEN IF ONLY ONE HAS BROKEN.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 4700



89-17, *Publication Date: AUGUST 23, 1989*

Clutch - Borg Warner Conversion To Dana Spicer - 6.6L/7.8L Diesel - Service Information	Article No. 89-17-18
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MEDIUM/HEAVY TRUCK:

1987-89 F & B SERIES, L SERIES

This TSB article is being republished in its entirety to correct the clutch cross-reference chart shown in Figure 1. Also the torque value for the clutch adjusting bolts pictured in Figure 2 has been added.

SPICER CLUTCHES EQUIVALENT TO BORG-WARNER CLUTCHES

Vehicle	FNH Engine (HP)	Model Years	Clutch Linkage	Transmission	Dana/ Spicer Clutch (Plate Load)	Dana/Spicer Cover Assy. Engineering No. (Service No.)	Dana/Spicer Disc. Assy. Engineering No. (Service No.)	Dana/Spicer Intermediate Plate Assy. Engineering No. (Service No.)	Fastener/ Washer (Quantity)
F/B-600	6.6L (160/165)	1987, 1988	<u>h</u> / <u>h</u>	FS-4005-A/B <u>a</u> / 5 Spd.	14-1 (2400) <u>a</u> / <u>b</u> / <u>c</u> / 14-1 (2400) <u>e</u> / <u>f</u>	F0HT-7563-AA (F0HZ-7563-A)	F0HT-7550-AA (F0HZ-7550-A)		383999-S2/44877-S2 (8) 383999-S2/44877-S2 (8)
F/B-700, LN-7000	6.6L (165/170)	1988	<u>h</u> / <u>g</u>	5 & 6 Spd. RT-6610/6613	14-1 (2400) <u>e</u>	E6HT-7563-BA (E5HZ-7563-B)	E5HT-7550-LA (E5HZ-7550-J)		383999-S2/44877-S2 (8)
F/B-700, F-800, FT-900, LN-7000, L/LN/LS/LT-8000, LTS/LNT-8000	7.8L (185)	1987, 1988	<u>h</u> / <u>g</u>	5 & 6 Spd. RT-6610/6613	Std. 14-1 (2400) <u>e</u> / Opt. 14-2 (2000) <u>e</u>	E6HT-7563-BA (E5HZ-7563-B) E6HT-7563-CA (E5HZ-7563-C)	E5HT-7550-LA (E5HZ-7550-J) E5HT-7550-HA <u>d</u> / (E5HZ-7550-B) E5HT-7550-GA <u>e</u> / (E5HZ-7550-A)	E6HT-7B533-AA (E5HZ-7563-A)	383999-S2/44877-S2 (8) 389421-S2/44877-S2 (8)
F/B-700, F-800, FT-900, LN-7000, L/LN/LS/LT-8000, LTS/LNT-8000	7.8L (210/225/240) 7.8L (210/215/240)	1987 1988	<u>h</u> / <u>g</u>	5 & 6 Spd. RT-6610/6613	14-2 (2000) <u>e</u>	E6HT-7563-CA (E5HZ-7563-C)	E5HT-7550-HA <u>d</u> / (E5HZ-7550-B) E5HT-7550-GA <u>e</u> / (E5HZ-7550-A)	E6HT-7B533-AA (E5HZ-7563-A)	389421-S2/44877-S2 (8)

NOTE: Decision on pilot bearing replacement should be made at clutch installation. Std. = Standard, Opt. = Optional

Two dowel pins in the flywheel used to locate a Borg-Warner clutch should be removed. A 5/16" excess (punch) hole is provided in the front flywheel face for dowel pin removal.

a/ Transmission with 1.5" dead input shaft requires rework of transmission to 1.5" live input shaft

b/ Convert Borg-Warner 13-1 to Spicer 14-1

c/ Ceramic Disc

d/ Front disc (flywheel side)

e/ Rear disc (pressure plate side)

f/ Transmission with 1.75" input shaft

g/ Refer to linkage modifications on non-synchronized transmissions

h/ Refer to linkage modifications on synchronized transmissions

Figure 1 - Article 89-17-18

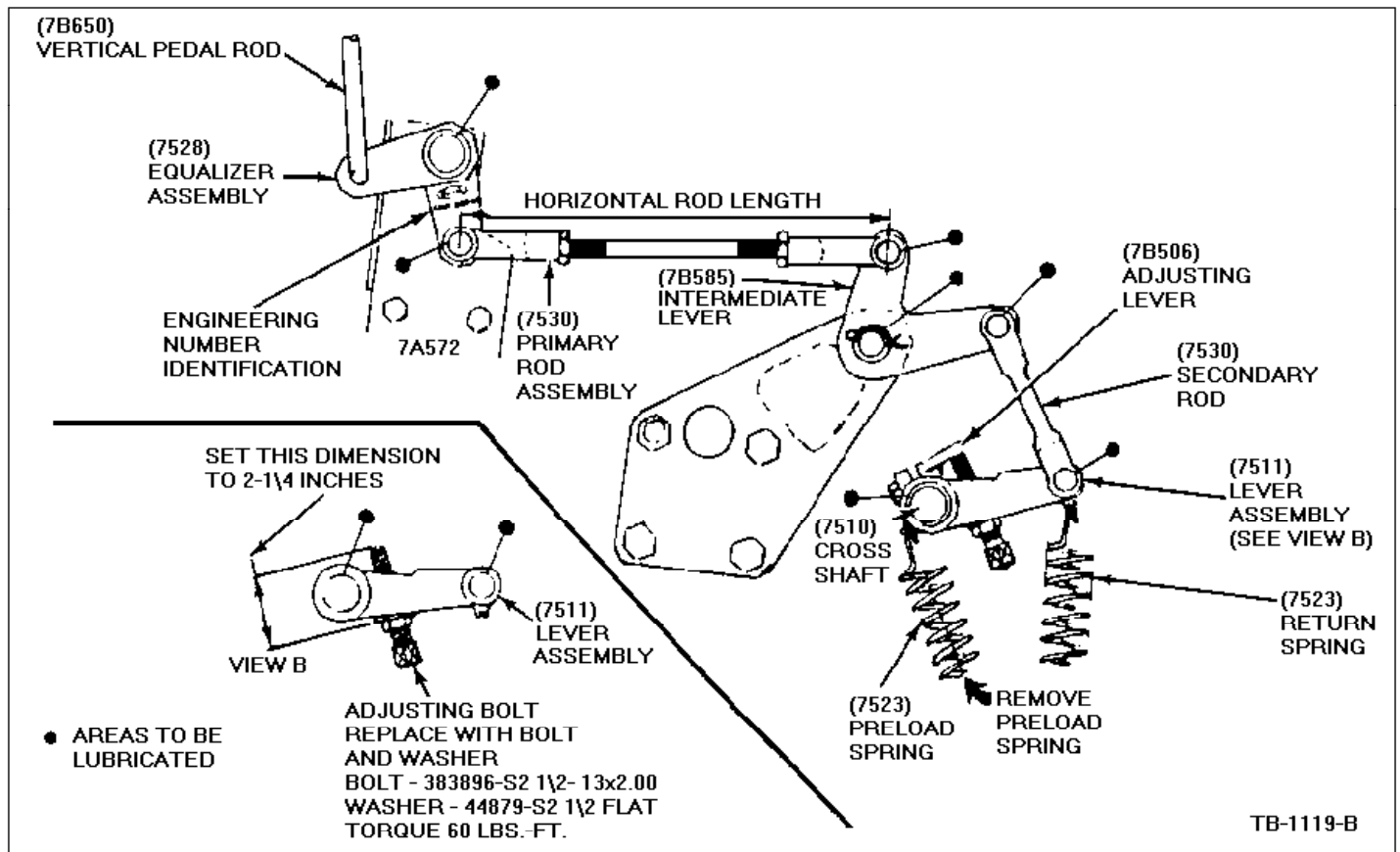


Figure 2 - Article 89-17-18

ISSUE:

A Dana Spicer clutch can be used in place of a Borg-Warner clutch. A cross reference of the necessary parts is now available for clutch conversions.

ACTION:

Refer to Figure 1 which shows the equivalent Dana Spicer assembly part numbers for each vehicle (Ford Diesel and transmission combination) made at Kentucky Truck Plant during the 1987-1988 model year. Use the following service information to install the Dana Spicer clutch components.

SERVICE INFORMATION

1. Remove the two dowel pins located in the face of the flywheel before installing the Dana Spicer clutch. These were used for locating the Borg-Warner clutch. The Dana Spicer clutch does not require such locating pins and the cover assembly does not have the matching holes.
2. Make the following adjustments and minor clutch linkage changes where necessary.

Non-synchronized Transmissions

- a. This is a direct conversion from the Borg-Warner to the Dana Spicer clutch. No linkage changes are required.
- b. Follow the adjustment procedure as described for a Dana Spicer clutch in the appropriate Truck Shop Manual, Section 16-03.

Synchronized Transmissions

- c. Remove the preload spring (7523) as shown in Figure 2. This spring is no longer required when a Dana Spicer clutch is used.
- d. Remove the adjusting bolt in the lever assembly (7511), Figure 2 - View B.
- e. Install a new adjusting bolt (383896-S2) and washer (44879-S2).
- f. Follow the adjustment procedure as described for a Dana Spicer clutch in the appropriate Truck Shop Manual, Section 16-03.

To retrofit a Dana Spicer clutch into a F/B-600 with an Eaton FS-4005-A or FS-4005-B transmission, the input shaft must be made "live". The component part numbers required to change from a 1.5" dead input shaft to 1.5" live input shaft are listed below and shown in Figure 3.

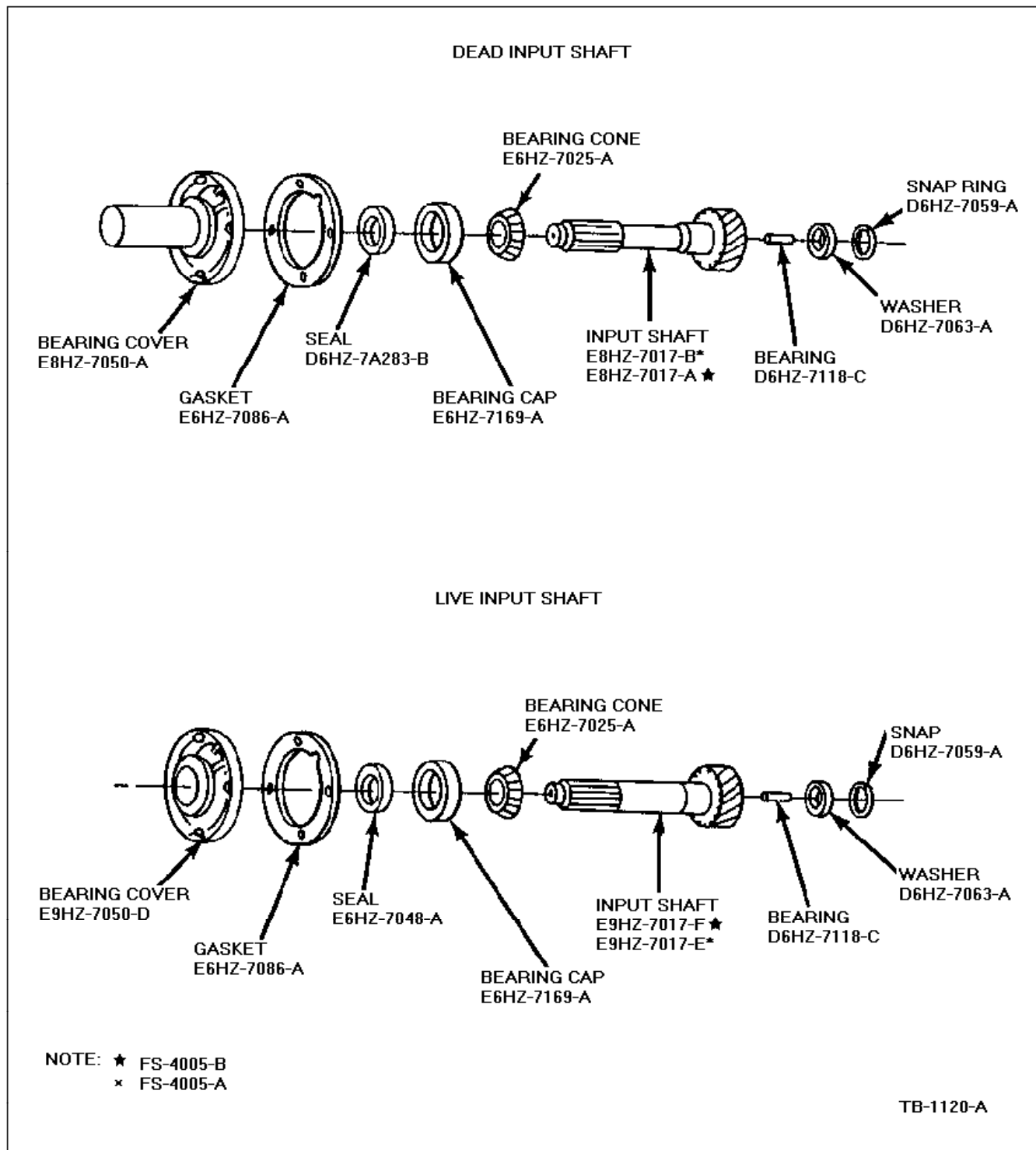


Figure 3 - Article 89-17-18

OTHER APPLICABLE ARTICLES: NONE

SUPERSEDES: 89-13-13

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 5550



89-17, *Publication Date: AUGUST 23, 1989*

Axles - Front - 10-12K - "Garlock BX" Bushings Reaming Guidelines	Article No. 89-17-19
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MEDIUM/HEAVY TRUCK:

1990 L SERIES

ISSUE:

Low friction non-metallic bushings are used on 10k - 12k front axles. The "GARLOCK BX" bushings are similar to those used by Rockwell in their "EASY STEER" front axles. Care must be taken during the reaming operation to make sure of a good king pin fit.

ACTION:

Use reamer kits: PT-4375-A (shaft & threader screw) and PT-4360-10 (pilot, reamer & remover/installer), and the following reaming guidelines to make sure of a good bushing/king pin fit.

SERVICE GUIDELINES

1. Be sure that the reamer and bushings are absolutely free of all surface oil. The slightest bit of oil on the bushings or reamer will prevent the tool from cutting the bushings.
2. Use the reamer with a tee handle wrench. Rotate it using two hands and applying equal pressure with each hand. If this is not done, the reamer will not cut true.
3. Take extreme care in handling the reamer. If the tool is even slightly dull, it will smear the bushing material and not cut properly.
4. Be sure the reamer rotational speed is not too high (even when rotating by hand). If it is too high, it will smear the bushing material.
5. After reaming the bushings, remove the burrs and loose material using a drill powered brass brush and then wipe the area clean with a dry cloth.

CAUTION:

IF THE ABOVE GUIDELINES ARE NOT FOLLOWED, AN EXCESSIVELY TIGHT KING PIN FIT WILL RESULT.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 3100, 3200, 3300



89-18, *Publication Date: SEPTEMBER 7, 1989*

Hood - Caterpillar 3406 Diesel Engine - Check Cables Chafe On Air-To-Air System, Radiator Surge Tank And Radiator Cross-Over Tubes	Article No. 89-18-11
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MEDIUM/HEAVY TRUCK:

1989 and prior LTL-9000

ISSUE:

The hood check cable may chafe and interfere with the air-to-air system, radiator surge tank and radiator cross-over tubes. This condition may cause intake system air leaks and cooling system coolant leaks.

ACTION:

Install two new self-storing (coiled) hood cable assemblies. Refer to the following procedure for service details.

SERVICE PROCEDURE

1. Open the hood.

NOTE:

THE HOOD WILL REMAIN OPEN IN THE "OVER CENTER POSITION" AND DOES NOT NEED A SUPPORT.

2. Remove the existing hood check cable assemblies (including the center stowage spring), Figure 1.

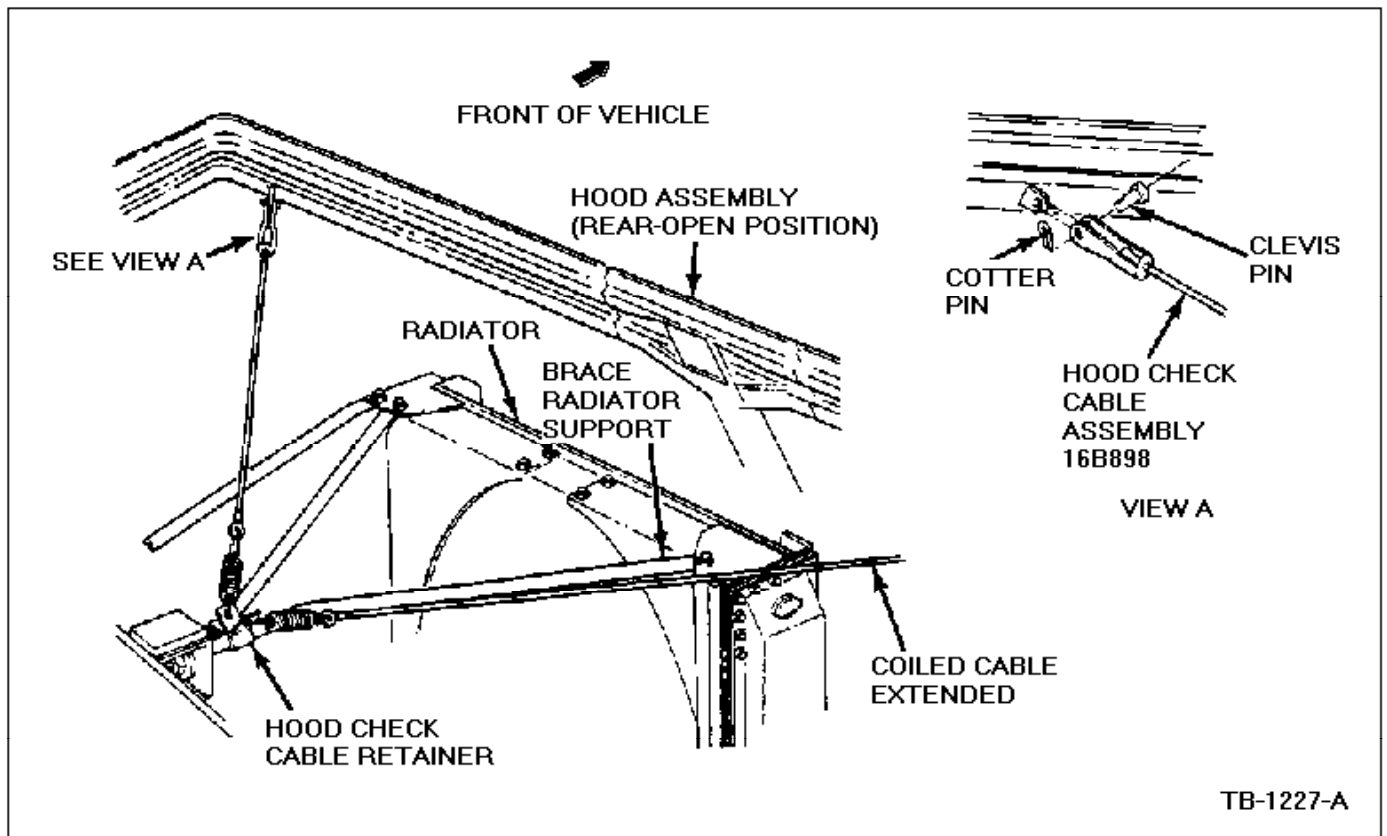


Figure 1 - Article 89-18-11

- a. Disconnect both left and right hood check cables at the forward (hood) end. Refer to View A in Figure 1.
- b. Unhook both left and right hood check cables at the cowl end.
3. Install the new coiled self-storing hood check cables. Use the existing hood and cowl attachment parts for attaching the new cables.
4. Close the hood.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 1200, 4301, 4700



89-18, *Publication Date: SEPTEMBER 7, 1989*

<ul style="list-style-type: none">• Engine - 6.6L And 7.8L Ford Diesel Engine - Block Heater O-ring Serviced Separately• Engine Block Heater - 6.6L And 7.8L Ford Diesel Engine - O-ring Serviced Separately	Article No. 89-18-12
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MEDIUM/HEAVY TRUCK:

1986-90 CARGO SERIES

1987-90 F & B SERIES, L SERIES

ISSUE:

The O-rings for the engine block heaters on Ford 6.6L and 7.8L diesel engines are now available as separate service items. In the past, if an engine block heater leaked because of a faulty O-ring, the entire block heater had to be replaced.

ACTION:

If service is required due to a leaking O-ring, replace the O-ring. If the entire block heater assembly has to be replaced, replace it with E7HZ-6A051-B. Refer to the appropriate 1989 Truck Shop Manual, Section 28-12 for service details.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 4300, 4700

Bulletin Contents

TSB Article 89-18-13 has been superseded by Article 89-20-16.

Bulletin Contents

TSB Article 89-19-3 has been superseded by Article 90-1-5.



89-19, *Publication Date: SEPTEMBER 20, 1989*

Wiring - Wire Harness Terminal And Connector Service Kit	Article No. 89-19-5
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FORD:

1990 and prior ALL FORD LINES

LINCOLN-MERCURY:

1990 and prior ALL LINCOLN-MERCURY LINES

MERKUR:

1990 and prior ALL MERKUR LINES

LIGHT TRUCK:

1990 and prior ALL LIGHT TRUCK LINES

MEDIUM/HEAVY TRUCK:

1990 and prior ALL MEDIUM/HEAVY TRUCK LINES

This TSB article is being republished in its entirety to make dealers aware of availability of the wiring harness terminal and connector repair kit.

ISSUE:

A wire harness terminal and connector repair kit is available for repairing electrical wire harnesses. This kit allows dealers to repair broken or corroded terminals and connectors instead of replacing an entire wire harness. The kit is easy to use and allows the technician to perform a professional looking repair in a short period of time.

ACTION:

To purchase a wire harness terminal and connector repair kit, contact Altair International Incorporated. Refer to the following information for ordering details.

ALTAIR INTERNATIONAL INC.

ATTN: SALES DEPARTMENT

22800 HALL ROAD

MT. CLEMENS, MI 48043

TELEPHONE: (313) 466-1200

An order form is included in the back of the original TSB issue. To order:

- Fill out the order form.
- Enclose a check for the total amount. (This kit cannot be charged to your dealership parts code.)
- Send the completed form and check to the ALTAIR INTERNATIONAL INC.

The kit consists of:

- Two 50 drawer metal cabinets that contain 6 each of the 96 different terminals, machined crimped with a four inch "pigtail" of 12 or 16 gauge wire.
- A unique, high compression crimping tool that will make sure of a solid connection preventing moisture or contaminants from affecting the wire splice.

OTHER APPLICABLE ARTICLES: NONE

SUPERSEDES: 88-17-5

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 2770, 2700



89-19, *Publication Date: SEPTEMBER 20, 1989*

Suspension - Rear - E-4 - Rear Frame Crossmember Replacement	Article No. 89-19-14
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MEDIUM/HEAVY TRUCK:

1989 and prior L SERIES

ISSUE:

A three-piece rear crossmember is now available for service on all L-Series trucks with E-4 suspension. This new crossmember is a direct replacement for the one-piece crossmember used in production. All frame hole patterns are present in the new service crossmember.

ACTION:

If service is required, install a new three-piece rear crossmember. Refer to the following procedure for service details.

SERVICE PROCEDURE

1. Remove the existing crossmember. Save the crossmember suspension attaching parts. If frame ends are ramped, remove the ramps.

NOTE:

THE FASTENERS ATTACHING THE ONE-PIECE REAR CROSSMEMBER TO THE SIDERAILS CAN BE REUSED, UNLESS DAMAGED, TO ATTACH THE THREE-PIECE ASSEMBLY. THEY SHOULD BE TORQUED TO 300 LB-FT (407 N-m). IF ORIGINAL FASTENERS APPEAR TO BE DAMAGED OR CANNOT SUSTAIN THE SPECIFIED TORQUE, REPLACE THEM WITH 3/4" GRADE 8 BOLTS (389742-S2), PREVAILING TORQUE GRADE 8 NUTS (34992-S2), AND HARDENED FLATWASHERS (44882-S2) UNDER THE BOLT HEADS AND NUTS.

2. Insert crossmember (E2HZ-5035-E) into frame.
3. Align mounting holes and insert bolts.
4. Tighten fasteners attaching crossmember assembly to siderails to 300 lb-ft (407 N-m).
5. Check crossbar to gusset fasteners torque. Retighten to 105 lb-ft (142 N-m).
6. Replace the ramps if they were removed.

OTHER APPLICABLE ARTICLES: 87-20-20

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 3200



89-19, *Publication Date: SEPTEMBER 20, 1989*

<ul style="list-style-type: none">• Leaks - Coolant - "Ad-Tech" Radiators - New Gasket/Lock Strip Kit• Radiator - "Ad-Tech" - New Gasket/Lock Strip Kit	Article No. 89-19-16
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MEDIUM/HEAVY TRUCK:

1987-89 CL-CLT-9000 SERIES, L SERIES

ISSUE:

A coolant leak may occur at the radiator tank-to-header joint if the lock strip is not properly installed. A new "Ad-Tech" gasket/lock strip kit with improved easy-to-install lock strips and a detailed installation procedure is now available for service.

ACTION:

Install a new gasket/lock strip kit (E9HZ-8C261-A). Follow the installation instructions provided with the kit.

OTHER APPLICABLE ARTICLES:

88-26-17

88-9-17

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 4300, 4301



89-20, *Publication Date: OCTOBER 4, 1989*

<ul style="list-style-type: none">• Cooling System - 6.6L Or 7.8L Ford Diesel Engine - Overheating With Front Mounted Equipment Such As Snowplows - Vehicles Built After 12/31/87• Fan Clutch - High Speed - 6.6L Or 7.8L Ford Diesel Engine - Overheating With Front Mounted Equipment Such As Snowplows - Vehicles Built After 12/31/87	Article No. 89-20-16
--	---------------------------------

MEDIUM/HEAVY TRUCK:

1988-89 F-700, F-800, FT-900, L SERIES

This TSB article is being republished in its entirety to clarify the high idle speed fan clutch application chart.

ISSUE:

Engines may overheat on trucks equipped with front mounted equipment such as snowplows because the equipment or snow blade location diverts air flow around the radiator. This blockage reduces the heat transfer capability of the radiator.

ACTION:

Install a high idle speed fan clutch in place of the regular fan clutch. Refer to the following application chart for correct part. Also refer to the appropriate Truck Shop Manual, Section 27 for service installation details.

OTHER APPLICABLE ARTICLES: NONE

SUPERSEDES: 89-18-13

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 4300, 4301

Bulletin Contents

TSB Article 89-20-17 has been superseded by Article 90-5-16.



89-22, Publication Date: NOVEMBER 1, 1989

Air Conditioning - "Sanden" Compressor Mounting Bracket Kits For "FS-6" Compressor Replacement - Caterpillar 3406 Diesel Engine Installations

**Article No.
89-22-10**

MEDIUM/HEAVY TRUCK:

1980-88 CL-9000, L SERIES

The original service action information published in TSB 89-4-13 did not provide front air conditioner compressor bracket modification instructions for Caterpillar 3406 installations.

ISSUE:

The A/C compressor bracket must be modified when used with the Caterpillar 3406 diesel engine.

ACTION:

Trim the front compressor mounting bracket approximately one (1) inch above the belt tensioner mounting hole as shown in Figure 1. Throw away the top portion of the bracket before installing the Sanden compressor.

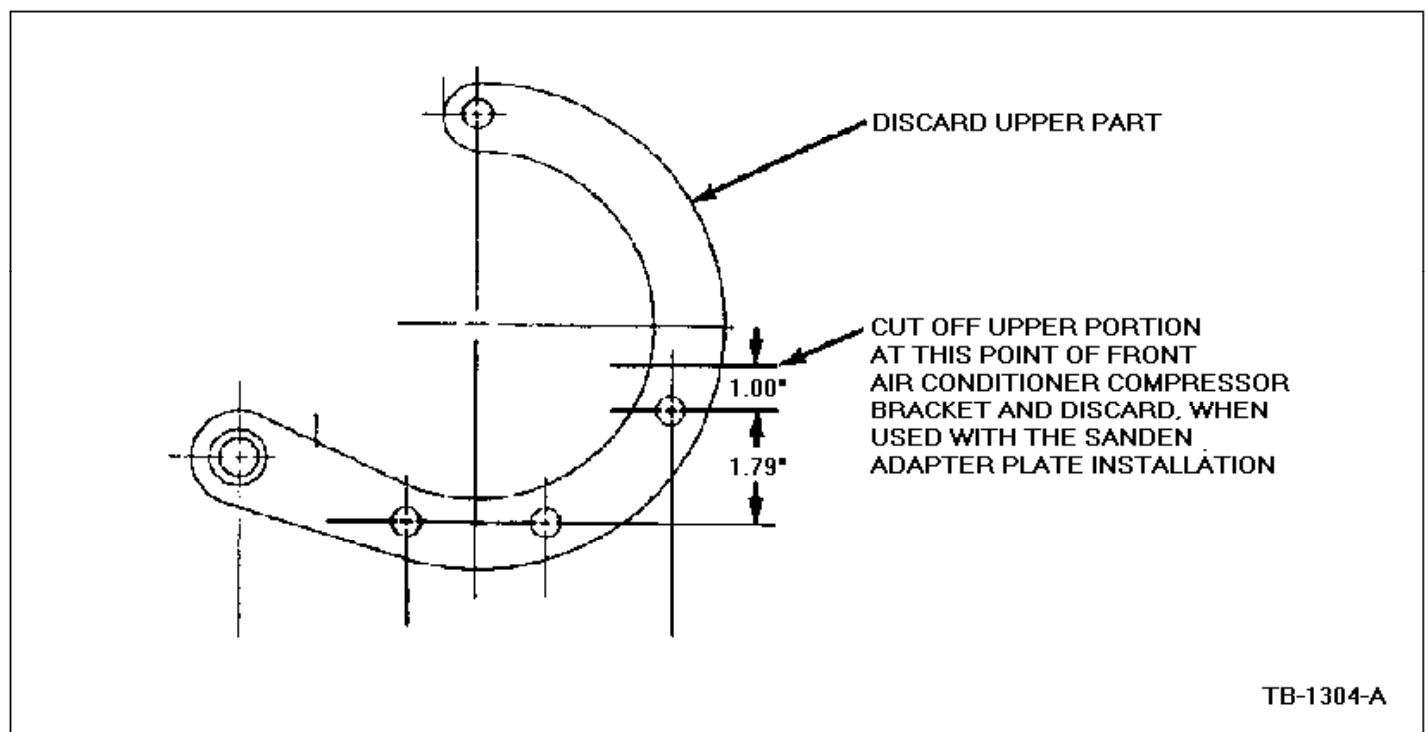


Figure 1 - Article 89-22-10

OTHER APPLICABLE ARTICLES:

89-4-13

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 2610, 2800



89-22, *Publication Date: NOVEMBER 1, 1989*

Wiring - Engine Compartment - Wire Coloring Mismatch Of "PEEC" Module To Vehicle Wiring - Vehicles With Caterpillar 3406B Diesel Engine	Article No. 89-22-11
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MEDIUM/HEAVY TRUCK:

1990 L SERIES

ISSUE:

There is a mismatch in wiring color between the Programable Electronic Engine Control (PEEC) module (located on the engine) and the engine wiring harness to which it connects. Although there is no current functional concern, care must be taken to be sure that the engine mounted PEEC module wires interface with the correct vehicle wires.

ACTION:

If service is required, use the following PEEC Module Interface To Vehicle Wiring Color Chart to properly identify and match the connections.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 2700, 2770



89-22, *Publication Date: NOVEMBER 1, 1989*

<ul style="list-style-type: none">• Gauge - Oil Pressure - Reads Erratically Or Shows No Pressure• Engine - Oil Pressure Gauge Reads Erratically Or Shows No Pressure	Article No. 89-22-12
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MEDIUM/HEAVY TRUCK:
1989-90 CARGO SERIES

ISSUE:

The oil pressure gauge may read erratically or show no pressure. This occurs because of corrosion on the internal electrical contact of the oil pressure sender unit.

ACTION:

Install a new oil pressure sender. Refer to the Cargo Shop Manual, Section 33-32 for service details.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 2310, 2300, 4103



89-22, *Publication Date: NOVEMBER 1, 1989*

Alternator - Motorcraft Service Replacement Parts - U.S. Sourced	Article No. 89-22-13
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MEDIUM/HEAVY TRUCK:

1986-90 CF-6000, CF-7000

This article is being republished in its entirety to include 90 amp Motorcraft alternators.

ISSUE:

Original equipment Wapsa (Brazil sourced) alternators may be replaced in service with Motorcraft (U.S. sourced) alternator assemblies.

ACTION:

Replace in four (4) part sets only - alternator, pulley, fan and spacer. Refer to the following Alternator Application Chart for correct parts usage.

NOTE:

THE 60 AMP ALTERNATOR COMPONENTS ARE NOT INTERCHANGEABLE WITH THE 70 OR 90 AMP COMPONENTS.

OTHER APPLICABLE ARTICLES: NONE

SUPERSEDES: 86-21-15

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 2750



89-22, *Publication Date: NOVEMBER 1, 1989*

Transmission - Eaton Five-Speed - FS-4005, FS-5005, CL-450 And CL-550 - Mainshaft 3rd/4th Gear Washer Failure	Article No. 89-22-14
--	---------------------------------

MEDIUM/HEAVY TRUCK:

1989 and prior B-600, B-700, F-600, F-700, F-800, FT-800, L-800, L-8000, LN-7000, LN-800, LN-8000
1989 LS-800, LS-8000

ISSUE:

The mainshaft 3rd/4th gear washer may fail on some Eaton five-speed transmissions. This occurs because the retaining snap ring comes loose from the mainshaft groove. A new design mainshaft, washer and snap ring were incorporated in transmissions built in late 1988. These parts can be installed on earlier built Eaton five-speed transmissions.

ACTION:

Install a new design 3rd/4th gear washer, snap ring and, where appropriate, a mainshaft. Refer to the following procedure for service details.

SERVICE PROCEDURE

1. Identify which mainshaft was installed in the transmission by examining the part number stamped on the output end of the mainshaft.
 - If the mainshaft part number is 23126 or 23016, it is the "New Improved" part.
 - If the mainshaft part number is 239785, 21657 or 239348, it is the "Old" part.
2. Proceed to repair the "New Improved" or "Old" mainshaft as directed below.

CAUTION:

THE OLD AND NEW PARTS ARE NOT INTERCHANGEABLE. THEY MUST BE REPLACED AS INDICATED IN THE FOLLOWING SERVICE PROCEDURE TO AVOID MIXING NON-COMPATIBLE COMPONENTS.

New Improved Mainshaft

1. Inspect the mainshaft to be sure it is not damaged.
2. If the mainshaft is OK, replace only the washer and snap ring with the "New Improved" parts.
 - a. Refer to the following Mainshaft Parts Application Chart for correct parts usage.
 - b. Refer to the appropriate Medium /Heavy Truck Shop Manual, Sections 16-38 through 39 for service details.
3. If the mainshaft is damaged, install the appropriate mainshaft kit which contains the mainshaft, washer and snap ring. Refer to the following Mainshaft Parts Application Chart for correct parts usage.

Old Mainshaft

1. Install the "New Improved" kit. This kit must be installed whether or not the mainshaft is damaged because the new washer and snap ring are not compatible with the old mainshaft.
 - a. Refer to the following Mainshaft Parts Application Chart for correct part kit usage.
 - b. Refer to the appropriate Medium/Heavy Truck Shop Manual, Sections 16-38 through 39 for service details.
2. Throw away the old mainshaft, washer and snap ring. Attempting to use the original washer and snap ring is likely to result in another failure.

OTHER APPLICABLE ARTICLES: NONE

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

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 5101, 5200, 5300, 5500



89-23, *Publication Date: NOVEMBER 15, 1989*

- No Start - Will Not Crank - 6.6L And 7.8L Ford Diesel And Cummins L-10 - Floor Mounted "FELSTEAD" Shift Tower
- Transmission - Allison MT-653 And MT-654 - Floor Mounted "FELSTEAD" Shift Tower Service Parts

Article No.
89-23-14

MEDIUM/HEAVY TRUCK:
1985-89 L-8000, L-9000

ISSUE:

An engine that will not start due to a no crank condition may be caused by broken or failed components in the floor mounted "FELSTEAD" shift tower. Since service kits are now available for the switch, switch pin and shift handle, it is no longer necessary to replace the complete shifter.

ACTION:

Use one or more of the following service kits. Refer to the following procedures for service details.

SWITCH PIN KIT (E7HZ-7A474-A) REMOVAL

1. Loosen nut, Figure 1.

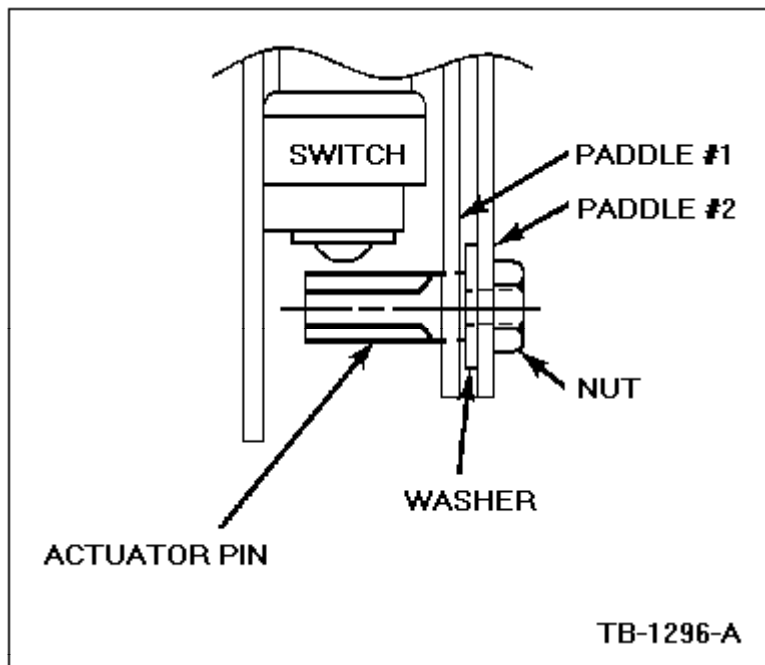


Figure 1 - Article 89-23-14

2. Remove the hair pin (between the paddles) from the actuator pin.
3. Slide the actuator pin out.

INSTALLATION

1. Start the threaded end of the actuator pin, Figure 1, through the rectangular slot in paddle #1.
2. Slip the washer between the paddles and slide the threaded end of the actuator pin through the rectangular slot in paddle #2.
3. Apply one drop of Ford Stud and Bearing Mount Sealer (EOAZ-19554-BA) to each thread surface on the actuator pin.
4. Install the nut on the actuator pin. Tighten it to 100 in-lb (11 N-m).

HANDLE REPAIR KIT (E7HZ-7A082-A) REMOVAL

1. Remove and throw away both existing knob inserts, Figure 2.

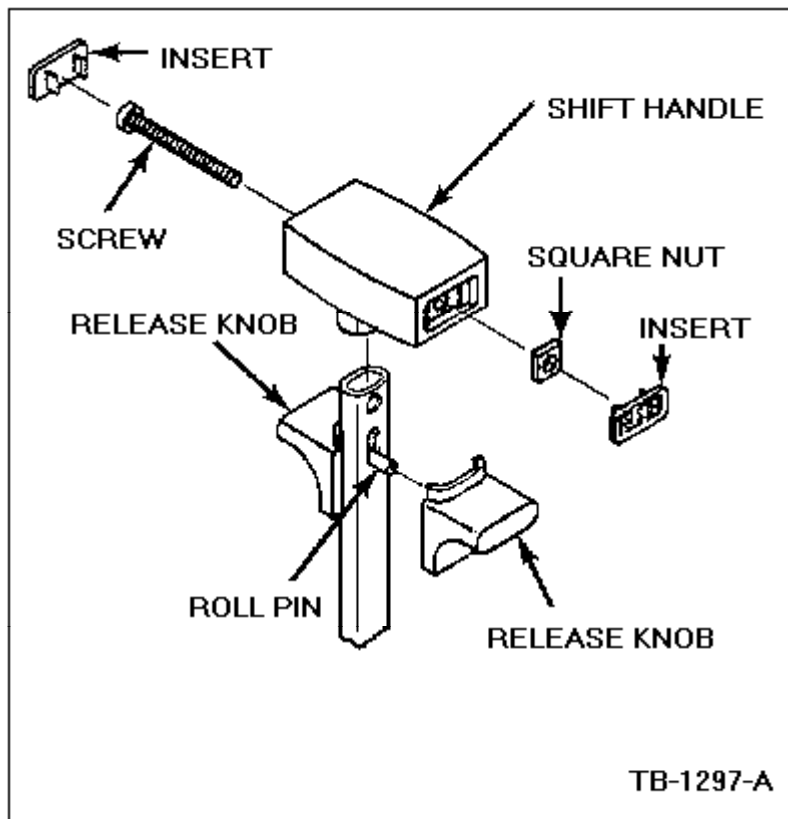


Figure 2 - Article 89-23-14

2. Remove and save screw, nut and shift handle.
3. Remove and throw away existing release knobs and roll pin.

INSTALLATION

1. Install the new roll pin. The pin must extend equally from both sides of the handle assembly.
2. Locate new release knobs AS FOLLOWS:
 - Apply two drops of Ford Instant Adhesive (E8AZ-19554-A) into each .16" diameter hole
 - Remove any excess adhesive from the surface around the hole

NOTE:

DO NOT APPLY ADHESIVE TO THE ROLL PIN.

3. Assemble both release knobs onto the roll pin at the same time and completely seat them.
4. Reassemble shift handle onto shifter shaft as follows:
 - Install screw and square nut
 - Align the nut vertically with the handle assembly
5. Install the new inserts.

SWITCH KIT (E7HZ-7A247-B) REMOVAL

1. Disconnect the wire assembly from the switch by sliding the wire connector parallel to the switch base.
2. Remove the two mounting screws, Figure 3.

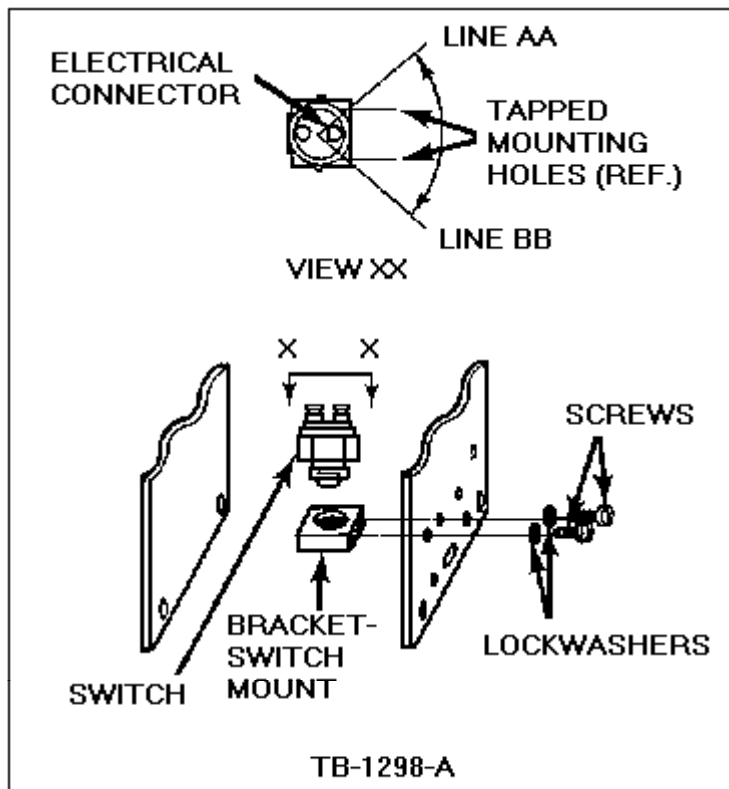


Figure 3 - Article 89-23-14

3. Throw away the old switch, mounting bracket and attaching hardware.

INSTALLATION

1. Install the new switch mount bracket onto the new switch, Figure 1. Tighten finger tight.
2. Further tighten bracket until first flat on the switch hex aligns with the flat part of the bracket containing the tapped mounting holes, Figure 3.

3. Make sure that one of the switch electrical connectors lies between line AA and BB as shown in Figure 3. It may be necessary to tighten the bracket to align with the second hex flat surface to obtain this position.
4. Install the new switch-bracket assembly onto the shift control side flange using the two screws and lockwashers.
5. Locate the new assembly in the same position as the old assembly.
6. Reconnect the wire assemblies to the new switch.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 5104, 610100, 610200

Bulletin Contents

TSB Article 89-23-15 has been superseded by Article 90-2-13.



89-23, *Publication Date: NOVEMBER 15, 1989*

Cooling System - Coolant Level Sight Glass - Service Tip	Article No. 89-23-16
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MEDIUM/HEAVY TRUCK:

1990 and prior ALL MEDIUM/HEAVY TRUCK LINES

ISSUE:

If the engine coolant level sight glass eventually becomes stained, it may give a false "FULL" indication when read.

ACTION:

When examining the coolant level, look closely to be sure that you are observing liquid coolant and not a stained sight glass.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 4300



89-24, *Publication Date: DECEMBER 1, 1989*

Predelivery Service Record - New Checklists For 1990 Model Year	Article No. 89-24-3
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FORD:

1990 ALL FORD LINES

LINCOLN-MERCURY:

1990 ALL LINCOLN-MERCURY LINES

LIGHT TRUCK:

1990 ALL LIGHT TRUCK LINES

MEDIUM/HEAVY TRUCK:

1990 ALL MEDIUM/HEAVY TRUCK LINES

ISSUE:

New vehicle predelivery checklists for 1990 model year vehicles have been developed and distributed. The number of checklists have been reduced from 9 to 5 by combining coverage of vehicles that previously had separate checklists.

No new check items have been added. The format of the checklist has been revised to allow a common description of the checks to be performed. These items are now coded and grouped according to the major heading. For example: Check A1, battery open circuit voltage, is common on all vehicles. It is worded the same for all vehicles. Additional explanation covering the details of this check and other checks are found in Section 50-02 of the Pre-delivery Shop manual.

ACTION:

Order additional predelivery checklists by calling (313) 455-0059 or by using the Warranty & Policy Order Form #362-114.

Use the publications order form in the back of the original TSB to purchase the Predelivery Shop Manual, Volume F. This manual has important information concerning what should be done during the functional checks, road test and appearance operations.

EXPANDED CHECKLIST

The following list can be removed and used as an expanded checklist during road testing. This will assist you in performing a high quality predelivery.

ENGINE DRIVEABILITY

During start-up, acceleration, cruise and deceleration, check for unsatisfactory engine performance such as:

- Prolonged starting (cranking)
- No start (does not crank)

- Hard starts (Quits immediately after starting)
- Fast idle and return to curb idle during warm-up
- Idles rough, stalls
- Idles unusually slow
- Stumbles, backfires, stalls, or hesitates during acceleration
- Spark knock during light to moderate acceleration
- Sluggish, poor acceleration
- Surges or lopes
- Hissing, unusual noises, or vibrations under hood
- Smokes.

AUTOMATIC TRANSMISSION

Make sure of the following:

- Engine starts in Park and Neutral.
- Initial band and clutch engagements are smooth.
- Upshifts and downshifts are without slippage and harshness.

STEERING

- Check for wander or free play.
- Check wheel return for stiffness in both directions.

BRAKES

- Check for good pedal height.
- Check for pull in either direction.
- Check pedal effort.
- Check parking brake operation and release.
- Adjust brakes (Heavy Trucks ONLY)

NOISE

- Road test on rough roads and listen for squeaks and rattles.
- Test at highway speed, listen for windnoise or vibration.

INSTRUMENTS

- Make sure that all the gauges work.

ACCESSORIES

- Check operation of heater and air conditioning controls.
- Make sure that the speed control holds at desired speed and disengages when brakes are applied or off button pressed.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 1800, 2800, 3800, 4800, 7800, 680000



89-24, *Publication Date: DECEMBER 1, 1989*

<ul style="list-style-type: none">• Leak - Torn CV Joint Boot On Fixed Steering Column• Steering Column - Leak At CV Joint Boot On Fixed Steering Column	Article No. 89-24-13
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MEDIUM/HEAVY TRUCK:

1990 and prior L SERIES

ISSUE:

A leak at the fixed steering column CV joint may be caused by a torn CV joint boot.

ACTION:

Install a new design CV joint boot that is a three convolute design instead of old two convolutes design. The new design CV joint boot helps keep the boot from tearing and leaking. Refer to the appropriate model year L-Series Shop Manual, Section 13-07 for service details.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 3100, 3520



89-24, *Publication Date: DECEMBER 1, 1989*

Air Conditioning - FS6 And Sanden A/C Compressor Thermal Protection Service Kit	Article No. 89-24-14
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MEDIUM/HEAVY TRUCK:

1984-90 C SERIES, F & B SERIES, L SERIES

ISSUE:

A new air conditioning system thermal protection service kit is available. The new kit is designed to monitor and evaluate A/C compressor operating temperatures and shut the A/C system off if the temperature gets too high. This new kit also has an in-cab warning lamp to alert the operator of the shut down and possible need to service the A/C system. The A/C compressor will restart when the operating temperature returns to within the normal range.

ACTION:

No corrective action is required.

NOTE:

THE A/C THERMAL PROTECTION KIT WILL NOT MONITOR FOR LOW REFRIGERANT OIL LEVEL.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 2610, 2612, 2900

Bulletin Contents

TSB Article 89-24-15 has been superseded by Article 91-19-13.



89-25, *Publication Date: DECEMBER 13, 1989*

<ul style="list-style-type: none">• Cooling System - "Ad-Tech" - Cat 3406B Engine - Coolant Loss Through Overflow Line Of "Short" Supply Tank• Radiator - "Ad-Tech" - Cat 3406B Engine - "Short" Supply Tank Modification To Prevent Coolant Loss	Article No. 89-25-20
--	---------------------------------

MEDIUM/HEAVY TRUCK:

1988-89 CL-CLT-9000 SERIES

ISSUE:

A loss of engine coolant through the overflow line of the "Short" supply tank may be caused when the pressure regulator valve of the cap assembly is opened to relieve "over pressure" of the cooling system.

ACTION:

Re-work the filler neck on the supply tank to prevent coolant loss. Refer to the following procedure for service details.

SERVICE PROCEDURE

1. Sweat off the filler neck assembly from the supply tank, Figure 1.

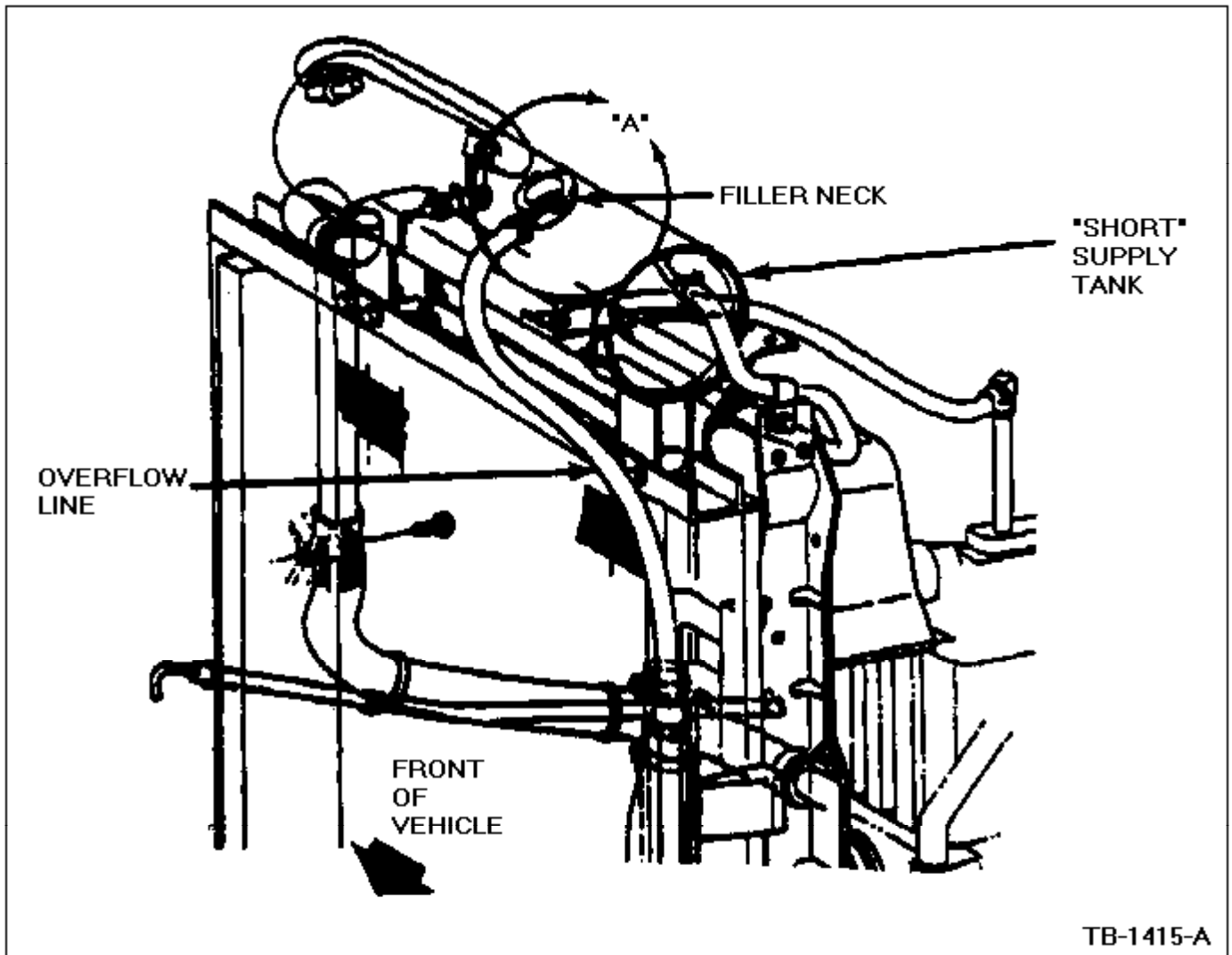


Figure 1 - Article 89-25-20

CAUTION:
DO NOT OVER HEAT THE SUPPLY TANK. THIS COULD CAUSE DAMAGE TO THE TANK'S SOLDER JOINTS.

2. Clean off any remaining solder, paint, dirt, grease, etc. from the bottom of the filler neck assembly.
3. Obtain a copper, thin-walled pipe locally that is 1.185" (30mm) outside diameter and 1.50" (38 mm) long.
4. Butt the thin-walled pipe to the bottom of the original filler neck assembly and silver solder this joint, Figure 2.

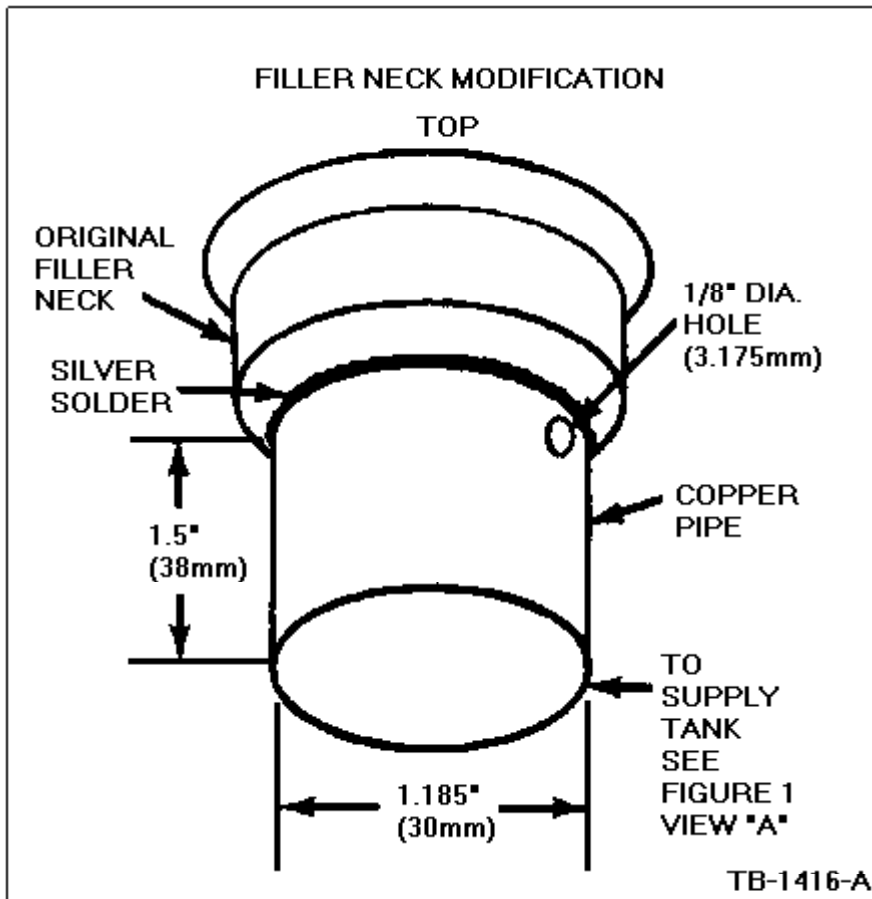


Figure 2 - Article 89-25-20

5. Drill a 1/8" (3.175 mm) hole just under the solder bead in the copper pipe. This hole will serve as a vent when adding coolant and allow the system to be as full as possible.

NOTE:

THIS HOLE MUST BE PLACED TOWARDS THE HIGHEST POSSIBLE POSITION.

6. Clean off any solder, paint, grease, etc. from the supply tank where the filler neck was removed.
7. Soft solder the copper pipe with the filler neck back onto the supply tank.
8. Paint the repaired areas.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: Eligible Under Basic Warranty Coverage

LABOR ALLOWANCE

DEALER CODING

OASIS CODES: 4300, 4301



89-25, *Publication Date: DECEMBER 13, 1989*

Radiator - "Ad-Tech" - New "Butterfly" Coolant Supply Tank - Vehicles With Butterfly Hoods And Ford 6.6L & 7.8L, L-10, Cat 3406, Cat 3306 Or Cat 3176 Engines	Article No. 89-25-21
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MEDIUM/HEAVY TRUCK:

1988-90 L SERIES

ISSUE:

A "Butterfly" coolant supply tank is now available for service.

ACTION:

Engine coolant can now be added through the butterfly opening in the hood without tilting the hood. The tank can be used on all L-Series trucks with "AD-TECH" radiators and butterfly hoods. The tank has a longer fill tube so that the cap can be reached through the right butterfly opening.

NOTE:

THE "BUTTERFLY" COOLANT SUPPLY TANK WAS EFFECTIVE IN KTP PRODUCTION AS OF JOB #1, 1990 FOR L-SERIES TRUCKS. THE STANDARD TANK (E9HZ-8A080-B) WILL BE USED FOR NON-BUTTERFLY HOOD AND SPECIAL APPLICATIONS.

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 4300
