

# 1971 TRUCK SHOP MANUAL

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ECONOLINE

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## **1971 Ford Truck Shop Manual**

**EAN: 978-1-60371-079-4**

**ISBN: 1-60371-079-5**

Forel Publishing Company, LLC

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Woodbridge, VA 22192

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Website: <http://www.ForelPublishing.com>



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# 1971 TRUCK SHOP MANUAL

**VOLUME ONE  
CHASSIS**



**BRONCO**

**CLUB WAGON**

**ECONOLINE**

**B-SERIES**

**C-SERIES**

**F-SERIES**

**L-SERIES**

**P-SERIES**

**W-SERIES**

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## FOREWORD

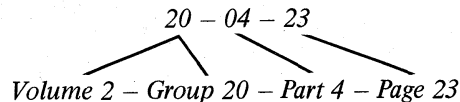
*This manual is divided into five volumes: 1 – Chassis, 2 – Engine, 3 and 4 – Electrical and Body, 5 – Maintenance and Lubrication. These volumes should provide Service Technicians with complete information covering normal service repairs on all 1971 model trucks built by the Ford Companies in the U. S. and Canada. As changes in the product occur, this information will be updated by Technical Service Bulletins. When issued, TSB information always supersedes that published herein.*

*Within each volume, information is grouped by system or component plus “General Service” parts which contain information which is common to several similar components.*

*The table of contents on the first page of each volume indicates the general content of the book and provides a handy tab locator to make it easy to find the first page of each “Group”. That page will contain an index to “Parts” and the first page of each “Part” contains a detailed index which gives page location for each service operation covered. Page numbers are consecutive in each “Part”.*

*To make reference easier, information has been broken down into smaller units so that essentially there is now one “Part” for each component or system. Group numbers indicate the volume in which the group may be found.*

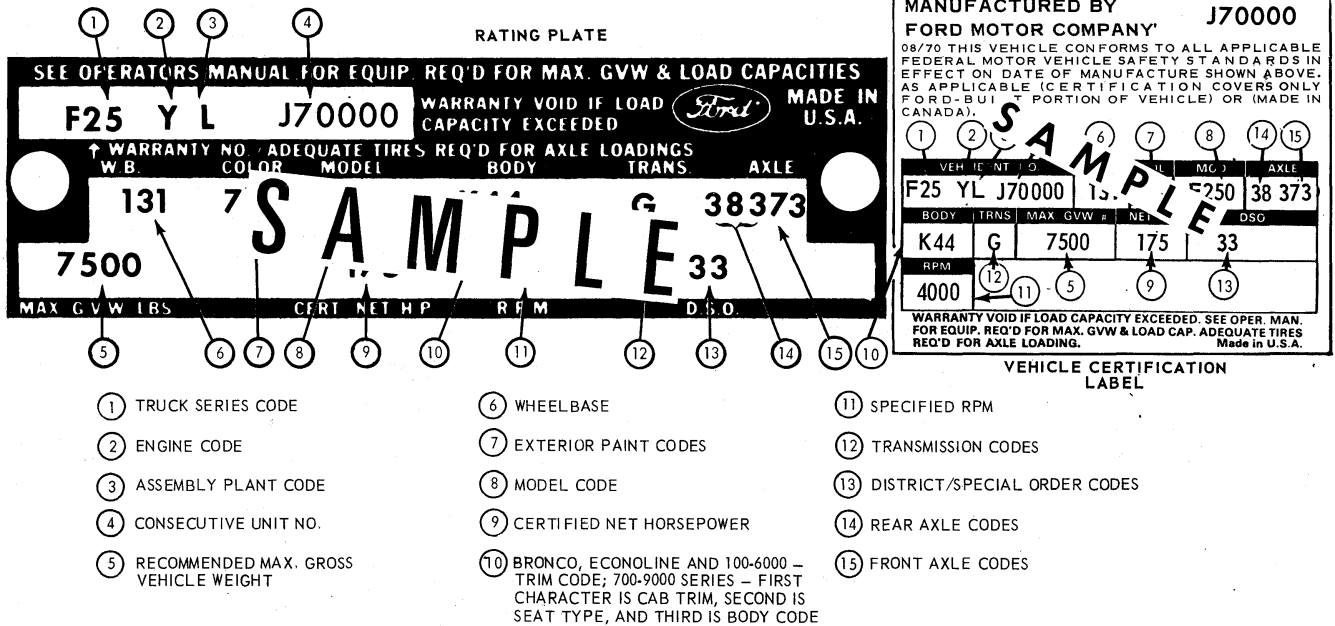
*Indicates:*



*The descriptions and specifications in this manual were in effect at the time this manual was approved for printing. Ford Marketing Corporation reserves the right to discontinue models at any time, or change specifications or design, without notice and without incurring obligation.*

# Identification Codes

**GROUP**  
10



W1017-C

FIG. 1 Typical Truck Rating Plate and Vehicle Certification Label

The Vehicle Certification Label (V.C. Label) is attached to the rear face of the driver's door. The upper half of the label contains the name of the manufacturer, the month and year of manufacture and the certification statement. The V.C. Label also contains the Vehicle Identification Number.

The remaining information codes on the V.C. Label are the same as the Truck Rating Plate Codes (Fig. 1). Vehicle codes shown on the Truck Rating Plate are explained in the following paragraphs.

**RATING PLATE**

Figure 1 illustrates a typical Truck Rating Plate. On light and medium cowl and windshield vehicles, the Rating Plate is mounted on the right side of the cowl top panel under the hood. On stripped Parcel Delivery vehicles, the rating plate is placed in an envelope and included in the Boxed Items parts. On Bronco models, the plate is mounted on the inside panel of

the glove compartment door. On all other vehicles, the Rating Plate is mounted on the rear face of the left front door.

**VEHICLE WARRANTY NUMBER**

The Warranty Number is the first line of numbers and letters appearing on the Rating Plate (Fig. 1). The first letter and two numbers indicate the truck model and series (the letter prefix identifies the type of body or cab and the numbers are the first two numbers of a truck series). The letter following the truck series code designates the engine identification code. The letter following the engine identification code indicates the assembly plant at which the vehicle was built. The remaining numbers indicate the consecutive unit number. The charts that follow list the various vehicle warranty number codes.

**VEHICLE DATA**

the Vehicle Data appears on the Rating Plate on the two lines

following the Warranty Number. The first three digits under W.B. designate the wheelbase in inches. The one or two letters under COLOR identify the exterior paint color (two letters designate a two-tone). The letter and three digits under MODEL designate the truck model within a series. The letter and numerals under BODY designate the interior trim and body type (the letter identifies the interior trim scheme and the numerals identify the body or cab type). The transmission installed in the vehicle is identified under TRANS by either a numeric or alphabetical code (if two symbols appear, the first identifies the auxiliary transmission, if so equipped, and the second symbol identifies the main transmission). A letter and a number or two numbers under AXLE identify the rear axle ratio (when required, a letter is also stamped behind the rear axle code to identify the front axle capacity). The maximum gross vehicle weight in pounds is stamped under MAX. G.V.W. Following MAX. G.V.W., the horsepower

rating of the engine with which the vehicle is equipped is stamped under **CERT. NET H.P.** and the rpm required to develop the given horsepower is stamped under **R.P.M.** **Two-digit number is stamped under D.S.O.** to identify the district which ordered the vehicle. If the vehicle is built to special order (Domestic Special Order, Foreign Special Order, Limited Production Option, or other special order), the complete order number will also appear under **D.S.O.** The charts that follow list the various vehicle data codes.

**W.B. (WHEELBASE)**

The wheelbase in inches is entered in this space.

**MAX. G.V.W. LBS**

The maximum gross vehicle weight in pounds is recorded in this space.

**CERT. NET H.P.**

The certified net horsepower at specified rpm is marked at this location.

**SPECIFIED RPM**

The rpm required to develop the certified net horsepower is marked at this location.

**D.S.O.**

If vehicle is built on a **D.S.O., F.S.O., L.P.O.** (special orders) the complete order number will be reflected under the **D.S.O.** space including the District Code Number.

**MODEL DESIGNATION (FIRST 3 CODE SYMBOLS - WARRANTY SERIAL NO. LINE)**

U	Bronco Basic Series	F	Conventional (Gas)	K-90	L-9000
U-14	U-100 (Pickup) 4 x 4	K	Conventional (Diesel)	N-50	LN-500
U-15	U-100 (Wagon) 4 x 4		Basic Series	N-60	LN-600
E	Econoline Basic Series	F-10	F-100	N-70	LN-700 (Gas)
E-11	100 Series	F-11	F-100 4 x 4	N-75	LN-750
E-12	E-100 Club Wagon	F-25	F-250	N-80	LN-800
E-12	E-100 Custom Club Wagon	F-26	F-250 4 x 4	N-90	LN-900
E-13	E-100 Chateau Wagon	F-35	F-350	R-60	LN-6000
E-14	E-100 Regular Van	F-50	F-500	R-70	LN-7000 (Diesel)
E-15	E-100 Window Van	F-60	F-600	R-80	LN-8000
E-16	E-100 Display Van	F-61	F-600	R-90	LN-9000
E-21	E-200 Club Wagon	F-65, F-66	F-600 4 x 4	S-80	LNT-800
E-22	E-200 Custom Club Wagon	K-60	F-6000 (Diesel)	S-90	LNT-900 (Gas)
E-23	E-200 Chateau Wagon	K-61	F-6000 (Diesel)	W-90	LNT-8000
E-24	E-200 Regular Van	B	Bus (Gas)	W-90	LNT-9000 (Diesel)
E-25	E-200 Window Van	J	Bus (Diesel)	C-50	C-500
E-26	E-200 Display Van	B-50	B-500	C-60	C-600
E-27	Bus Models	B-60	B-600	C-70	C-700 (Gas)
E-28	E-200 Standard	B-61	B-600	C-80	C-800
E-29	E-200 Custom	J-60	B-6000 (Diesel)	C-90	C-900
E-31	E-200 Chateau 300 Series	J-61	B-6000 (Diesel)	D-60	C-6000
E-32	E-300 Club Wagon	P	Parcel (Gas)	D-70	C-7000 (Diesel)
E-33	E-300 Custom Club Wagon	G	Parcel (Diesel)	D-80	C-8000
E-34	E-300 Chateau Wagon	P-35	P-350	B-70	B-700
E-35	E-300 Regular Van	P-40	P-400	B-75	B-750 (Gas)
E-36	E-300 Window Van	P-50	P-500	J-70	B-7000 (Diesel)
E-37	E-300 Display Van	P-60	P-600 (DSO)	T-80	LT-800
E-38	Bus Models	G-35	P-3500 (Diesel)	T-90	LT-900 (Gas)
E-39	E-300 Standard	G-40	P-4000 (Diesel)	U-80	LT-8000
	E-300 Custom	G-50	P-5000 (Diesel)	U-90	LT-9000 (Diesel)
	E-300 Chateau	G-60	P-6000 (DSO Diesel)	L-80	CT-800
		F-70	F-700	L-90	CT-900 (Gas)
		F-75	F-750 (Gas)	Q-80	CT-8000 (Diesel)
		F-80	L-800	Z-90	W-9000
		F-90	L-900	X-90	WT-9000 (Diesel)
		K-70	F-7000		
		K-80	L-8000 (Diesel)		

**ENGINE CODES BRONCO-ECONO-CLUB WAGONS-PARCEL-SCHOOL BUS-LT & MED TRUCKS**

Code	CID Engine	Cyl.
F	Gas 170-1V	6
G	302-2V	8
A	Gas 240-1V	6
G	302-2V	8
A	Gas 240-1V	6
B	360-1V	6
G	302-2V	8
Y	360-2V	8
H	390-2V	8
A	Gas 240-1V	6
B	300-1V	6
B	(600 Series) 300-1V H.D.	6
C	330-2V	8
D	330-2V H.D.	8
E	361-2V	8
U	Diesel (Cat) 522 (V 150)	8
V	(CAT) 522 (V-175)	8
A	Gas 240-1V	6
B	300-1V	6
L	Diesel (Dorset) 254	4
1	Gas 240-1V	6
2	300-1V H.D.	6
7	302-2V	6
3	302-2V	6
4	330-2V H.D.	8
8	360-2V	8
5	361-2V	8
Heavy and Extra Heavy Truck-Series 700 Through 9000 LN 500-9000 and C-500-900		
Code	Cylinders	Engine C.I.D.
A	6	240-1V
B	6	300-1V
C	8	330-2V M.D.
D	8	330-2V H.D.

Consecutive Unit Numbers—

The starting serial number J70000 will be used for all the 1971 Trucks, except Econoline, which will begin with number K00,000, and Heavy Trucks, which will begin with J90000.

B-500 and 600 begin with J80000.

Heavy and Extra Heavy Truck-Series 700 Through 9000  
LN-500-9000 and C-500-900

Code	Cylinders	Engine C.I.D.
E	8	361-2V
F	8	391-4V
H	8	401-4V
K	8	477-4V
L	8	534-4V
U	8	330-2V H.D.
W	8	361-2V
9	8	534-4V
X	8	391-4V
1	6	240-1V
3	8	330-2V M.D.
4	8	330-2V H.D.
5	8	361-2V
A		855 Cummins-NHC-250
B		903 Cummins-V903-320
C		636 Caterpillar-V8-225
D		743 Cummins NHE-195
E		903 Cummins-V903-270
F		855 Cummins-NHCT-270
G		903 Cummins V903-290
J		855 Cummins-NHC-250
K		855 Cummins-NHCT-270
L		855 Cummins-NHCT-270
M		855 Cummins-NTC-260
N		855 Cummins NTC-280
O		638 Caterpillar-1673C-250
P		855 Cummins-NTC-300
Q		855 Cummins-NTC-320
R		855 Cummins-NTC-335
S		426 Detroit 6-71N
T		568 Detroit 8V-71N
U		522 Caterpillar V8-150
V		522 Caterpillar V8-175
W		855 Cummins-NTC-290
X		855 Cummins-NTC-290
1		855 Cummins-NH-230
2		426 Detroit 6-71N
3		638 Caterpillar 1674
4		573 Caterpillar-V8-200
5		855 Cummins NHCT-270
6		568 Detroit 8V-71N
7		568 Detroit 8V-71NE
8		318 Detroit 6V-53N
9		426 Detroit 6-71NE

**1970 CALENDAR YEAR**

July-1970 Model	J50,000 thru J69,999
July-1971 Model	J70,000 thru J79,999
August	J80,000 thru J99,999
September	K00,000 thru K19,999
October	K20,000 thru K39,999
November	K40,000 thru K59,999
December	K60,000 thru K79,999

**1971 CALENDAR YEAR**

January	K80,000 thru K99,999
February	L00,000 thru L19,999
March	L20,000 thru L39,999
March	L20,000 thru L39,999
April	L40,000 thru L79,999
May	L60,000 thru L79,999
June	L80,000 thru L99,999
July	M00,000 thru M19,999
August	M20,000 thru M29,999

**ASSEMBLY PLANTS CODE LETTERS**

Code	Assembly Plant
C	Ontario Truck
E	Mahwah
H	Lorain
K	Kansas City
L	Michigan Truck

**ASSEMBLY PLANTS CODE LETTERS**

Code	Assembly Plant
N	Norfolk
P	Twin Cities
R	San Jose
S	Allen Park
V	Kentucky Truck

**EXTERIOR PAINT COLOR CODES**

Code	Color	M-30J/M-32J Spec. No.	Code	Color	M-30J/M-32J Spec. No.
A.....	Black.....	1724-A	3.....	Med. Bright Aqua.....	5006-A
M.....	White.....	1619-A	O.....	Lt. Green.....	3472-A
C.....	Spec. White.....	1525-A	P.....	Med. Green Metallic.....	3462-A
1.....	Calypso Coral.....	1730-A	L.....	Dk. Green.....	1237-A
T.....	Candyapple Red.....	2008-A	Z.....	Grabber Green Metallic.....	5002-A
J.....	Rangoon Red.....	1515-A	K.....	Med. Ivy Green.....	3150-A
4.....	Dark Red.....	3426-A	V.....	Dk. Green.....	5005-A
N.....	Platinum.....	921-A	D.....	Lt. Yellow.....	3439-A
E.....	Lt. Blue.....	1906-A	U.....	Med. Yellow.....	3217-A
7.....	Med. Blue.....	2098-A	2.....	Med. Goldenrod Yellow.....	3492-A
Q.....	Med. Blue Metallic.....	3064-A	G.....	Chrome Yellow.....	1526-A
6.....	Bright Med. Blue.....	5004-A	H.....	Med. Beige.....	3569-A
R.....	Bright Astra Blue Met.....	3320-A	W.....	Lt. Ginger Metallic.....	3516-A
Y.....	Med. Aqua.....	3216-A	F.....	Beige.....	3466-A
9.....	Prime.....	M6J-49B (red) M6J-50B (gray)	5.....	Med. Brown Met.....	3564-A
			8.....	Lime Gold Met.....	2041-A

**CLUB WAGON INTERIOR TRIM CODES**

13, 14, 15.....	Lt. Gray/Black Vinyl
23, 24, 25.....	Lt. Blue/Med. Blue Vinyl or Cloth and Vinyl
33, 34, 35.....	Lt. Ginger/Med. Ginger Vinyl or Cloth and Vinyl
43, 44, 45.....	Lt. Green/Med. Green Vinyl or Cloth and Vinyl

**ECONOLINE INTERIOR TRIM CODES**

1, 11, 12.....	Lt. Gray/Black Vinyl
2, 21, 22.....	Lt. Blue/Med. Blue Vinyl
3, 31, 32.....	Lt. Ginger/Med. Ginger Vinyl
4, 41, 42.....	Lt. Green/Med. Green Vinyl
26, 27, 28.....	Lt. Blue/Med. Blue Vinyl
36, 37, 38.....	Lt. Ginger/Med. Ginger Vinyl
46, 47, 48.....	Lt. Green/Med. Green Vinyl
B, B1, B2.....	Lt. Blue/Med. Blue Vinyl
C, C1, C2.....	Lt. Ginger/Med. Ginger Vinyl
D, D1, D2.....	Lt. Green/Med. Green Vinyl

**LIGHT AND MEDIUM TRUCK TRIM CODES**

4, 4B, 4C, 43, D, DB, M3, MB, UB.....	Black Vinyl
M, U.....	Black Cloth and Vinyl
2, 23, B, K3.....	Lt. Blue/Med Blue Vinyl
K, S.....	Med. Blue Cloth and Vinyl
KB, SB, 2B, 2C, BB.....	Black with Blue Vinyl
5, 53, E, N3.....	Red/Dk. Red Vinyl
N, V.....	Dk. Red Cloth and Vinyl
5B, 5C, EB, NB, VB.....	Black with Red Vinyl
6, 63, F, 03.....	Lt. Green/Med. Green Vinyl
O, W.....	Med. Green Cloth and Vinyl
6B, 6C, FB, OB, WB.....	Black with Green Vinyl
3, 33, C, L3, C4, L4, T4.....	Pastel Parchment Vinyl
L, T.....	Light and Pastel Parchment Cloth and Vinyl
3B, 3C, CB, LB, TB.....	Black with parchment Vinyl

**BRONCO INTERIOR TRIM CODES**

3.....	Lt. And Pastel Parchment Vinyl
9, 94, 9U.....	Pastel Parchment Vinyl

**HEAVY TRUCK TRIM CODES**

4, D, D3, DC, 43, 4C, 4A, 4B, 41, 42, D2, DB, 46, 4F, D6, DF	Black Vinyl	CB.....	Black with Parchment Vinyl
B2.....	Lt. and Med. Blue Vinyl	11.....	Med. Gray Metallic Vinyl
E2.....	Red and Dk. Red Vinyl	11.....	Lt. Gray Vinyl
F2.....	Lt. Green/Med. Green Vinyl	12, A2.....	Lt. and Med. Gray Vinyl
C2.....	Pastel Parchment Vinyl	1J, 1K, AK, 13, 1C, A3, AC, 14, 1D, A4, AD, 15, 1E, A5, AE.....	Med. Gray Vinyl
BB.....	Black with Blue Vinyl	A2.....	Gray Multicolor and Lt. Gray Vinyl
EF.....	Black with Red Vinyl	G4, G5, G7, GD, GE, GG.....	Ginger (Saddle) Vinyl
FB.....	Black with Green Vinyl		



**RATING PLATE "BODY" TYPE CODE**

**ECONOLINE-VANS & CLUB WAGONS**

CUSTOM	STANDARD	CAB/TRIM	VAN SEATS		WAGON SEATS	
B	1	GRAY/BLACK	1	STATIONARY PASSENGER	3	FIRST & SECOND ROW - 5 PASSENGER
C	2	BLUE	2	FLIP PASSENGER	4	FIRST, SECOND & THIRD ROW - 8 PASSENGER
D	3	GINGER	6	DELUXE DRIVER	5	FIRST, SECOND, THIRD & FOURTH ROW - 12 PASSENGER
	4	GREEN	7	DELUXE DRIVER & DELUXE STATIONARY PASSENGER		
			8	DELUXE DRIVER & FLIP PASSENGER		

**LIGHT & MEDIUM TRUCK - 100 THRU 6000 AND BRONCO**

CUSTOM	RANGER	RANGERXLT	STD.	COLOR CAB/TRIM
A	-	-	1	EXPLORER BLUE
B	K	S	2	BLUE
C	L	T	3	PARCHMENT
D	M	U	4	BLACK
E	N	V	5	RED
F	Ø	W	6	GREEN
G	-	-	7	EXPLORER GREEN
H	-	-	8	EXPLORER GINGER
-	-	-	9	PARCHMENT

H.D. VINYL	BRONCO REAR SEAT	STD.	SEATS
B	-	2	BENCH SEAT
C	-	3	FOAM CUSHION
-	U	4	BUCKET SEATS - DRIVER & PASSENGER

BODY TYPE	
0	PARCEL
3	FLARESIDE PICK-UP
4	STYLESIDE PICK-UP
5	PLATFORM STAKE
6	WINDSHIELD
7	COWL
8	CHASSIS CAB
9	PLATFORM

Seat Codes					Description
HD Black Vinyl	Knitted Vinyl	Driver w/Companion	Single Driver	Full Width	
A	J	-	-	1	Full Width
B	K	-	-	2	Full width - Custom
-	-	C	3	-	L-S Unison
-	-	D	4	-	L-S #675
-	-	E	5	-	Bostrom Westcoaster
-	-	F	6	-	Bostrom T-Bar
-	-	G <sup>Ⓞ</sup>	7	-	National Cush-N-Aire
-	-	H	8	-	Bostrom Level Air

Ⓞ w/Lear Siegler companion seat.

**FRONT AXLE CODES LIGHT AND MEDIUM TRUCKS**

CODE	DESCRIPTION
A	5,000# - FORD
B	5,500#
C	6,000#
D	7,000#
E	7,500# 6.20 RATIO
F	7,500# 6.80 RATIO
G	7,500# 7.20 RATIO
J	2,500# DANA - 30 - LOCKING
K	3,500# DANA - 44F

Medium & Heavy Trucks (Except F-B-500-600, 6000)					
CODE			CODE		
Manual	Power	DESCRIPTION	Manual	Power	DESCRIPTION
1	J	5000 lb.	7	P	12,000 lb.
2	K	5500 lb.	8	-	12,000 lb. Steer-Ease
3	L	6000 lb.	9	R	15,000 lb.
4	M	7000 lb.	-	S	16,000 lb.
5	N	9000 lb.	-	T	18,000 lb.
6	-	12,000 lb. Center Point	-	U	20,000 lb.

DISTRICT CODES					
11	BOSTON	41	CHICAGO	71	LOS ANGELES
13	NEW YORK	43	MILWAUKEE	72	SAN JOSE
15	NEWARK	44	TWIN CITIES	73	SALT LAKE CITY
16	PHILADELPHIA	46	INDIANAPOLIS	74	SEATTLE
17	WASHINGTON	47	CINCINNATI	75	PHOENIX
21	ATLANTA	51	DENVER	83	GOVERNMENT
22	CHARLOTTE	53	KANSAS CITY	84	HOME OFFICE RESERVE
24	JACKSONVILLE	54	OMAHA	85	AMERICAN RED CROSS
25	RICHMOND	55	ST. LOUIS	89	TRANSPORTATION SERVICES
28	LOUISVILLE	56	DAVENPORT	87	BODY COMPANY
32	CLEVELAND	61	DALLAS	90's	EXPORT
33	DETROIT	62	HOUSTON		
35	LANSING	63	MEMPHIS		
37	BUFFALO	64	NEW ORLEANS		
38	PITTSBURGH	65	OKLAHOMA CITY		

FORD OF CANADA	
MERCURY REGIONS	FORD REGIONS
A1 CENTRAL	B1 CENTRAL
A2 EASTERN	B2 EASTERN
A3 ATLANTIC	B3 ATLANTIC
A4 MIDWESTERN	B4 MIDWESTERN
A6 WESTERN	B6 WESTERN
A7 PACIFIC	B7 PACIFIC
I2 EXPORT	I2 EXPORT

NOTE: EXPORT ALPHABETICAL I

**TRANSMISSION CODES**

Code	Description		
Bronco		Light, Medium and Heavy Truck, Parcel Delivery and School Bus	
C	3 Speed Manual Ford		
Econoline-Club Wagon			
C	3 Speed Manual Ford		
G	Automatic		
Light, Medium and Heavy Truck, Parcel Delivery and School Bus			
A	New Process 435 4-Speed	O	New Process 542FL 5 Speed
B	Warner T-85 Overdrive 3 Speed	O	Fuller T-905B
B	Spicer P8516 - 3 B	P	Warner T-19 4 Speed
C	Ford - Manual - 3 Speed	Q	Spicer 5652
C	Fuller RT-610 10 Speed	R	Spicer 8716
D	Warner T-89C 3 Speed	S	Spicer 5756-B
D	Clark 387 V	T	New Process 542 FO 5 Speed
E	Warner T-87G 3 Speed	U	Spicer 6852G
E	Fuller 5 H74	V	Fuller RT-910
F	Fuller 5H74-5 Speed	W	Spicer 6352B
F	Warner T-18 4 Speed	X	Fuller T-905A
G	C-6 Automatic	X	Transmatic MT-30
G	Clark 380 5 Speed	Y	Transmatic MT-41
H	Fuller RTO 913	Z	Transmatic MT-40
J	Fuller RTO 9513	1	Spicer 8552A
K	Spicer 6453A	1	Transmatic MT-42
L	Allison AT540	2	Clark 282V 5 Speed
M	Clark 285V 5 Speed	3	Fuller RT-906
N	Spicer 6352	4	Clark 280 VO 5 Speed
		5	Fuller RTO-910
		6	Fuller RTO-915
		7	Clark 385V
		9	Fuller RT-915
		9	New Process 542 FD 5 Speed

**BRONCO-ECONOLINE AXLE RATIO CODES**

Bronco				Econoline							
Code	Ford 2780 No.	Code	Ford 3300 No.	Code	Ford 3050 No.	Code	Ford 3300 No.	Code	Dana 4800 No.	Code	Limited Slip Dana 4800 No.
03	4.11	05	4.11	07	3.00	08	3.50	31	3.54	C1	3.54
A3	4.11 Lock	A5	4.11 Lock	11	3.50	05	4.11	33	3.73	C3	3.73
04	4.57	08	3.50			06	4.57	35	4.10	C5	4.10
18	3.50	B9	3.50 Lock	10	3.25	17	3.25	36	4.56		
B8	3.50 Lock										

**ECONOLINE F-100 THRU 350 LIGHT & MEDIUM TRUCK-PARCEL DELIVERY-SCHOOL BUS AXLE CODES**

Code	Dana 5050 No.	Code	Limited Slip Dana 5050 No.	3300 No. Ford	3300 No. Ford Limited Slip	3600 No. Ford LTD Slip	5200 No. Dana 60	5200 No. Dana 60 Limited Slip
71	3.54	G1	3.54	17 - 3.25	A1 - 3.25	H1 - 3.25	24 - 4.10	B4 - 4.10
72	3.73			08 - 3.50	B9 - 3.50	H2 - 3.50	25 - 4.56	B5 - 4.56
73	4.10	G2	3.73	09 - 3.70	A5 - 4.11	H3 - 4.09	37 - 354	C7 - 3.54
74	4.56	G3	4.10	05 - 4.11	A2 - 3.70		38 - 373	C8 - 3.73
				02 - 3.00				

**P350 THRU P6000**

7400 No. Dana 70	7400 No. Dana 70 Limited Slip	5200No. Dana 60	5200 No. Dana 60 Limited Slip	7400 No. Dana 70	1100 No. Rockwell C-100
22 - 4.88	D6 - 3.73	24 - 4.10	B4 - 4.10	22 - 4.88	30 - 5.29
27 - 4.10	D7 - 4.10	25 - 4.56	B5 - 4.56	23 - 5.13	32 - 6.20
28 - 4.56	D8 - 4.56			28 - 4.56	34 - 6.80
36 - 3.73					

**F & B 500 THRU 6000**

11000 No. Rockwell C100	13000 No. Rockwell D-100	15000 No. Rockwell F-106	15000 No. 2 SPD Eaton 15201	Rockwell H-170	17500 2 SPD Eaton 16244
32 - 6.20	41 - 5.83	62 - 6.20	F1 - 5.14/7.17	52 - 5.86	E1 - 5.57/7.75
34 - 6.80	42 - 6.20	64 - 6.80	F2 - 5.83/8.12	58 - 6.14	E2 - 6.17/8.58
	44 - 6.80	66 - 7.20	F3 - 6.33/8.81	54 - 6.83	E3 - 6.50/2.04
				55 - 7.17	

REAR AXLE CODE (2780-lb. to 7400-lb. Capacity)

Code	Description	Ratio	Code	Description	Ratio	Code	Description	Ratio
A1	Ford 3300 ①	3.25	H3	Ford 3600 ①	4.09	24	Dana 60 (5200)	4.10
A2	Ford 3300 ①	3.70	03	Ford 2780	4.11	25	Dana 60 (5200)	4.56
A3	Ford 2780 ①	4.11	04	Ford 2780	4.57	27	Dana 70	4.10
A5	Ford 3300 ①	4.11	05	Ford 3300	4.11	28	Dana 70	4.56
B4	Dana 60 ①(5200)	4.10	07	Ford 3050	3.00	71	Dana 60 (5050)	3.54
B5	Dana 60 ①(5200)	4.56	08	Ford 3300	3.50	72	Dana 60 (5050)	3.73
B8	Ford 2780 ①	3.50	09	Ford 3300	3.70	73	Dana 60 (5050)	4.10
B9	Ford 3300 ①	3.50	10	Ford 3050	3.25	36	Dana 70	3.73
C1	Dana 60 ①(5050)	3.54	11	Ford 3050	3.50	37	Dana 60 (5200)	3.54
C3	Dana 60 ①(5050)	3.73	02	Ford 3300	3.00	38	Dana 60 (5200)	3.73
C5	Dana 60 ①(5050)	4.10	17	Ford 3300	3.25			
C7	Dana 60 ①(5200)	3.54	18	Ford 2780	3.50			
C8	Dana 60 ①(5200)	3.73	22	Dana 70	4.88			
D7	Dana 70 ①	4.10	23	Dana 70	5.13			
H2	Ford 3600 ①	3.50						

① Limited-Slip or Traction-Lok

REAR AXLE CODE (11,000-lb. to 18,500-lb. Capacity)

Code	Description	Ratio	Code	Description	Ratio	Code	Description	Ratio
E1	Eaton 16244	5.57/7.75	HH	Eaton 17221	7.17/9.77	41	Rockwell D-100	5.83
E2	Eaton 16244	6.17/8.58	CQ	Eaton 17101	4.88	42	Rockwell D-100	6.20
E3	Eaton 16244	6.50/9.04	DQ	Eaton 17101	5.29	44	Rockwell D-100	6.80
F1	Eaton 15201	5.14/7.17	EQ	Eaton 17121	5.57	52	Rockwell H-170	5.86
F2	Eaton 15201	5.83/8.12	FO	Eaton 17121	6.14	53	Rockwell H-170	6.14
F3	Eaton 15201	6.33/8.81	GQ	Eaton 17121	6.50	54	Rockwell H-170	6.83
BH	Eaton 17201	4.56/6.21	HQ	Eaton 17121	7.17	55	Rockwell H-170	7.17
CH	Eaton 17201	4.88/6.65	IQ	Eaton 17121	7.60	62	Rockwell F-106	6.20
DH	Eaton 17201	5.29/7.21	30	Rockwell C-100	5.29	64	Rockwell F-106	6.80
EH	Eaton 17221	5.57/7.60	32	Rockwell C-100	6.20	66	Rockwell F-106	7.20
FH	Eaton 17221	6.14/8.38	34	Rockwell C-100	6.80			
GH	Eaton 17221	6.50/8.87						

REAR AXLE CODE (22,000-lb and 23,000-lb, Single-Axle)

Code	Description	Ratio	Code	Description	Ratio	Code	Description	Ratio
BB	Eaton 18201	4.56/6.21	DK	Eaton 18121	6.50	H7	Rockwell R-171	6.14
CB	Eaton 18201	4.88/6.65	EK	Eaton 18121	7.17	H8	Rockwell R-171	6.83
DB	Eaton 18221	5.57/7.60	FK	Eaton 18101	5.29	H9	Rockwell R-171	3.70
EB	Eaton 18221	6.14/8.38	GK	Eaton 18121	7.60	L1	Rockwell Q-246	4.92
FB	Eaton 18221	6.50/8.87	AP	Eaton 19221	4.33/5.90	L2	Rockwell Q-246	5.63
GB	Eaton 18221	7.17/9.77	BP	Eaton 19221	4.88/6.64	L3	Rockwell Q-246	6.04
HB	Eaton 18201	5.29/7.21	CP	Eaton 19221	5.43/7.39	L4	Rockwell Q-246	6.39
AG	Eaton 19121	4.11	DP	Eaton 19221	6.17/8.40	L5	Rockwell Q-246	7.27
BG	Eaton 19121	4.33	EP	Eaton 19221	6.67/9.08	P5	Rockwell RT-241	7.21
CG	Eaton 19121	4.88	FP	Eaton 19221	3.70/5.04	T3	Rockwell Q-346	5.63/7.73
DG	Eaton 19121	5.43	GP	Eaton 19221	4.11/5.60	T4	Rockwell Q-346	6.39/8.78
EG	Eaton 19121	6.17	HP	Eaton 19221	4.56/6.21	T5	Rockwell Q-346	7.33/10.07
FG	Eaton 19121	6.67	H1	Rockwell R-171	4.11	X1	Rockwell RT-341	4.68/5.88
GG	Eaton 19121	3.70	H2	Rockwell R-171	4.33	X2	Rockwell RT-341	5.06/6.35
HG	Eaton 19121	4.56	H3	Rockwell R-171	4.63	X4	Rockwell RT-341	6.18/7.76
CJ	Eaton 18301	6.65	H4	Rockwell R-171	4.88	X5	Rockwell RT-341	7.01/8.80
AK	Eaton 18101	4.88	H5	Rockwell R-171	5.29	Y4	Rockwell R-302	6.42/8.38
BK	Eaton 18121	5.57	H6	Rockwell R-171	5.86	Y5	Rockwell R-302	7.09/9.07
CK	Eaton 18121	6.14						

TANDEM REAR AXLE CODES

Code	Description	Ratio	Code	Description	Ratio	Code	Description	Ratio
AC	Eaton 30DSC	4.62	BD	Eaton 30DPC	6.78	GF	Eaton 34DSE	6.14
BC	Eaton 30DSC	4.88	CD	Eaton 30DPC	7.75	HF	Eaton 34DSE	6.50
CC	Eaton 30DSC	5.57	DD	Eaton 30DPC	8.55	IF	Eaton 34DSE	7.17
DC	Eaton 30DSC	6.14	JF	Eaton 34DSC	4.11	KF	Eaton 34DSE	7.60
EC	Eaton 30DSC	6.50	BF	Eaton 34DSC	4.33	LF	Eaton 34DSC	3.70
FC	Eaton 30DSC	7.17	CF	Eaton 34DSC	4.56	A1	Eaton 38DSC	4.55
GC	Eaton 30DSC	7.60	DF	Eaton 34DSC	4.88	B1	Eaton 38DSC	4.88
HC	Eaton 30DSC	5.29	EF	Eaton 34DSC	5.29	C1	Eaton 38DSC	5.57
AD	Eaton 30DPC	6.43	FF	Eaton 34DSC	5.57	D1	Eaton 38DSE	6.14

TANDEM REAR AXLE CODES (Cont'd.)

Code	Description	Ratio	Code	Description	Ratio	Code	Description	Ratio
E1	Eaton 38DSE	6.50	BT	Eaton 34DTC-3	4.33/5.12/5.91	B3	Rockwell SLHD	4.63
J1	Eaton 38DSE	7.17	HT	Eaton 34DTC-3	3.70/4.37/5.05	B4	Rockwell SLHD	4.88
K1	Eaton 38DSE	7.60	IT	Eaton 34DTC-3	5.29/6.25/7.21	B5	Rockwell SLHD	5.29
F1	Eaton 38DSC	4.11	IT	Eaton 34DTE-3	6.50/7.68/8.86	B6	Rockwell SLHD	5.83
G1	Eaton 38DSC	4.33	AV	Eaton 42DPB	7.60	B7	Rockwell SLHD	6.17
H1	Eaton 38DSC	5.29	BV	Eaton 42DPD	8.38	B8	Rockwell SLHD	6.83
CL	Eaton 30DTC	5.57/7.75	CV	Eaton 42DPB	5.05	B9	Rockwell SLHD	7.80
DL	Eaton 30DTC	6.14/8.55	DV	Eaton 42DPB	5.91	B0	Rockwell SLHD	8.60
EL	Eaton 30DTC	6.50/9.04	AW	Eaton 34DTC	4.11/5.61	DA	Rockwell SQHD	6.17
FL	Eaton 30DTC	7.17/9.97	BW	Eaton 34DTC	4.33/5.91	D1	Rockwell SQHD	4.11
DN	Eaton 34DPC	6.21	DW	Eaton 34DTC	4.88/6.65	D2	Rockwell SQHD	4.44
FN	Eaton 34DPC	7.60	FW	Eaton 34DTE	6.14/8.88	D3	Rockwell SQHD	4.63
GN	Eaton 34DPE	8.38	CW	Eaton 34DTE	6.50/8.87	D4	Rockwell SQHD	5.29
AR	Eaton 38DPC	5.05	HW	Eaton 34DTE	7.17/9.77	D5	Rockwell SQHD	5.83
BR	Eaton 38DPC	5.61	IW	Eaton 34DTC	3.70/5.05	D6	Rockwell SQHD	6.83
CR	Eaton 38DPC	5.91	KW	Eaton 34DTC	5.29/7.21	D7	Rockwell SQHD	7.80
DR	Eaton 38DPC	6.21	AZ	Eaton 38DTC-3	4.11/4.86/5.61	D8	Rockwell SQHD	8.60
ER	Eaton 38DPC	6.65	BZ	Eaton 38DTC-3	4.33/5.12/5.91	D0	Rockwell SQHD	4.88
FR	Eaton 38DPC	7.60	BA	Rockwell SLHD	3.55	W3	Rockwell SHHD	6.17
GR	Eaton 38DPE	8.38	B1	Rockwell SLHD	4.11	W4	Rockwell SHHD	6.80
AT	Eaton 34DTC-3	4.11/4.86/5.61	B2	Rockwell SLHD	4.44	W5	Rockwell SHHD	7.20

CY1320-B1

FORD TRUCK SERIES DESIGNATIONS

Prefix	Series Numbers	Series Description	Prefix	Series Numbers	Series Description
U	100	Bronco	LNT	800 and 900	93.3' BBC Conv. Tandem-Gas
R	100 thru 300	Econoline Van	LNT	8000 and 9000	93.3' BBC Conv. Tandem-Diesel
F	100 thru 750	Conventional-Gas	C	500 thru 900	Tilt Cab-Gas
F	6000 and 7000	Conventional-Diesel	C	6000 thru 8000	Tilt Cab-Diesel
L	800 and 900	Conventional-Gas	CT	800 and 900	Tilt Cab Tandem-Gas
L	8000 and 9000	Conventional-Diesel	*CT	8000	Tilt Cab Tandem-Diesel
LT	800 and 900	Conv. Tandem-Gas	W	9000	Hi-Tilt Tractor-Diesel
LT	8000 and 9000	Conv. Tandem-Diesel	WT	9000	Hi-Tilt Tractor-Diesel
LTS	800 and 900	46' BA Conv. Tandem-Gas	B	500 thru 750	School Bus Chassis-Gas
LTS	8000 and 9000	46' BA Conv. Tandem-Diesel	B	6000 and 7000	School Bus Chassis-Diesel
LN	500 thru 750	95.3' BBC Cont.-Gas	P	350 thru 500	Parcel Delivery-Gas
LN	800 and 900	93.3' BBC Conv.-Gas	*P	600	Parcel Delivery-Gas
LN	6000 and 7000	95.3' BBC Conv.-Diesel	P	3500 thru 500	Parcel Delivery-Diesel
LN	8000 and 9000	93.3' BBC Conv.-Diesel			

\*Special Order

CY1321-A

**TRUCK SERIES CODE, MODEL CODE, RECOMMENDED GROSS VEHICLE WEIGHT**

Bronco			Club & Chateau Wagon		
Model Code	Series	Type	Model Code	Series	Type
U-140	U-100	Sports Utility	E-220	E-200	Custom Club Wagon
U-142	HD Package	—	E-230	—	Chateau Wagon
U-150	U-100	Wagon	E-310	—	Club Wagon
U-152	HD Package	—	E-320	E-300	Custom Club Wagon
Club & Chateau Wagon			E-330	—	Chateau Wagon
Model Code	Series	Type	E-311	HD Payload	Club Wagon
E-110	—	Club Wagon	E-321	HD Payload	Custom Club Wagon
E-120	E-100	Custom Club Wagon	E-331	HD Payload	Chateau Wagon
E-130	—	Chateau Wagon	<b>Export Only</b>		
E-210	—	Club Wagon	E-319—E-329-E-339 Show 6800 No. GVW On Rating Plate		

**ECONOLINE**

Series	Model Code	GVW	Series	Model Code	GVW	Series	Model Code	GVW
E-100	E-140	4,200	E-200	E-261	4,950	E-300	E-361	6,800
	E-141	4,200		E-262	5,400		E-362	7,400
	E-142	4,500		E-263	5,100		E-363	7,400
	E-150	4,200		E-264	5,400		E-364	8,000
	E-151	4,200		E-270	5,400		E-365	7,600
	E-152	4,500		E-280	5,400		E-370	6,800
	E-160	4,200		E-290	5,400		E-371	7,600
	E-161	4,200		E-300	E-340		6,050	E-380
E-162	4,500	E-341	6,800		E-381		7,600	
E-200	E-240	5,100	E-342		7,400		E-390	6,800
	E-241	4,950	E-343		7,400		E-391	7,600
	E-242	5,400	E-345		7,600		E-372	8,300
	E-243	5,100	E-344		8,000		E-382	8,300
	E-244	5,400	E-350		6,050		E-392	8,300
	E-250	5,100	E-351		6,800		<b>Export Only</b>	
	E-251	4,950	E-352	7,400	E-300	E-349	6,800	
	E-252	5,400	E-353	7,400		E-359	6,800	
	E-253	5,100	E-354	8,000		E-369	6,800	
	E-254	5,400	E-355	7,600				
E-260	5,100	E-360	6,050					



LIGHT & MEDIUM

SERIES	MODEL CODE	GVW	
F-100	F-100	5,000	
	F-101	4,200	
	F-102 ①	5,000	
	F-103	4,500	
	F-104	4,800	
F-100 4 x 4	F-110	5,600	
	F-111	5,000	
	F-112 ①	5,600	
	F-113	4,600	
F-250	F-250	7,500	
	F-252 ①	7,500	
	F-253	6,100	
	F-254	6,900	
	F-255 ①	6,100	
	F-256 ①	6,900	
F-250 4 x 4	F-260	6,800	
	F-262	7,700	
	F-263	6,300	
	F-264 ①	7,700	
F-350	F-350	8,000	
	F-351	10,000	
	F-352 ①	8,000	
	F-353	6,600	
	F-354	8,300	
	F-355	9,000	
F-500	F-500	15,000	
	F-501	10,100	
	F-502	16,000	
	F-503	17,000	
	F-504	18,000	
	F-505	20,000	
F-600	F-600	19,500	
	F-601	15,000	
	F-602	20,000	
	F-603	17,000	
	F-604	17,000	
	F-610	21,000	
	F-611	22,000	
	F-612	23,000	
	F-613 ①	23,000	
	F-614 ①	23,000	
	F-615	24,000	

SERIES	MODEL CODE	GVW
F-600	F-616	19,700
	F-617	20,000
	F-618	17,990
F-600 4 x 4	F-650	16,000
	F-651	15,000
	F-652	17,000
	F-653	18,000
	F-660 (F-661) ①	20,000
(DIESEL) F-6000	K-600	20,000
	K-601	15,000
	K-602	19,500
	K-603	17,000
F-6000	K-610	21,000
	K-611	22,000
	K-612	23,000
	K-613 ①	23,000
	K-614 ①	23,000
	K-615	24,000
	K-616	19,700
B-500	B-500	15,000
	B-501	10,100
	B-502	16,000
	B-503	17,000
	B-504	18,000
	B-505	20,000
B-600	B-600	19,500
	B-601	15,000
	B-602	20,000
	B-603	17,000
B-600	B-610	21,000
	B-611	22,000
	B-612	23,000
	B-613	24,000
	B-614	19,700
(DIESEL) B-6000	J-610	21,000
	J-611	22,000
	J-612	23,000
	J-613	24,000
	J-614	19,700

SERIES	MODEL CODE	GVW
B-6000	J-600	20,000
	J-601	15,000
	J-602	19,500
	J-603	17,000
P-350	P-350	8,000
	P-351	6,100
	P-352	6,500
	P-353	8,000
P-400	P-400	10,000
	P-401	7,700
	P-402	8,000
	P-403	7,000
P-500	P-500	15,000
	P-501	10,100
	P-503	12,000
P-600	P-600 (DSO)	17,000
	P-601 (DSO)	15,000
P-3500	G-350	8,000
	G-351	6,100
	G-352	6,500
	G-353	8,000
P-4000	G-400	10,000
	G-401	7,700
	G-402	8,000
	G-403	7,000
P-5000	G-500	15,000
	G-501	10,100
	G-502	8,000
	G-503	12,000
P-6000	G-600 (DSO)	17,000
	G-601 (DSO)	15,000

① Reference Pennsylvania Registration Data

AUXILIARY TRANSMISSION CODE

CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
2	Spicer 5831D	5	Spicer 8341C	C	Fuller 3K65
3	Spicer 7231B	6	Spicer 8031C	D	Fuller 4E75
4	Spicer 7231D	8	Spicer 7041		

TRUCK SERIES CODE, MODEL CODE, RECOMMENDED GROSS VEHICLE WEIGHT  
HEAVY AND EXTRA HEAVY TRUCK

SERIES	MODEL CODE	GVW (lbs.)
LN-500	N-500	15,000
	N-501	10,100
	N-502	16,000
	N-503	17,000
	N-504	18,000
	N-505	20,000
C-500	C-500	15,000
	C-501	10,100
	C-502	17,000
	C-503	19,000
	C-504	20,000
LN-600	N-600	19,500
	N-601	15,000
	N-602	20,000
	N-603	17,000
	N-610	21,000
	N-611	22,000
	N-612	23,000
	N-613	23,000
	N-614	23,000
	N-615	24,000
	N-616	19,700
	N-617	20,000
	N-618	17,990
	C-600	C-600
C-601		15,000
C-610		21,000
C-611		22,000
C-612		23,000
C-613		23,000
C-614		23,000
C-615		19,700
LN-6000		R-600
	R-601	15,000
	R-610	21,000
	R-611	22,000
	R-612	23,000
	R-613	23,000
	R-614	23,000
	R-615	24,000
C-6000	D-600	20,000
	D-601	15,000
	D-610	21,000
	D-611	22,000
	D-612	23,000
	D-613	23,000
	D-614	23,000
	F-7000	K-700
K-701		17,000
K-702		23,000
K-703		24,000
K-704		25,500
K-705		23,000
K-706		23,000
K-707		25,500
K-708		27,500
K-709		27,500
LN-7000		R-700
	R-701	17,000
	R-702	23,000
	R-703	24,000
	R-704	25,500
	R-705	23,000
	R-706	23,000
	R-707	27,500
C-7000	D-700	24,000
	D-701	17,000
	D-702	25,500
	D-703	25,500
	D-704	25,500
	D-705	27,500

SERIES	MODEL CODE	GVW (lbs.)
F-700	F-700	22,000
	F-701	17,000
	F-702	23,000
	F-703	24,000
	F-704	25,500
	F-705	23,000
	F-706	23,000
	F-708	17,990
LN-700	N-700	22,000
	N-701	17,000
	N-702	23,000
	N-703	24,000
	N-704	25,500
	N-705	23,000
	N-706	23,000
	N-708	25,500
C-700	C-700	24,000
	C-701	17,000
	C-702	25,500
	C-703	25,500
	C-704	25,500
	C-705 <sup>Ⓢ</sup>	27,500
F-750	F-750	22,500
	F-751	17,000
	F-752	23,000
	F-753	24,000
	F-754	25,500
	F-755	23,000
	F-756	25,500
	F-757	23,000
	F-758	27,500
	F-759 <sup>Ⓢ</sup>	28,000
	F-760	27,500
LN-750	N-750	22,500
	N-751	17,000
	N-752	23,000
	N-753	24,000
	N-754	25,500
	N-755	23,000
	N-756	25,500
	N-757	23,000
	N-758	25,500
	N-759	25,500
N-760	27,500	
C-750	C-750	24,000
	C-751	17,000
	C-752	25,500
	C-753	25,500
	C-754	25,500
	C-755	27,500
	C-760	27,500
C-761 <sup>Ⓢ</sup>	33,000	
L-800	F-800	23,500
	F-801	20,000
	F-802	24,500
	F-803	25,500
	F-804	27,500
	F-805	29,000
	F-806	31,000
	F-809	31,000
LN-800	N-800	23,500
	N-801	20,000
	N-802	24,500
	N-803	25,500
	N-804	27,500
	N-805	29,000
	N-806	31,000
	N-807	33,000

SERIES	MODEL CODE	GVW (lbs.)
LN-800	N-808	34,000
	N-809	23,500
	N-810 <sup>Ⓢ</sup>	32,000
C-800	C-800	27,000
	C-801	20,000
	C-802	27,500
	C-803	27,500
	C-804	27,500
	C-805	27,500
C-806	27,500	
LT-800	T-800	37,000
	T-801	27,000
	T-802	39,000
	T-803	42,000
	T-804	43,000
	T-805	45,000
	T-806	46,000
	T-807	50,000
	T-808	43,000
	T-809	37,000
LTS-800	V-800	39,000
	V-801	27,000
	V-802	42,000
	V-803	43,000
	V-804	46,000
	V-805	50,000
	V-806	43,000
	V-808	39,000
LNT-800	S-800	37,000
	S-801	27,000
	S-802	39,000
	S-803	42,000
	S-804	43,000
	S-805	45,000
	S-806	46,000
	S-808	50,000
S-807	43,000	
S-809	37,000	
CT-800	L-800	43,000
	L-801	27,000
	L-802	39,000
	L-803	45,000
	L-805	41,000
L-8000	K-800	24,500
	K-801	20,000
	K-802	25,500
	K-803	27,500
	K-804	29,000
	K-805	31,000
	K-806	32,000
	K-807	34,000
	K-808	35,000
	K-809	31,000
K-810	25,500	
LN-8000	R-800	24,500
	R-801	20,000
	R-802	25,500
	R-803	27,500
	R-804	29,000
	R-805	31,000
	R-806	32,000
	R-807	34,000
	R-808	35,000
R-809	31,000	
C-8000	D-800	27,000
	D-801	20,000
	D-802	27,500
	D-803	27,500
	D-804	26,000
	D-805	24,000

Ⓢ Special Order.

TRUCK SERIES CODE, MODEL CODE, RECOMMENDED GROSS VEHICLE WEIGHT HEAVY AND EXTRA HEAVY TRUCK

SERIES	MODEL CODE	GVW (lbs.)
LT-8000	U-800	39,000
	U-801	27,000
	U-802	42,000
	U-803	43,000
	U-804	45,000
	U-805	46,000
	U-806	50,000
	U-807	50,000
	U-808	54,000
	U-809	60,000
	U-810	43,000
U-811	42,000	
LTS-8000	Y-800	39,000
	Y-801	27,000
	Y-802	42,000
	Y-803	43,000
	Y-804	46,000
	Y-805	50,000
	Y-806	50,000
	Y-807	52,000
	Y-808	54,000
	Y-809	56,000
	Y-810	56,000
	Y-811	58,000
	Y-812	60,000
	Y-813	62,000
	Y-814	64,000
	Y-815	43,000
	Y-816	42,000
Y-817	39,000	
LNT-8000	W-800	39,000
	W-801	27,000
	W-802	42,000
	W-803	43,000
	W-804	45,000
	W-805	46,000
	W-806	50,000
	W-807	50,000
	W-808	54,000
	W-809	43,000
W-810	42,000	
CT-8000 ①	Q-800	43,000
	Q-801	27,000
	Q-802	39,000
	Q-803	45,000
	Q-804	49,000
	Q-805	41,000
Q-806	51,000	
L-900	F-900	25,500
	F-901	24,000
	F-902	27,500
	F-903	29,000
	F-904	30,000
	F-905	31,000
	F-906	32,000
	F-907	33,000
	F-908	34,000
	F-909	35,000
	F-910	33,000
F-911	27,500	
LN-900	N-900	25,500
	N-901	24,000
	N-902	27,500
	N-903	29,000
	N-904	30,000
	N-905	31,000
	N-906	32,000
	N-907	33,000
	N-908	34,000
	N-909	35,000
	N-910	31,000
C-900	C-900	27,000
	C-901	20,000
	C-902	24,000
	C-903	26,000
	C-904	27,500
	C-905	30,000

SERIES	MODEL CODE	GVW (lbs.)	
C-900	C-906	31,000	
	C-907	32,000	
	C-908	32,000	
	C-909	33,000	
	C-910	34,000	
	C-911	34,000	
	C-912	36,000	
	C-913	31,000	
	LT-900	T-900	39,000
		T-901	27,000
		T-902	41,000
		T-903	42,000
		T-904	43,000
T-905		45,000	
T-906		46,000	
T-907		50,000	
T-908		50,000	
T-909		54,000	
T-910		56,000	
T-911		60,000	
T-912		43,000	
T-913	46,000		
LTS-900	V-900	39,000	
	V-901	27,000	
	V-902	42,000	
	V-903	43,000	
	V-904	46,000	
	V-905	50,000	
	V-906	50,000	
	V-907	52,000	
	V-908	54,000	
	V-909	56,000	
	V-910	56,000	
	V-911	58,000	
	V-912	60,000	
	V-913	62,000	
V-914	64,000		
V-915	42,000		
V-916	43,000		
V-917	39,000		
LNT-900	S-900	39,000	
	S-901	27,000	
	S-902	41,000	
	S-903	42,000	
	S-904	43,000	
	S-905	45,000	
	S-906	46,000	
	S-907	50,000	
	S-908	50,000	
	S-909	54,000	
	S-910	43,000	
	S-911	42,000	
S-912	39,000		
CT-900	L-900	39,000	
	L-901	27,000	
	L-902	30,000	
	L-903	41,000	
	L-904	43,000	
	L-905	45,000	
	L-906	47,000	
	L-907	49,000	
	L-908	49,000	
	L-909	51,000	
	L-910	39,000	
	L-911	43,000	
L-912	41,000		
L-9000	K-900	27,500	
	K-901	24,000	
	K-902	32,000	
	K-903	34,000	
	K-904	35,000	
	K-905	32,000	
K-906	34,000		
LN-9000	R-900	27,500	
	R-901	24,000	
	R-902	32,000	
	R-903	34,000	
	R-904	35,000	

SERIES	MODEL CODE	GVW (lbs.)
W-9000 ②	Z-900	32,000
	Z-901	26,000
	Z-902	34,000
	Z-903	36,000
LT-9000	U-900	43,000
	U-901	27,000
	U-902	45,000
	U-903	46,000
	U-904	50,000
	U-905	50,000
	U-906	54,000
	U-907	56,000
	U-908	60,000
	U-909	43,000
U-910	45,000	
LTS-9000	Y-900	43,000
	Y-901	27,000
	Y-902	46,000
	Y-903	50,000
	Y-904	50,000
	Y-905	52,000
	Y-906	54,000
	Y-907	56,000
	Y-908	56,000
	Y-909	58,000
	Y-910	60,000
	Y-911	62,000
	Y-912	64,000
	Y-913	43,000
	Y-914	46,000
Y-915	50,000	
LNT-9000	W-900	41,000
	W-901	27,000
	W-902	45,000
	W-903	46,000
	W-904	50,000
	W-905	50,000
	W-906	54,000
	W-907	43,000
	W-908	43,000
W-909	41,000	
WT-9000 ②	X-900	41,000
	X-901	32,000
	X-902	45,000
	X-903	49,000
B-700	B-700	20,500
	B-701	17,000
	B-702	21,000
	B-703	22,500
	B-704	23,000
	B-705	24,000
	B-706	25,500
	B-707	23,000
	B-708	23,000
B-709	22,000	
B-7000	J-700	20,500
	J-701	17,000
	J-703	22,500
	J-704	23,000
	J-705	24,000
	J-706	25,500
	J-707	23,000
	J-708	23,000
	J-709	22,000
B-750	B-750	22,500
	B-751	17,000
	B-752	23,000
	B-753	24,000
	B-754	25,500
	B-755	23,000
B-756	23,000	

① Special Order.

② Tractor model. GVW shown for registration purposes only.

<h1 style="margin: 0;">Wheels and Tires</h1>	<p><b>GROUP</b></p> <h1 style="margin: 0;">11</h1>
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<b>PART 11-01</b>	<b>Page</b>	<b>PART 11-11</b>	<b>Page</b>
General Wheel and Tire Service .....	11-01-01	Wheel Hubs and Bearings – Rear .....	11-11-01
<b>PART 11-02</b>		<b>PART 11-12</b>	
Wheels and Tires –		Wheel Hubs and Bearings–	
Drop Center Rim .....	11-02-01	Front Wheel Drive.....	11-12-01
<b>PART 11-03</b>		<b>PART 11-14</b>	
Wheels and Tires–		Wheel Hubs and Bearings–	
Two Piece Rims .....	11-03-01	Rear (Full Floating Axle) .....	11-14-01
<b>PART 11-04</b>			
Wheels and Tires–			
Three Piece Rims .....	11-04-01		
<b>PART 11-10</b>			
Wheel Hubs and Bearings – Front .....	11-10-01		

## PART 11-01 General Wheel and Tire Service

<b>This Information Applies To All Models</b>			
<b>COMPONENT INDEX</b>	<b>Page</b>	<b>COMPONENT INDEX</b>	<b>Page</b>
FRONT WHEEL BEARING		TIRE INSPECTION .....	01-04
Maintenance .....	01-04	WHEEL INSPECTION .....	01-04
STEMCO SEALS			
Description .....	01-01		

### 1 DESCRIPTION

#### STEMCO SEALS

When servicing wheel assemblies equipped with Stemco seals any special tools referred to can be obtained only through a Stemco Warehouse Distributor. Refer to Specifications at the end of this Part to determine tool requirements.

Stemco wheel seals are a Regular Production Option for 1971. They will be available for both front and rear wheel application on medium and heavy duty trucks, except on medium trucks equipped with 5000 or 5500 pound capacity axles. When used on the front wheels oil is used for lubrication, and just a coating of long life lubricant is required. Rear wheel bearings also use oil but **must be**

**packed** with long life lubricant (ESA-M1C75-B) before installation. Wheel bearing adjustment procedures are not changed. Sectional views of both front and rear seal installations are shown in Figs. 1, and 2. An exploded view of the Stemco front wheel hub and components is shown in Fig. 3. Reference to these illustrations should assure a satisfactory installation.

### Front Hub Seal Installation

Clean all parts before starting the installation.

1. Oil the spindle and push the axle ring flush against the axle face where applicable.

2. Remove all burrs from the wheel hub bore seal area and clean thoroughly.

3. Position the seal in the hub bore (Part Number Up).

Drive the seal into position using the correct tool. It must be perfectly square with the bore, and bottom evenly. Install the wheel and adjust the bearings as outlined in Part 11-10, Section 3. Install the Stemco hub cap. Remove the filler plug and add oil (ESW-M2C105-A SAE 90). Double

check the oil level before releasing the vehicle for service. Oil level must be between the oil level line on the hub cap and 1/4-inch above the line.

### Rear Hub Seal Installation

1. Thoroughly clean the axle spindle.

2. If the spindle shoulder is scored or pitted apply a thin coat of Permatex No. 2.

3. Position the axle ring and drive it into position flush with the inner bearing shoulder using the correct tool. Procedures vary with different applications. Refer to the instructions packed with each seal set.

4. Remove all burrs and protrusions from the oil seal area of the wheel hub.

5. Pack the inner bearing cone with M1C75-B and position it in the bearing cup.

6. Position the oil seal at the mouth of the bore and drive it squarely into position using the correct tool. The seal must be evenly bottomed.

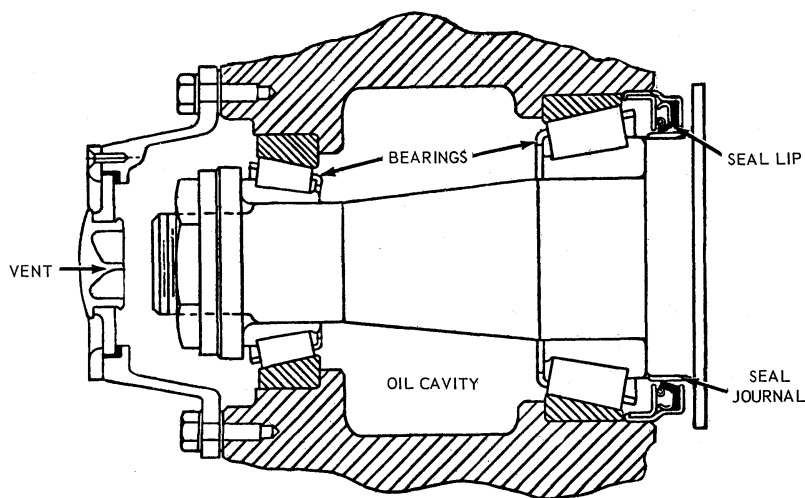
7. Take special care not to damage the oil seal while installing the wheel.

8. Fill the wheel cavity with oil before installing the outer bearing.

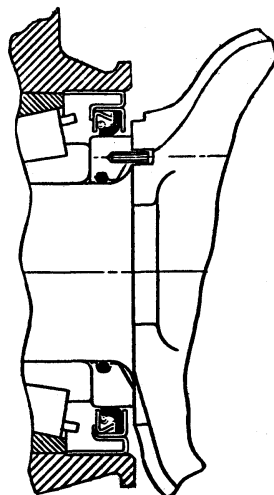
9. Pack the outer bearing with M1C75-B and install it and then adjust the bearings as outlined in Part 11-11, Section 3.

10. Inspect axle shaft gasket mating surfaces for nicks, burrs, and dirt; then install the axle shaft.

11. Check the rear axle lube level and add oil if required.



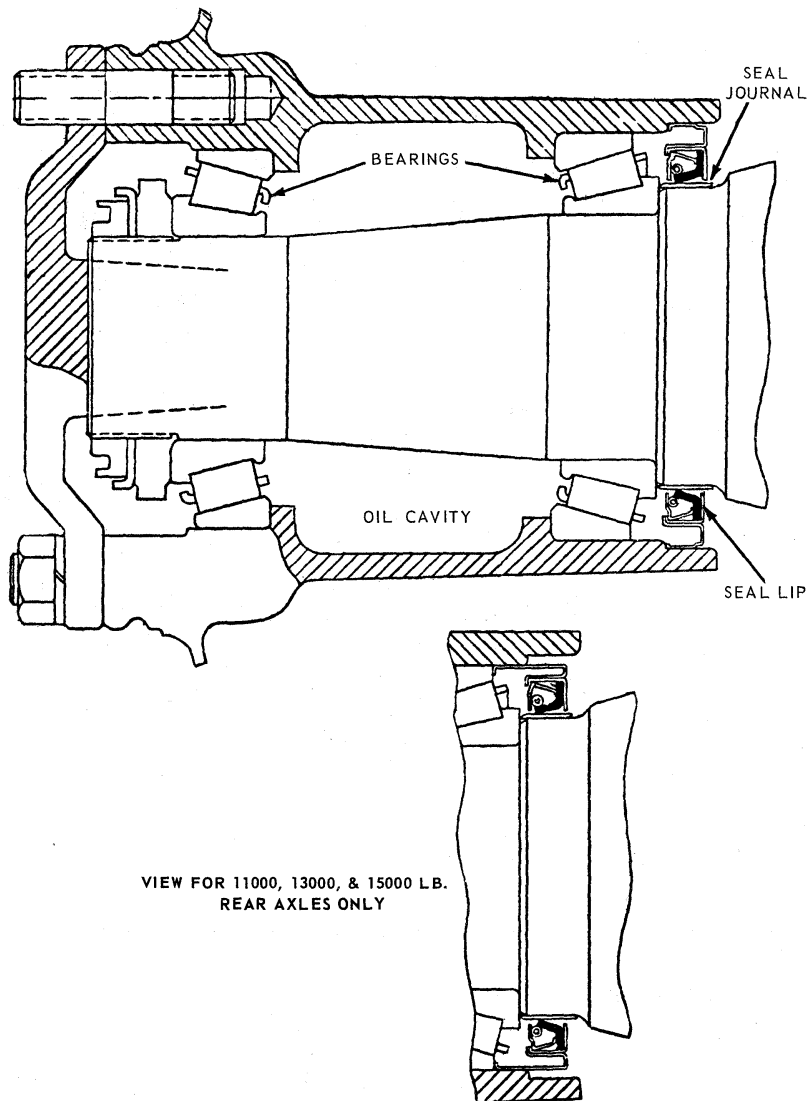
VIEW FOR 15000 LB.  
FRONT AXLE ONLY



E2124-A

FIG. 1 Front Seal Installation—Typical

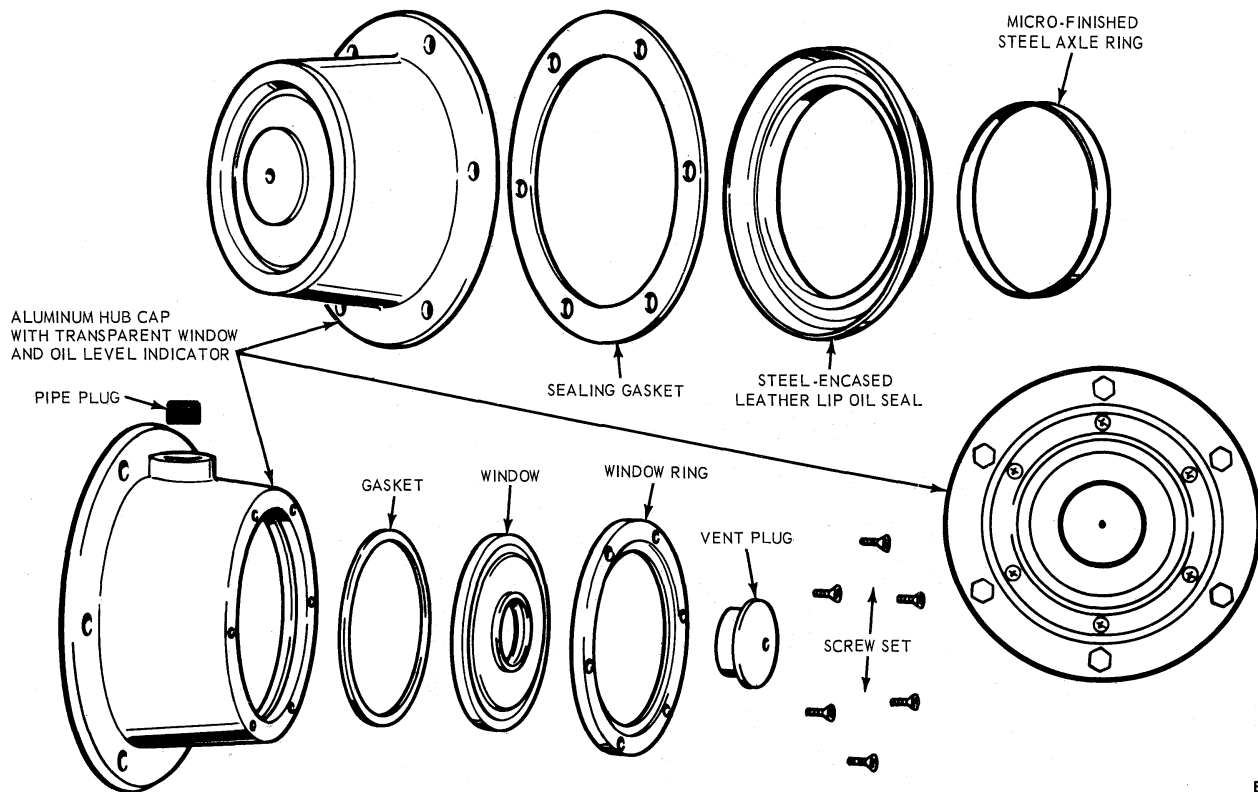




VIEW FOR 11000, 13000, & 15000 LB.  
REAR AXLES ONLY

E2125-A

FIG. 2 Rear Seal Installation



E2126-A

FIG. 3 Exploded View, Hub and Components

## 5 CLEANING AND INSPECTION

### WHEELS

Wheel stud nuts should be inspected and tightened in the first 500 miles, to avoid accidental loosening of the wheels. Loose wheel stud nuts may cause shimmy and vibration. Elongated stud holes in the wheels may also result from loose stud nuts.

**Keep the wheels and hubs clean.** Stones or lumps of mud wedged between the wheel and drum will unbalance a wheel and tire.

Check for damage that would affect the runout of the wheels. Wobble or shimmy caused by a damaged wheel will eventually damage the wheel bearings. Inspect the wheel rims for dents that could permit air to leak from the tires.

### TIRES

The tires should be checked frequently to be sure that the air pressures agree with those specified for the tires and vehicle model.

Inspect the tire treads, and remove all stones, nails, glass, or other objects that may be wedged in the tread. Check for holes or cuts that may permit air leakage from the tire, and make the necessary repairs.

Inspect the tire side walls for cuts, bruises, and other damage. If internal damage is suspected, demount the tire from the wheel for further inspection and repair or replacement.

Check the tire valve for air leaks, and replace the valve if necessary. Replace any missing valve caps.

On F-100, 250, 350 and Econoline models, it is important that the front tires and wheels be balanced.

Fig. 4 describes common tire wear conditions.

### FRONT WHEEL BEARINGS

Wheel bearings are adjustable to correct for bearing and spindle shoulder wear. Satisfactory operation and long life of bearings depend on proper adjustment and correct lubri-

cation. If bearings are adjusted too tightly, they will overheat and wear rapidly. An adjustment that is excessively loose will cause pounding and contribute to uneven tire wear, steering difficulties and inefficient brakes. The bearing adjustment should be checked at regular inspection intervals.

Front hubs and bearings should be cleaned, inspected and lubricated whenever the hubs are removed or at the mileage/time periods indicated in the maintenance schedule.

New hub grease seals should be installed when the hub is removed. An imperfect seal may permit bearing lubricant to reach the brake linings resulting in faulty brake operation and necessitating premature cleaning or replacement of linings.

Bearing adjustment is described in Part 11-10.



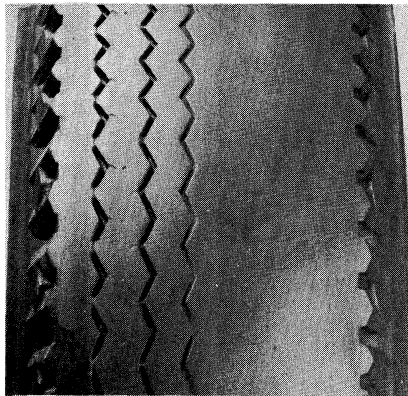
**UNDERINFLATION**



**OVERINFLATION**



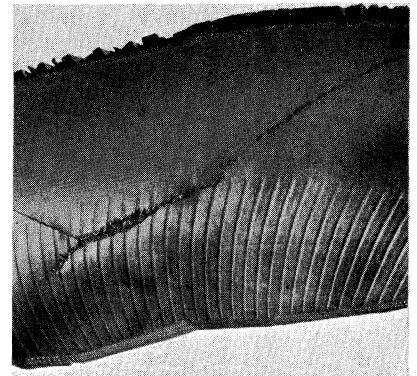
**CUPPING—UNDERINFLATION AND/OR MECHANICAL IRREGULARITIES**



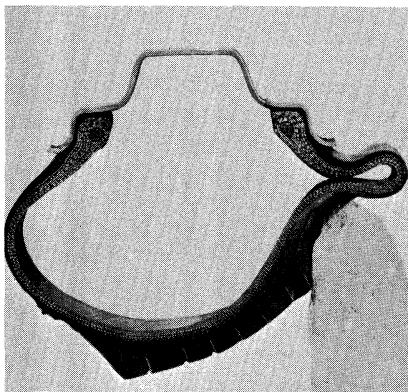
**INCORRECT TOE-IN OR EXTREME CAMBER**



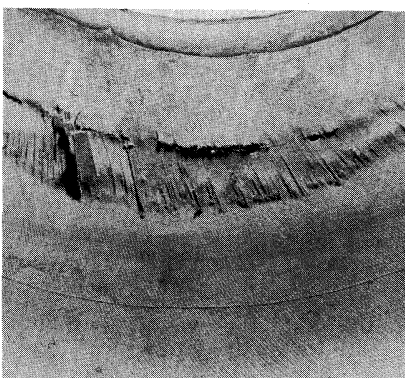
**FEATHERING DUE TO MISALIGNMENT OR SEVERE CORNERING**



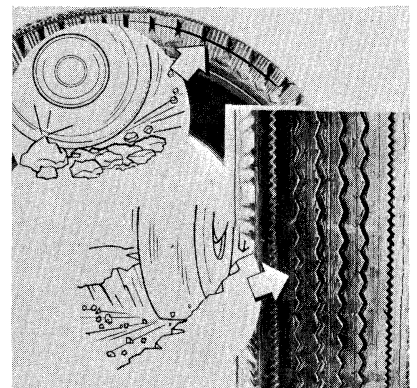
**STONE BRUISE**



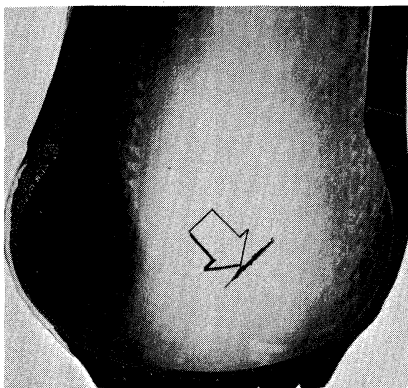
**STONE BRUISE**



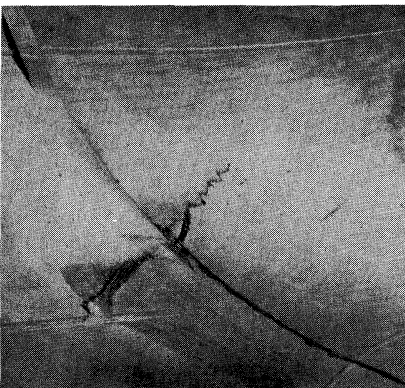
**UNDERINFLATION**



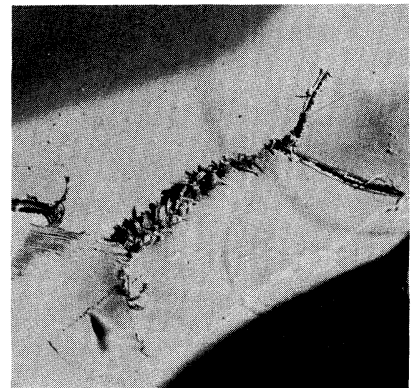
**ROCK CUT**



**BRUISE**



**HEAT BRUISE**



**DOUBLE BRUISE—SHARP OBJECT AND RESULTING FATIGUE**

F1467-C

**FIG. 4** Tire Wear Conditions

## 9 SPECIFICATIONS

SPECIAL SERVICE TOOLS ①						
Ford Seal Kit Part No.	Stemco Tool No.	Ford Seal Kit Part Name	Ford Seal Kit Part No.	Stemco Tool No.	Ford Seal Kit Part Name	
DOHZ-1175-A	5008-5308	Kit - Oil Seal Inner Rear Wheel	DOHZ-1190-A	5064-5351	Kit - Front Hub Grease Retainer and Wiper	
DOHZ-1175-B	5002-5011		DOHZ-1190-B	5061-5062 5066-5353		
DOHZ-1175-C	5074-5383		DOHZ-1190-C	5067-5398		
DOHZ-1175-D	5072-5397		DOHZ-1190-D	None-5386		
DOHZ-1175-E	5071-5391		DOHZ-1190-E	5007-5358		
DOHZ-1175-F	5076-5399					

① Kits on this page consist of one axle ring and one seal for just one wheel.

CF1803-A

# PART 11-02 Wheels and Tires Drop Center Rim

Applies To F-100-350, Bronco and Econoline			
COMPONENT INDEX	Page	COMPONENT INDEX	Page
FRONT WHEEL ASSEMBLY	02-01	REAR WHEEL ASSEMBLY	02-01
Description .....			
FRONT WHEEL ASSEMBLY 4-WHEEL DRIVE	02-01	WHEEL REPLACEMENT .....	02-02
Description .....			

## 1 DESCRIPTION

### FRONT WHEEL ASSEMBLY

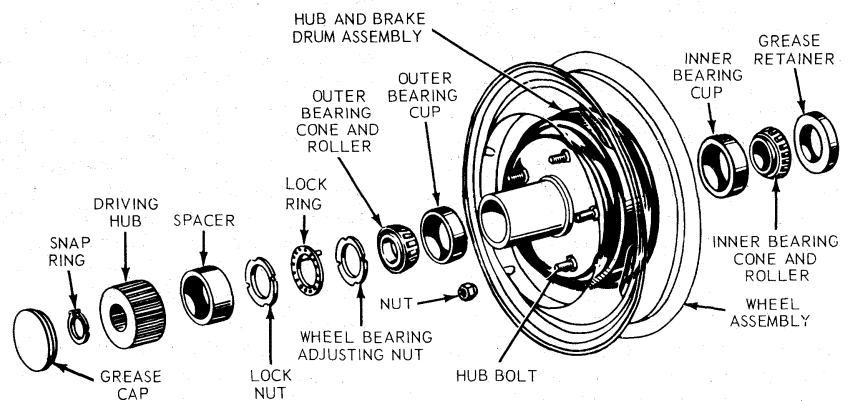
Each front wheel and tire assembly is bolted to its respective front hub and brake drum or rotor assembly. Two opposed tapered roller bearings are installed in each hub (Figs. 1 and 2). A grease retainer is installed at the inner end of the hub to prevent lubricant from leaking into the drum. The entire assembly is retained to its spindle by the lock nut and/or adjusting nut and cotter pin.

### FRONT WHEEL ASSEMBLY—4-WHEEL DRIVE

The front axles used on 4-wheel drive models are covered in Group 15, Parts 15-30, 15-31, 15-32 and 15-33 of this manual.

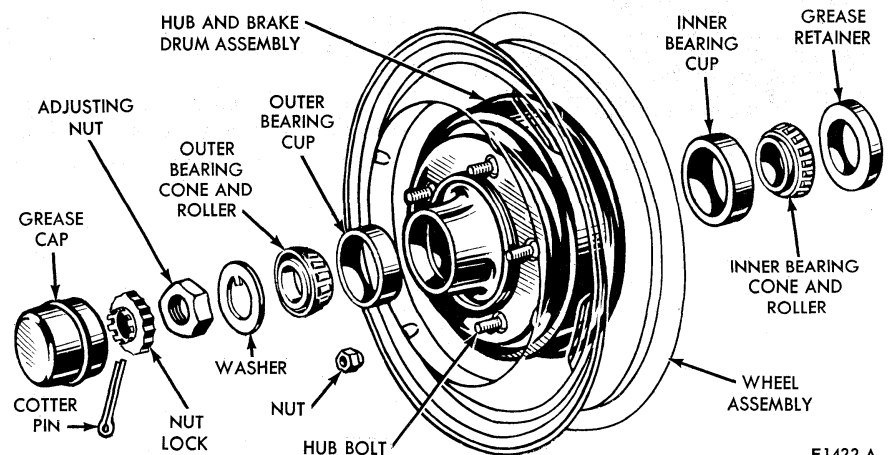
### REAR WHEEL ASSEMBLY

The rear wheel, hub, and drum assemblies are connected to the rear axle shaft flanges and ride on two opposed tapered roller bearings. The inner end of each axle shaft is splined to the engine powered differential.



F 1300-A

FIG. 2 Front Wheel and Hub Installation—4- Wheel Drive



F1422-A

FIG. 1 Front Hub, Bearings and Grease Retainer—F-100 Through F-350, Econoline



## 4 REMOVAL AND INSTALLATION

### WHEEL REPLACEMENT

#### Light Vehicles

##### Removal

1. Pry off the hub cap (if the vehicle is so equipped), and loosen but do not remove the wheel stud nuts.

2. Raise the truck until the wheel and tire clear the floor.

3. Remove the wheel stud nuts and the wheel and tire from the hub and drum.

##### Installation

1. Clean all dirt from the hub and drum. The replacement wheel and tire must be clean.

2. Position the wheel and tire on the hub and drum, and install the wheel stud nuts. For proper balance, line up the notch on the drum with the valve stem on the wheel. Tighten the stud nuts enough to hold the wheel firmly in place. **Always tighten alternate nuts to draw the wheel evenly against the hub and drum.**

On dual wheels, be sure to back off the outer nut before tightening the inner nut. Then tighten the outer nut. Some dual wheels have mounting bolt holes which are alternately flared inward and outward. These surfaces must be mated when the wheels are mounted.

3. Lower the vehicle to the floor, and tighten the wheel stud nuts to the specified torque. On a new vehicle, and each time a wheel and tire is installed, the wheel nuts should be checked for tightness. When installing

the hub cap, notice the wheel nubs. The hub cap should be positioned on the wheel over one of the retaining nubs and the two locating nubs. Be sure that the lip of the hub cap is firmly seated in the groove of the retaining nub, and then force the cap over the second retaining nub. **Any other procedure necessitates heavy pounding with possible damage to the hub cap.**

#### Medium Vehicles

##### Removal

1. Loosen but do not remove the wheel stud nuts.

2. Raise the vehicle until the wheel and tire clear the floor.

3. Remove the wheel stud nuts and the wheel and tire from the hub and drum.

##### Installation

1. Clean all dirt from the hub and drum. The replacement wheel and tire must be clean.

2. Position the wheel and tire on the hub and drum, and install the wheel stud nuts. For proper balance, line up the notch on the drum with the valve stem on the wheel. Tighten the stud nuts enough to hold the wheel firmly in place. **Always tighten alternate nuts to draw the wheel evenly against the hub and drum.**

On dual wheels, be sure to back off the outer nut before tightening the inner nut. Then tighten the outer nut.

3. Lower the truck to the floor, and tighten the wheel stud nuts to the specified torque. On new vehicles, and each time a wheel and tire is installed, the wheel nuts should be checked for tightness.

### TIRE REPLACEMENT PRECAUTIONS

The tire must be completely deflated before removal, and the bead must not be damaged by a tire iron.

After installation, a tube tire should be inflated to recommended pressure, deflated, and then inflated again to insure that the tube is not folded inside the tire. Be sure the tube flap is properly positioned before inflating the tire. **On F-100 and 250 series, it is important that each front tire and wheel be balanced.**

When installing tires on vehicles equipped with Safety Ledge rims, thoroughly lubricate the tire beads. Inflate the tire until the bead seats against the rim of the wheel, then deflate to the specified pressure.

### TIRE REMOVAL AND MOUNTING—DROP CENTER RIM

#### Removing Tire From Wheel

The drop center rim (Fig. 3) is used for either tube or tubeless tires.

1. After completely deflating the tire by removing the valve core, loosen the beads, and force them into the drop center of the rim.

2. Using a pair of tire irons, pry the wheel out of the tire.

#### Mounting Tire to Wheel

1. After inspection and cleaning of the tire and wheel, install the valve core in the inner tube and inflate the tube until it is barely rounded out.

2. Position the tube in the tire, soap the tire beads, and force the bottom bead into the drop center.

3. At a point on the wheel opposite the valve, insert a tire iron between the top bead and the rim, prying the bead over the rim.

4. Hold this iron in position, and with another iron, pry the bead into position all the way around the rim. **Do not use a hammer or mallet to force the beads over the rim.**

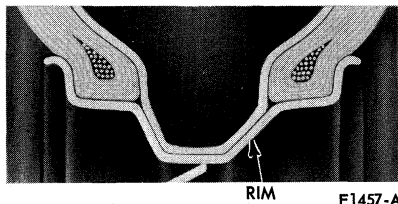


FIG. 3 Drop Center Rim

## 9 SPECIFICATIONS

**WHEEL TORQUE LIMITS - F-100 THRU F-350, ECONOLINE, BRONCO, P-SERIES**

Model	Nut Size	Ft-Lbs
E-100, E-200	1/2-20	90
F-100 (4 x 4), U-100 (Std. Wheel) P-100 F-250-250 (4 x 4) P-350-3500 (W-5200 lb. Axle)		70-115
E-300 (8-Stud Wheel)	9/16-18	135
F-350, P-350 P-3500, P-400, P-4000 (W/8-Stud Wheel and 7400 lb. Axle)		125-175

Model	Nut Size	Ft-Lbs
F-350, P-350, P-450, P-3500, P-4000 (W/Dual Wheels and 7400 lb Axle)	9/16-18	175-250
P-350, P-400, P-3500, P-4000 (W/17" Wheels)	5/8-18	175-250
P-500	3/4-16 or 1-1/8-16	400-500
Wheel Bearing Lock Rear (All)		100-150

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# PART 11-03 Wheels and Tires—Two Piece Rims

Applies To All 500-9000 Series Vehicles			
COMPONENT INDEX	Page	COMPONENT INDEX	Page
TIRE REMOVAL AND MOUNTING— Two-Piece Rims .....	03-01	TIRE REMOVAL AND MOUNTING— Two-Piece Semi-Drop Center Rims .....	03-02

## 1 DESCRIPTION

Two piece rims, non-demountable for disc wheels are used with tube-type tires only. These rims have a 5 degree tapered seat and are available in 5.0, 5.50, 6.0 and 6.5 rim sizes.

## 4 REMOVAL AND INSTALLATION

The tire must be completely deflated before removal, and the bead must not be damaged by a tire iron.

After installation, a tube tire should be inflated to recommended pressure, deflated, and then inflated again to insure that the tube is not folded inside the tire. Be sure the tube flap is properly positioned before inflating the tire.

### TIRE REMOVAL AND MOUNTING—TWO PIECE RIM

**Removing Tire From Wheel**  
To remove the rim ring (Fig. 1),

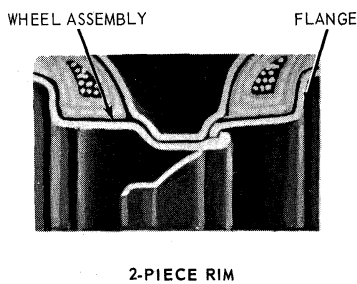


FIG. 1 2-Piece Rim Installation

from a rim without a tire, stand the wheel up so that the tool slot of the ring is at the top, and the lower portion of the ring is in the rim well. Insert the rim tool between the rim slot and the gutter of the rim, lift the ring over the gutter, and pry the ring off the rim (Fig. 2).

1. Place the wheel (ring side up) on the floor. Insert the hook end of the rim tool between the ring flange and the tire bead, and continuing around the ring, pry the tire off the tapered seat of the ring (Fig. 2).

2. Press the side of the ring opposite the double embossing down into the ring well. Insert the straight end of the rim tool into the notch between and below the double embossing (Fig. 4).

3. Force the tool downward to disengage the ring from the rim gutter. Work the tool around the rim, freeing the ring from the rim, and remove the ring.

4. Turn the wheel over and loosen the opposite tire bead from the rim by hammering the hook end of the rim tool between the rim flange and the tire bead. Pry the tire bead away from the taper, and remove the tire from the rim (Fig. 3).

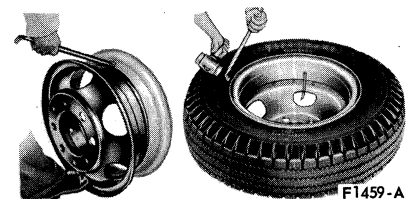


FIG. 2 Removing Ring and Loosening Tire Bead—2-Piece Rim

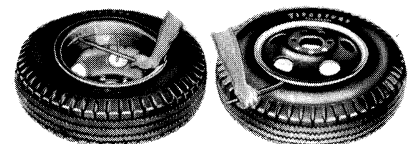


FIG. 3 Removing Ring and Removing Tire—2-Piece Rim

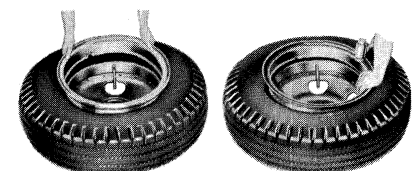


FIG. 4 Positioning and Starting Ring—2-Piece Rim

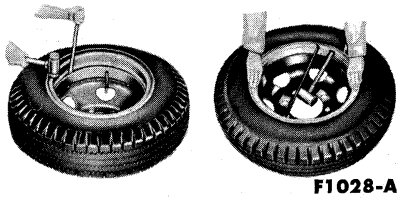


FIG. 5 Installing and Checking Ring—2-Piece Rim

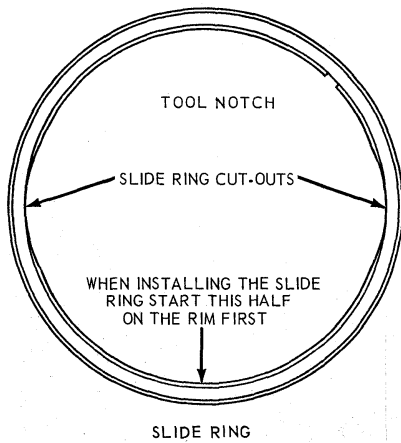


FIG. 6 2-Piece Wheel Rings

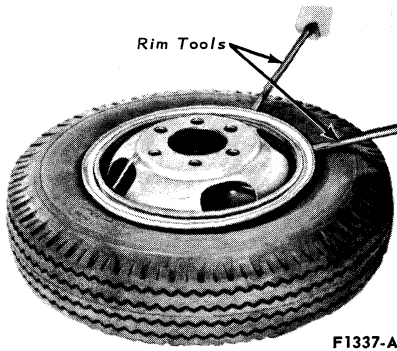


FIG. 7 Loosening Tire Bead

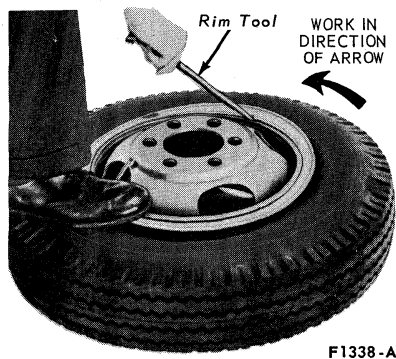


FIG. 8 Removing Slide Ring

**Mounting Tire to Wheel**

1. After positioning the tube in the tire, place the wheel (gutter side up) on the floor, soap both beads of the tire and position the tire on the rim.
2. Position the ring with the notch about 3 inches from the valve stem (Fig. 4). Hook the section opposite the notch under the gutter so that the cut-away portions of the ring retaining bead span the rim gutter (Fig. 4).

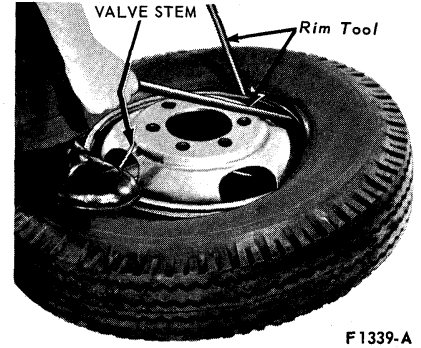


FIG. 9 Removing Tire Upper Bead

move if it is loose and rotates easily in the rim gutter.

2. Locate the tool notch in the side ring and insert a rim tool or a long husky screw driver in the notch. Pry up with the tool making sure the opposite side of the slide ring is fitting into the rim gutter (Fig. 8). On vehicles with a split side ring, locate the tool notch and follow the instructions outlined above for the slide ring. **Do not bend the ring.**

3. Insert a second tool under the slide ring and work in a counter-clockwise direction from the tool notch to disengage the ring from the wheel. With the split side ring, pry off the ring with a rim tool.

4. When the tools reach the slide ring cutout, the ring will usually spring off. If necessary, a light tap with a mallet will free the last half of the ring after both cutouts are visible.

5. Force the tire upper bead into the valve slot. Then, pry the opposite portion of the bead over the edge of the rim with tire tools (Fig. 9).

6. Turn the wheel and tire over.

7. With one portion of the bead in the rim well, pry the opposite portion of the bead over the edge of the rim (Fig. 10) and remove the tire from the rim.

**TIRE REMOVAL AND MOUNTING—TWO-PIECE SEMI-DROP CENTER RIM**

The two-piece wheel uses a continuous slide ring which has two cut-outs directly opposite each other and a single tool notch located approximately 45 degrees from one cutout (Fig. 6). The cutouts enable the continuous slide ring to be installed on the rim without deforming either the ring or the rim.

**Removing Tire From Wheel**

1. To remove the ring, be sure the tire is completely deflated and both beads are broken free from the rim (Fig. 7). The slide ring is ready to re

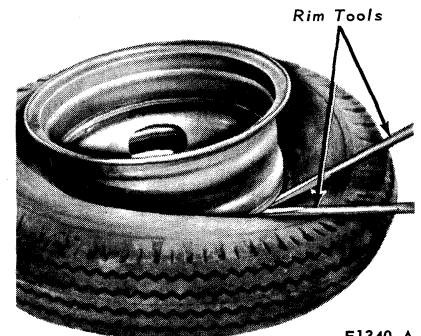


FIG. 10 Removing Tire From Rim

### Mounting Tire to Wheel

1. Place the tire and tube on the rim so that the valve stem is in line with valve hole. Insert the valve stem through the valve hole.

2. Force the first (lower) bead of the tire down into the well of the rim just to the side of the valve (Fig. 11). Mount the first bead over the rim gutter with a rim tool, progressing from each side of the valve to a point opposite the valve.

3. Starting at a point opposite the valve, press the tire bead over the rim gutter and into the well with foot pressure. Mount the remainder of the bead over the rim gutter with a tire tool, being careful not to pinch the tube (Fig. 12).

4. Start the slide ring half opposite the tool notch in the rim gutter,

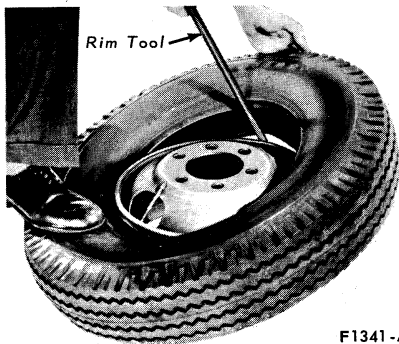


FIG. 11 Installing Tire First Bead on Wheel

making sure that the flat ring surface is facing the tire. On split side ring vehicles, position the ring on the wheel rim gutter starting at the split.

5. Push until the slide ring is half on and the crescent shaped cutouts in the slide ring straddle the rim gutter. With the split side ring, walk the ring into place, then tap with a plastic or rubber mallet until the ring is properly seated in gutter.

6. Insert a rim tool or large screw driver in the tool notch and pull the ring on and down toward the rim gutter (Fig. 13).

7. While pulling on the rim tool or screwdriver, strike the slide ring a sharp blow with a mallet in the area A between the tool notch and the nearest cutout. The second half of the ring will now be started over the rim gutter.

8. Remove the rim tool and continue the mallet blows (Fig. 13), starting at the tool notch and progress counterclockwise until the entire ring is in the rim gutter. The ring will turn easily on the rim after it is fully assembled.

9. When the slide ring is completely seated on the wheel, inflate the tire. The tire should be inflated in a safety cage or with the use of a clip-on type air chuck so that the operator can stand aside during inflation. Do not stand in front of the slide ring while inflating the tire.

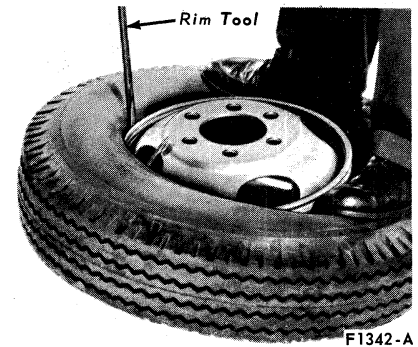


FIG. 12 Installing Tire Second Bead on Wheel

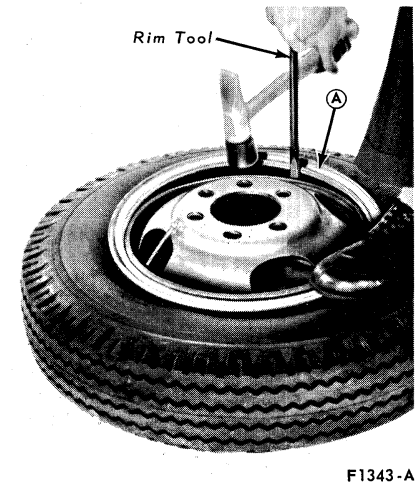


FIG. 13 Installing Slide Ring

# PART 11-04 Wheels and Tires—Three Piece Rims

Applies To All 500-9000 Series Vehicles					
COMPONENT INDEX		Page	COMPONENT INDEX		Page
TIRE REMOVAL AND MOUNTING—			TIRE REMOVAL AND MOUNTING—		
Three Piece Rims .....		04-01	Cast Spoke Wheels .....		04-02

## 1 DESCRIPTION

Three piece rims are non-demountable for disc wheels or demountable for cast spoke wheels. Fig. 1, shows a dual wheel sectional view.

Demountable rims for cast-spoke wheels are secured by a land at the back edge of each spoke, and a lug retained by a stud and nut at the outer edge of each of spoke.

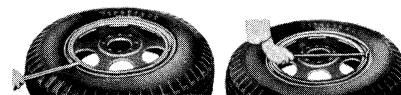
## 4 REMOVAL AND INSTALLATION

The tire must be completely deflated before removal, and the bead must not be damaged by a tire iron.

After installation, a tube tire should be inflated to recommended pressure, deflated, and then inflated again to insure that the tube is not folded inside the tire. Be sure the tube flap is properly positioned before inflating the tire.

### TIRE REMOVAL AND MOUNTING—THREE-PIECE RIM

Tire mounting procedures are the same for disc wheels and for cast wheels equipped with the three-piece rims, except that cast spoke wheels require special final centering and runout adjustment.



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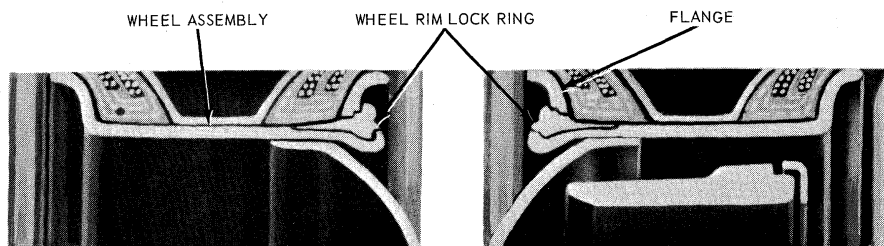
FIG. 2 Loosening Tire Bead and Locking Ring—3-Ring Rim

#### Removing Tire From Wheel

1. Place the wheel and deflated tire on the floor, with the ring up. Insert the straight end of the rim tool in the depression in the locking ring, and loosen the tire bead by pressing down on the side ring (Fig. 2).

2. Insert the straight end of the rim tool in the notch provided in the locking ring, and pry the locking ring out of the gutter (Fig. 2). Lift out the locking ring, and remove the slide ring (Fig. 3).

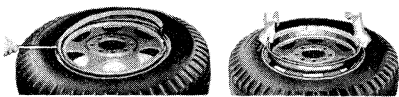
3. Turn the wheel over and loosen the tire bead from the rim by hammering the hooked end of the rim tool between the rim flange and the



3-PIECE RIM, DUAL WHEELS

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FIG. 1 Three Piece Rim—Dual Wheel Sectional View



F1462-A

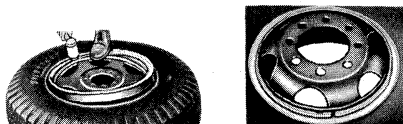
FIG. 3 Removing Locking Ring and Positioning Locking Ring—3-Piece Rim

tire bead. Pry the tire bead away from the taper all the way around the rim until the tire is free. Remove the tire.

#### Mounting Tire to Wheel

1. Position the wheel (gutter side up) on the floor. Soap both beads of the tire and position the tire on the rim.

2. Position the solid side ring on the tire, and insert the tapered toe of the split locking ring between the rim and the side ring (Fig. 3).



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FIG. 4 Starting Locking Ring and Locking Ring Installed—3-Piece Rim

3. Using a soft hammer, drive the locking ring into place (Fig. 4). Start at one end of the split ring and progressively drive the ring into the gutter until the entire ring is seated (Fig. 17). The ring must be entirely seated around the entire circumference of the rim. The split ends must be engaged in the gutter, or the ring will be forced off violently during inflation or when the truck is driven. When inflating the tire do not stand in front of the ring.

### TIRE REMOVAL AND MOUNTING—CAST SPOKE WHEELS

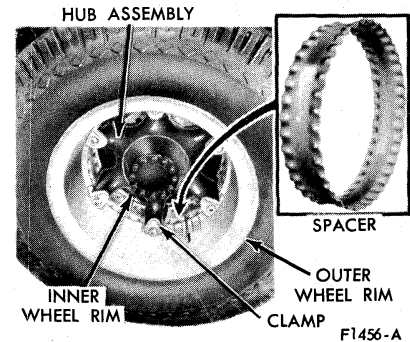
#### Removal

1. To remove the rim and tire from a cast wheel, apply the parking brake, and block at least one wheel. Raise the vehicle and remove the rim clamps.

2. With dual rear wheels, lift off the outer rim and tire, remove the spacer rim, and the inside rim and tire assembly.

#### Installation

1. To install the tire and rim on a dual wheel, place the inner tire and rim on the wheel hub. The rim must ride high enough up on the tapered retainer flange of the inner section of the wheel to prevent the assembly from sliding down on the tapered surface.



F1456-A

FIG. 5 3-Piece Rim Installed on Cast Wheel

2. Position the spacer between the inner and outer rim.

3. Place the outer rim and tire assembly on the wheel, and install the 6 clamps (Fig. 5). First, draw up the top clamp tightly so that the spacer will push the inner rim up on the tapered surface of the inner section of the wheel, and then tighten the bottom clamp. This procedure tends to center the rim on the wheel.

4. Tighten the remaining clamps alternately and evenly, and torque all wheel nuts to specification. Lateral or side run-out should not exceed 1/8-inch for front rims and 1/4-inch for dual rear rims, checked at the outer bead surface of the wheel.

# PART 11-10 Wheels, Hubs and Bearings— Front (Except Front Drive)

Applies To All Vehicles					
COMPONENT INDEX		Page	COMPONENT INDEX		Page
FRONT WHEEL ASSEMBLY			FRONT WHEEL GREASE		
Description .....		10-01	SEAL AND BEARING		
FRONT WHEEL BEARING			Removal and Installation .....		10-02
Adjustment .....		10-01	Repacking .....		10-02

## 1 DESCRIPTION

### FRONT WHEEL ASSEMBLY

Each front wheel and tire assembly is bolted to its respective front hub and brake drum or rotor assembly. Two opposed tapered roller bearings are installed in each hub (Fig. 1, Part 11-02 and Figs. 3 and 4 of this Part).

A grease retainer is installed at the inner end of the hub to prevent lubricant from leaking into the drum. The entire assembly is retained to its spindle by the locknut and/or adjusting nut and cotter pin, or an adjusting nut, lock nut combination (Figs. 3 and 4).

## 3 ADJUSTMENTS

### FRONT WHEEL BEARING ADJUSTMENT

To check the wheel bearing adjustment, raise the front of the vehicle, grasp the tire at the sides, and alternately push inward and pull outward on the tire. If any looseness is felt, adjust the front wheel bearings.

#### F-100, 250, 350, Econoline

1. Remove the hub cap and remove the grease cap from the hub.
2. Wipe any excess grease from the end of the spindle and remove the cotter pin and nut lock.
3. While rotating the wheel, torque the adjusting nut (Fig. 1, Part 11-02) to 17-25 ft-lb to seat the bearings.
4. Install the nut lock so that the cotter pin hole in the spindle is aligned with a slot in the nut lock.

5. Back off the adjusting nut and nut lock two slots of the nut lock and install the cotter pin.

6. Check the front wheel rotation. If the wheel rotates freely with no noticeable end play, install the grease cap. If the wheel is still loose, or it rotates roughly or noisily, the bearing cones and rollers and the cups are dirty or worn and should be cleaned or replaced.

7. Install the hub cap.

#### P-350 thru 500

1. Remove the hub cap, if so equipped, and remove the grease cap from the hub.
2. Remove any excess grease from the end of the spindle and remove the adjusting nut cotter pin.
3. While rotating the wheel, torque the adjusting nut (See Fig. 4, Section 5) to 40-55 ft-lbs to seat the bearings.

4. Back off the adjusting nut to the next castellation if necessary to align the nut with the cotter pin hole. Then, back off the adjusting nut two castellations and install the cotter pin.

5. Check the front wheel rotation. If the wheel rotates freely with no noticeable end play, install the grease cap. If the wheel is still loose, or it rotates roughly or noisily, the bearing cones and rollers and the cups are dirty or worn and should be cleaned or replaced.

6. Install the hub cap, if used.

#### All Medium, Heavy and Extra Heavy Trucks

#### Single Nut with Cotter Pin (5000-7000 Pound Front Axles)

1. While rotating the wheel, torque the adjusting nut to 70-100 ft-lb to seat the bearings.



2. Back off the adjusting nut 180 degrees (one half turn).

3. Hand tighten the adjusting nut finger tight (13-17 in-lb) while moving the top part of the tire in and out.

4. If the cotter pin hole lines up with a castellation in the nut, insert and secure a new cotter pin. If they do not line up, back off the adjusting nut to align a castellation with the first available cotter pin hole. Final bearing adjustment must provide .001-.010 inch end play.

5. Install the gasket and grease cap and adjust the brakes. **The final adjustment must not result in a preloaded bearing.**

#### Double Nut with Lock Ring (15000 Pound Front Axle)

1. While rotating the wheel in both directions, torque the adjusting nut to 100-125 ft-lbs to seat the bearings.

2. Back off the adjusting nut one complete turn (See Fig. 4, Section 5).

3. Again while rotating the wheel in both directions, retorquer the adjusting nut to 40-55 ft-lb.

4. Back off the adjusting nut to obtain an initial .004 and .010 inch end play between the wheel hub and spindle.

5. Install the lock ring.

6. Install the washer with the dimple indexed in one of the holes in the locking ring.

7. Install the lock nut and torque to 100-125 ft-lb.

8. Recheck the end play (Final limit .001 to .010 inch). Re-adjust if necessary.

9. Bend the washer outward to lock the nut in position.

10. Install the gasket and grease cap and adjust the brakes. **The final adjustment must not result in a preloaded bearing.**

#### Double Nut with Double Washer (12000 Pound Center Point Axle)

1. While rotating the wheel in both directions, torque the adjusting nut to 100-125 ft-lb to seat the bearings.

2. Back off the adjusting nut one complete turn (See Fig. 4, Section 5).

3. Again while rotating the wheel in both directions, retorquer the adjusting nut to 40-55 ft-lb.

4. Back off the adjusting nut to obtain an initial .004 to .010 inch end play between the hub and spindle.

5. Install the outer washer and lock nut and torque to 100-125 ft-lb.

6. Recheck the end play (final limit .001 to .010 inch). Re-adjust if necessary.

7. Install the gasket and grease cap and adjust the brakes. **The final adjustment must not result in a preloaded bearing.**

#### Single Nut with Cotter Pin (16000, 18000 and 20000 Pound Front Axle)

1. While rotating the wheel in both directions, torque the adjusting nut to 100-125 ft-lb to seat the bearings.

2. Back off the adjusting nut one complete turn (See Fig. 4, Section 5).

3. Again while rotating the wheel in both directions, retorquer the adjusting nut to 40-55 ft-lb.

4. Back off the adjusting nut if necessary to align the nut castellations with the first available cotter pin hole.

5. Using the same cotter pin hole as a reference point, back off the adjusting nut one additional castellation to allow the wheel to rotate freely within the limits of .001 to .010 inch end play.

6. Insert and secure the cotter pin.

7. Install the gasket and grease cap and adjust the brakes. **The final adjustment must not result in a preloaded bearing.**

#### Double Nut with Lock Ring (9000 and 12000 Pound Front Axle)

1. While rotating the wheel in both directions, torque the adjusting nut to 100-125 ft-lb to seat the bearing.

2. Back off the adjusting nut one complete turn.

3. Again while rotating the wheel in both directions, retorquer the adjusting nut to 40-55 ft-lb.

4. Back off the adjusting nut to obtain an initial .004 to .010 inch end play between the wheel hub and spindle.

5. Install the lock ring making sure the adjusting nut dowel is inserted into the lock ring.

6. Install the outer washer and lock nut. Torque to 100-150 ft-lb.

7. Recheck the end play (final limit .001 to .010 inch). Re-adjust if necessary.

8. Bend the washer outward to lock the outer nut in position.

9. Install the gasket and grease cap and adjust the brakes. **The final adjustment must not result in a preloaded bearing.**

## 5 DISASSEMBLY AND ASSEMBLY

### FRONT WHEEL GREASE SEAL AND BEARING REMOVAL AND INSTALLATION AND/OR REPACKING

Wheel bearing lubricant has been changed from sodium base grease to lithium base grease.

Sodium base grease is not compatible with lithium base grease and should not be intermixed. Therefore, do not lubricate front and/or rear wheel bearings without first ascertaining the type of original wheel bearing lubricant. Usage of incompatible bearing lubricants could result in premature lubricant breakdown.

If bearing adjustment will not eliminate looseness or rough and noisy operation, the hub and bearings should be cleaned, inspected, and repacked with specified wheel grease. If the bearing cups or the cone and roller assemblies are worn or damaged, they should be replaced.

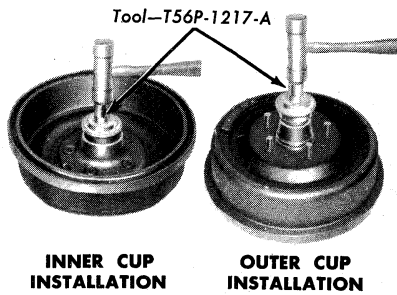
#### Light Vehicle

1. Raise the vehicle until the wheel and tire clear the floor and remove the wheel and tire from the hub. If the drums will not remove easily, back off the brake shoe adjusting screw so that the shoes do not contact the brake drum. Remove the grease cap from the hub.

2. Remove the cotter pin, nut lock, adjusting nut and washer from the spindle (Fig. 1, Part 11-02).

3. Remove the outer bearing cone and roller. Pull the hub and drum assembly off the wheel spindle. Then, remove and discard the grease retainer and the inner bearing cone and roller from the hub. **Remove all traces of old lubricant from bearings, hubs, and axle spindle.**

4. Inspect the cups for scratches, pits or cracks. If the cups are worn or damaged, remove them with a drift. Clean the inner and outer bearing cones and rollers with solvent and dry them thoroughly. **Do not spin the bearings dry with compressed air.**



F1464-A

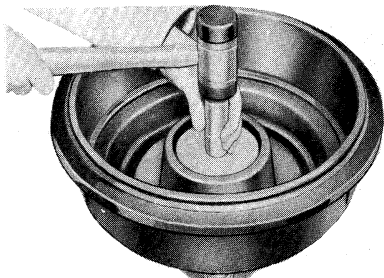
FIG. 1 Installing Bearing Cups

5. Inspect the cones and rollers for cracks, nicks, brinelling, or seized rollers. Inspect the grease retainer and replace it if it is cracked, nicked, or dented. If the new grease retainer is leather, soak it in light engine oil for about 30 minutes before installation.

6. Cover the spindle with a clean cloth and brush all loose dust and dirt from the brake assembly. **Remove the cloth from the spindle carefully to prevent dirt from falling on the spindle.**

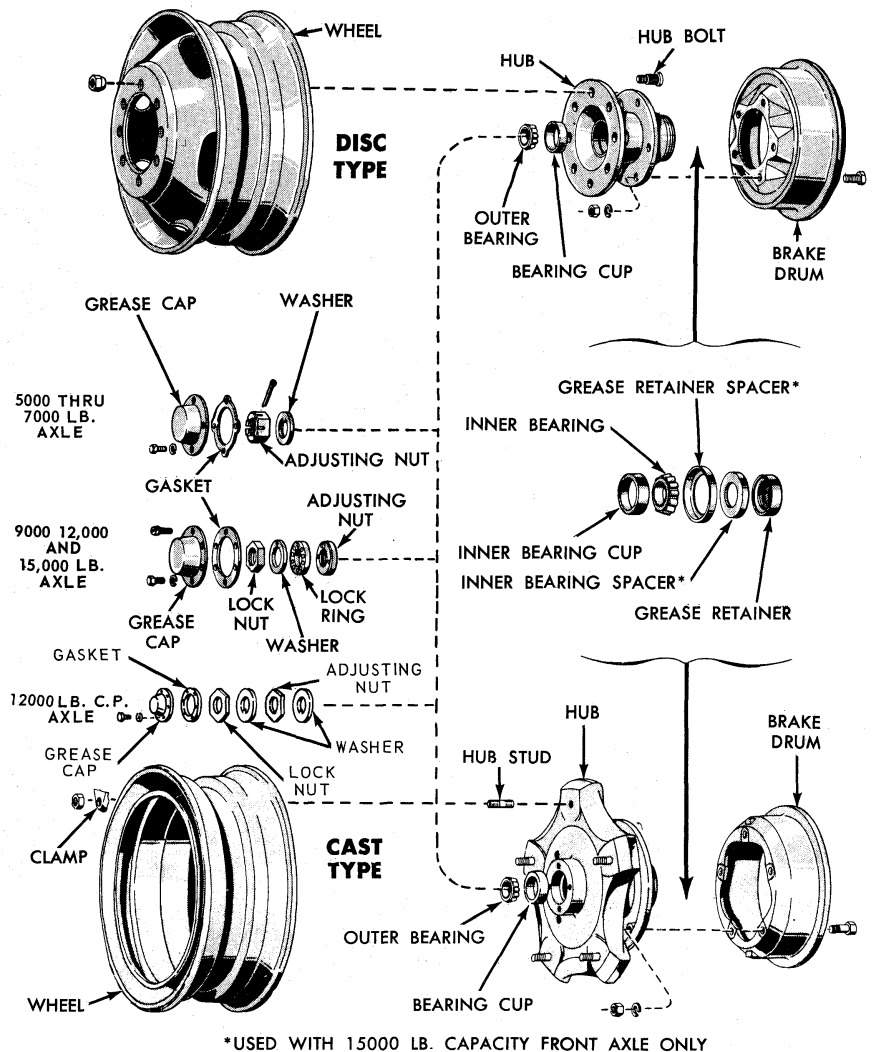
7. Install the inner and outer bearing cups in the hub with the appropriate installing tool (Fig. 1). Be sure to seat the cups properly in the hub. The cups will be properly seated when they are fully bottomed. Pack the inside of the hub with CIAZ-19590-B wheel bearing grease. Fill the hub until the grease is flush with the inside diameters of both bearing cups. Pack the bearing cones and rollers with wheel bearing grease. Use a bearing packer for this operation. If a packer is not available, work as much lubricant as possible between the rollers and cages. Lubricate the cone surfaces with grease.

8. Place the inner bearing cone and roller in the inner cup and install the grease retainer (Fig. 2) with the appropriate driving tool. Be sure that



F1465-A

FIG. 2 Installing Grease Retainer



F1466-B

FIG. 3 Typical Front Hubs and Bearings

the retainer is fully bottomed. Install the hub and drum on the wheel spindle. **Keep the hub centered on the spindle to prevent damage to the grease retainer or the spindle threads.**

9. Install the outer bearing cone and roller and the flat washer on the spindle, then install the adjusting nut.

10. Adjust the wheel bearing as outlined in Section 3.

**Medium, Heavy and Extra Heavy Vehicles**

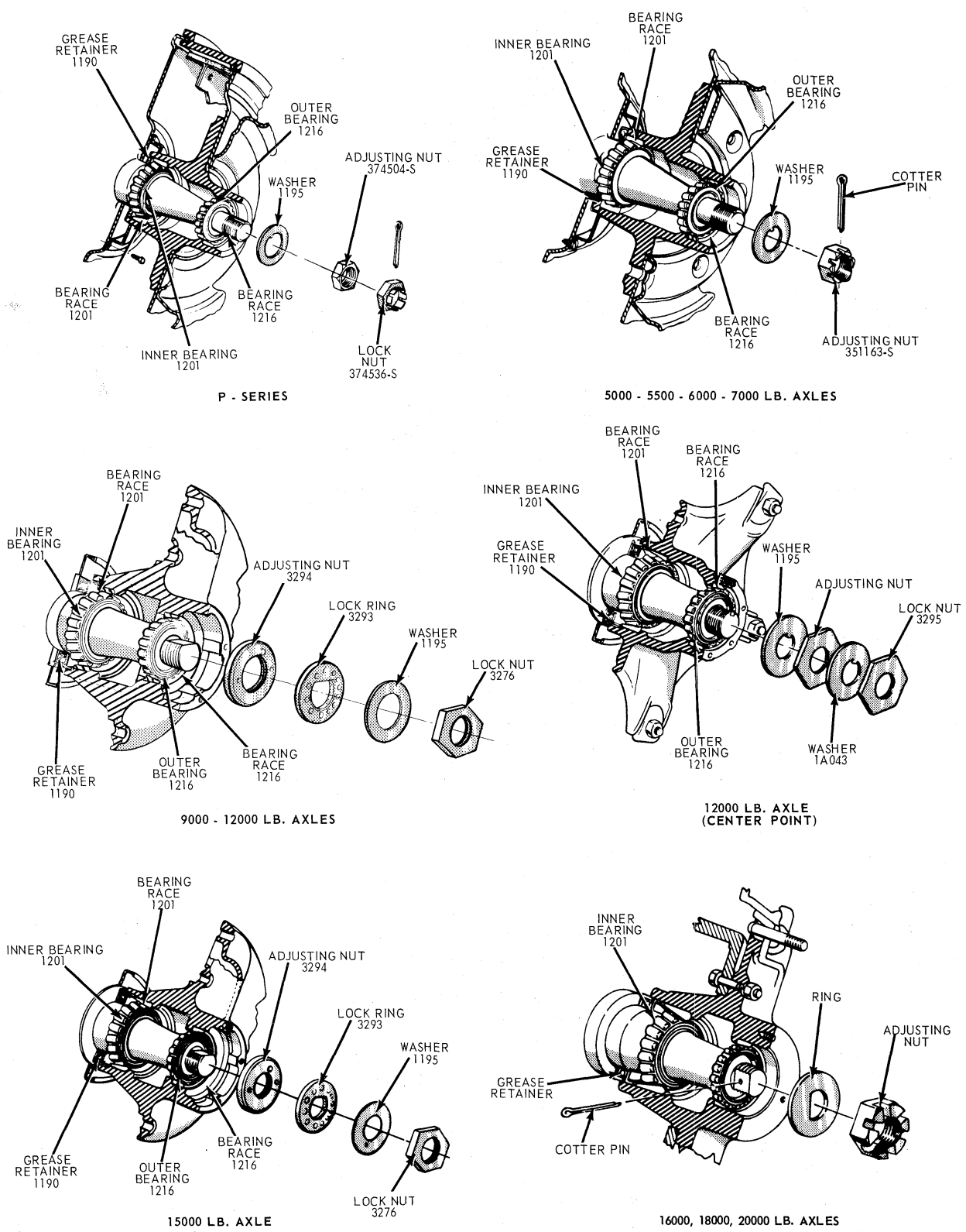
There are two basic types of hub, disc and cast, shown in Fig. 3. The basic design of the hub bearings is the same in all hubs, but minor differences in size exist between the various models. The outer bearing attaching parts differ according to front axle weight capacity as indicated in Fig. 3.

For vehicles equipped with Stemco Seals refer to Part 11-01. For further detailed views of hubs, bearings and grease retainers See Fig. 4.

1. Raise the vehicle until the tires clear the floor and install safety stands to support the front axle. Remove the grease cap and gasket from the hub.

2. To check the wheel bearing adjustment, alternately push inward and outward on the tire. If any excessive looseness is felt or there is no end play, adjustment of the front wheel bearings is necessary.

3. With 5000, 5500, 6000, 7000, 16000, 18000 or 20000 pound capacity front axles, remove the cotter pin, adjusting nut and flat washer on the spindle. With 9000, 12000 or 15000 pound capacity front axles, remove the lock nut, washer, locking ring and the



F1474-C

FIG. 4 Front Hubs, Bearings and Grease Retainers

adjusting nut and pin. With a 12000 pound capacity center point front axle, remove the lock nut, inner washer, adjusting nut and outer washer.

4. Inspect the condition of the spindle and nut threads to insure a free running nut when reassembling.

5. Remove the outer bearing cone and roller. Pull the hub and drum assembly off the spindle. Remove the inner bearing and seal using a brass drift. **Be careful not to damage the bearing cage.**

6. Remove all traces of old lubricant from the bearings, hubs and axle spindle. Inspect the cups for pitting, galling or unusual wear. If either cup is worn or damaged, remove it with a brass drift. Clean the inner and outer bearing cones and rollers with solvent and dry them thoroughly. **Do not spin the bearings dry with compressed air.**

7. Inspect the cones and rollers for pitting, galling or unusual wear. Particularly inspect the rollers for end wear and flat or rough spots. Replace all worn or damaged assemblies. It is recommended that the cone and roller

assemblies and cups be replaced in sets.

8. Replace the grease retainer.

9. Cover the spindle with a clean cloth and brush all loose dust and dirt from the brake assembly. Remove the cloth from the spindle carefully to prevent dirt falling on the spindle.

10. Install the inner and outer bearing cups in the hub with the appropriate tool (Fig. 1). Check for proper seating of the new bearing cups by trying to insert a 0.0015 inch feeler gauge between the cup and wheel hub. The feeler gauge should not enter.

11. Pack the inside of the hub with Lithium base wheel bearing grease (CIAZ-19590-B). Fill the hub until the grease is flush with the inside diameters of both bearing cups. Pack the bearing cones and rollers with wheel bearing grease. Use a bearing packer for this operation. If a packer is not available, work as much lubricant as possible between the rollers and cages. Lubricate the cone surfaces with grease.

12. Place the inner bearing cone and roller in the inner cup and install

the grease retainer with the appropriate tool. Be sure the retainer is fully bottomed. On all synthetic type seals, coat the seal lips with wheel bearing grease (CIAZ-19590-B) before installing the hub and drum. On seals which are not coated on the OD with sealer by the supplier, coat the grease seal bore in the hub with a thin coat of non-hardening sealer prior to installing the grease seal.

13. Install the hub and drum on the wheel spindle. **Keep the hub centered on the spindle to prevent damage to the grease retainer or the spindle threads.**

14. With 5000, 5500, 6000, 7000, 16000, 18000 or 20000 pound capacity front axles, install the outer bearing cone and roller and the flat washer on the spindle. Then, install the adjusting nut. With 9000, 12000 and 15000 pound capacity front axles, install the outer bearing cone and roller and the bearing adjusting nut. With a 12000 pound capacity center point front axle, install the washer and adjusting nut. Make the final bearing adjustment, Section 3.

## 9 SPECIFICATIONS

WHEEL TORQUE LIMITS – F-100 THRU F-350, ECONOLINE, BRONCO, P-SERIES

Model	Nut Size	Ft-Lbs
E-100, E-200	1/2-20	90
F-100 (4 x 4), U-100 (Std. Wheel) F-250-250 (4 x 4) P-350-3500 (W-5200 lb. Axle)		70-115
E-300 (Std. Wheel)		125-175
F-350, P-350	9/16-18	
F-350, P-350, P-450 P-3500, P-4000 (W/Dual Wheels and 7400 lb. Axle)	9/16-18	175-250
P-350, P-400, P-3500, P-4000 (W/17" Wheels)	5/8-18	175-250
P-500	3/4-16 or 1 1/8-16	400-500

WHEEL TORQUE LIMITS – 500 THRU 9000 SERIES

Description	Nut Size	Ft-Lbs
Front Wheel Nut	All	400-500
Cast Wheel Rim Nut	5/8-11	170-200
	3/4-10	170-220

SPECIAL SERVICE TOOLS

Tool No.	Description
T59T-1197-B	Front Wheel Bearing Adjustment Spanner Wrench
Tool 1175-AB	Grease Seal Remover Head
T50T-100-A	Impact Slide Hammer
T56P-1217-A	Front Hub Bearing Cup Replacer

# PART 11-11 Wheel Hubs and Bearings—Rear

Applies To Bronco, Econoline E100, E200 and F-100 Only					
COMPONENT INDEX		Page	COMPONENT INDEX		Page
AXLE SHAFT			REAR WHEEL BEARING AND SEAL		
Removal and Installation .....		11-01	Removal and Installation .....		11-01
DESCRIPTION .....		11-01			

## 1 DESCRIPTION

### REAR WHEEL ASSEMBLY

The rear wheel hub and brake drum assembly is attached to studs on the rear axle shaft flange by three

speed nuts. The wheel and tire mounts on the same rear axle shaft flange studs and is held against the hub and drum by the wheel nuts. The rear wheel bearing is pressed onto the axle shaft just inside the shaft flange, and

the entire assembly is retained to the rear axle housing by the bearing retainer plate which is bolted to the housing flange.

## 4 REMOVAL AND INSTALLATION

### REMOVAL OF AXLE SHAFT

The rear axle shafts, wheel bearings, and oil seal can be replaced without removing the differential assembly from the axle housing.

Synthetic wheel bearing seals are used. Removal and insertion of rear axle shafts must be performed with caution. The entire length of the shaft (including spline) up the seal journal must pass through the seal without cutting of the seal element during axle removal or installation will result in early seal failure.

1. Remove the wheel cover, wheel and tire from the brake drum.
2. Remove the nuts that secure the brake drum to the axle shaft flange, then remove the drum from flange.
3. Working through the hole provided in each axle shaft flange,

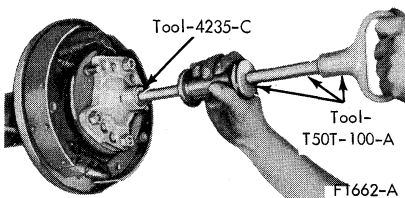


FIG. 1 Removing Axle Shaft

remove the nuts that secure the wheel bearing retainer plate. Then pull the axle shaft assembly out of the axle housing (Fig. 1). The brake backing plate must not be dislodged. Install one nut to hold the plate in place after the axle shaft is removed.

### REMOVAL OF REAR WHEEL BEARING AND SEAL

Synthetic seals must not be cleaned, soaked or washed in cleaning solvents.

Removal of the wheel bearings from the axle shaft makes them unfit for further use.

1. Loosen the inner retainer ring by nicking it deeply with a cold chisel in several places (Fig. 2). It will then slide off easily.
2. Remove the bearing from the axle shaft with tool T60K-1225-A.
3. Whenever a rear axle shaft is replaced, the oil seal must be replaced. Remove the seal with Tool 1175-AB and a slide hammer.

### INSTALLATION OF REAR WHEEL BEARING AND SEAL

1. Inspect the machined surface of the axle shaft and the axle housing for rough spots or other irregularities which would affect the sealing action

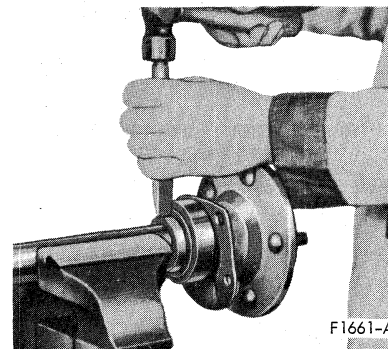


FIG. 2 Removing Rear Wheel Bearing Retainer Ring

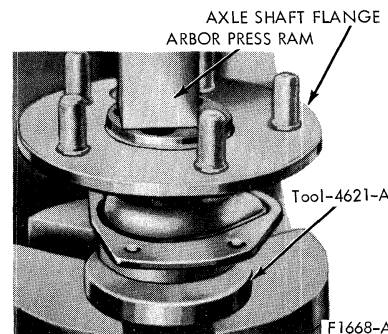


FIG. 3 Installing Rear Wheel Bearing

of the oil seal. Check the axle shaft splines for burrs, wear or twist. Carefully remove any burrs or rough spots. Replace worn or damaged parts.

2. Lightly coat wheel bearing bores with axle lubricant.

3. Place the bearing retainer plate on the axle shaft, and press the new wheel bearing on the shaft with the tool shown in Fig. 3. **Do not attempt to press on both the bearing and the inner retainer ring at the same time.**

4. Using the bearing installation tool (Tool 4621-A), press the bearing inner retainer ring on the shaft until the retainer seats firmly against the bearing.

5. Install the new oil seal with the tools shown in Fig. 4. Wipe a small amount of oil resistant sealer on

the outer edge of the seal before it is installed. **Do not put sealer on the sealing lip.**

**INSTALLATION OF AXLE SHAFT**

1. Carefully slide the axle shaft into the housing so that the rough forging of the shaft will not damage the oil seal. Start the axle splines into the side gear, and push the shaft in until the bearing bottoms in the housing.

2. Install the bearing retainer plate and the nuts that secure it. Torque the nuts to specifications.

3. Install the brake drum and the drum attaching (Tinnerman) nuts.

4. Install the wheel and tire on the drum. Install the wheel cover.

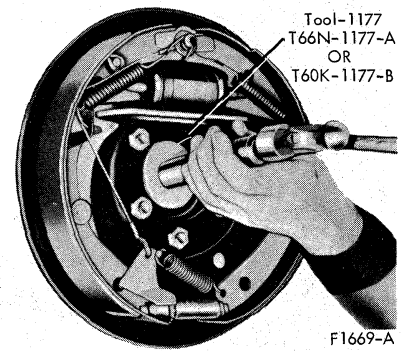


FIG. 4 Installing Rear Wheel Bearing Oil Seal

# PART 11-12 Wheel Hubs and Bearings— Front Wheel Drive

Applies To Bronco, F-100, F-250 and F-600 Only					
COMPONENT INDEX		Page	COMPONENT INDEX		Page
ADJUSTMENTS .....		12-01	DISASSEMBLY AND ASSEMBLY .....		12-03
DESCRIPTION .....		12-01			

## 1 DESCRIPTION

Front drive assemblies are available for Bronco, F-100, F-250 and F-600 vehicles. Service procedures for

Bronco and F-100 have been changed slightly as a pressure spring replaces the inner spacer formerly used; the

F-250 is basically carried over while the F-600 is completely new.

## 3 ADJUSTMENTS

### FRONT WHEEL BEARING ADJUSTMENT

**Bronco and F-100**

1. Raise the vehicle and install safety stands.

2. Back off the brake adjusting screw if necessary.

3. Remove the front hub grease cap and the driving hub snap ring (Fig. 1).

4. Remove the splined driving hub and the pressure spring. This may require a slight prying assist (Fig. 2).

5. Remove the wheel bearing lock nut and lock ring.

6. Using Tool T59T-1197-B and a torque wrench, tighten the bearing adjusting nut to 50 ft-lbs while rotating the wheel back and forth to seat the bearings.

7. Continue rotating the wheel, loosen the adjusting nut and then re-torque it to 30-40 ft-lbs.

8. Back off the adjusting nut approximately 1/4 turn (90 degrees).

9. Assemble the lock ring by turning the nut to the nearest notch where the dowel pin will enter.

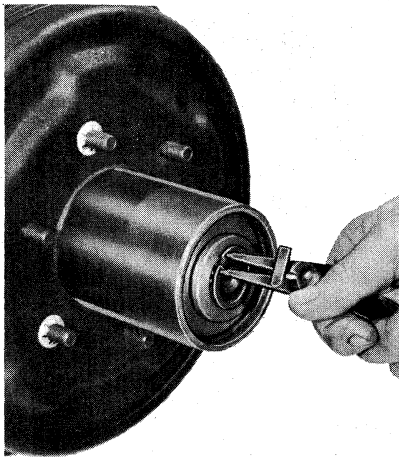
10. Install the outer lock nut and

torque to 50 ft-lbs. Final end-play of the wheel on the spindle should be 0.001 to 0.010 inches.

11. Install the pressure spring and driving hub, the driving hub snap ring and after applying non-hardening sealer to the seating edge of the grease cap, install the grease cap. If equipped with free-running lock-out hubs, refer to Front Wheel Drive Lock-Out Hub Installation in Group 15.

12. Adjust the brake if it was backed off.

13. Remove the safety stands and lower the vehicle.

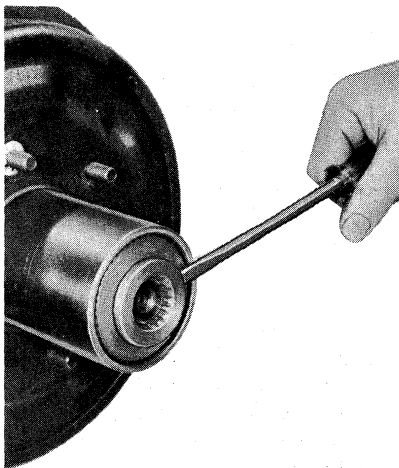


F 1812-A

FIG. 1 Removing Snap Ring

**F-250**

1. Raise the vehicle and install safety stands.
2. Back off the brake adjusting screw, if necessary. Remove the wheel cover, if installed.
3. Remove the front hub grease cap. Remove the driving hub retaining snap ring and slide the splined driving hub from between the axle shaft and the wheel hub (Fig. 2, Part 11-02). Remove the driving hub spacer. (If equipped with free running lock-out hubs, refer to Front Wheel Drive Lock-Out Hub Removal in Group 15).



F 1813-A

FIG. 2 Removing Splined Driving Hub

4. With Tool T59T-1197-B, remove the lock nut and lock ring from the spindle.

5. Using Tool T59T-1197-B and a torque wrench, tighten the bearing adjusting nut (Fig. 2, Part 11-02) to 50 ft-lb, while rotating the wheel back and forth to seat the bearings.

6. Continue rotating the wheel and then, loosen and re-torque the adjusting nut to 30-40 ft-lb.

7. Back the adjusting nut off approximately 1/4 turn (90 degrees). Assemble the lock ring by turning the nut to the nearest notch where the dowel pin will enter.

8. Install the outer lock nut and torque to 50 ft-lb. Final end-play of the wheel on the spindle should be 0.001 to 0.010 inch.

9. Install the driving hub, spacer, snap ring and hub grease cap. Apply a thin coat of non-hardening sealer to the seating edge of the grease cap, before installation. (If equipped with free-running lock-out hubs, refer to Front Wheel Drive Lock-Out Hub Installation in Group 15).

10. Adjust the brake, if backed off to permit drum removal.

11. Remove the safety stands and lower the vehicle.

**F-600**

1. Remove the outer hub cap retaining screws, and remove the cap.

2. Remove the retaining lock ring (Fig. 3).

3. Remove the retaining screws and remove the splined drive plate.

4. Bend the tab of the lockwasher away from the locknut and remove the locknut (Fig. 4).

5. Remove the lockwasher and discard it.

6. While rotating the wheel back and forth to correctly seat the bearings, torque the adjusting nut to 50 ft-lbs.

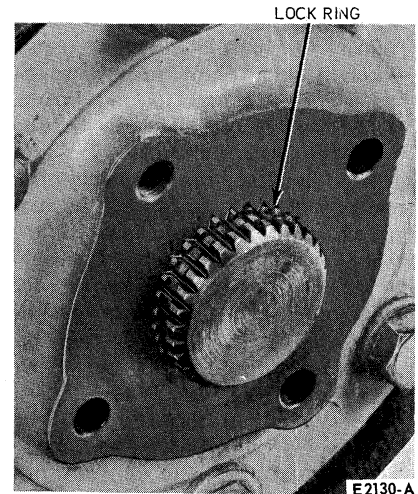
7. Back off the adjusting nut from 1/4 to 1/3 turn.

8. Position a new lockwasher against the adjusting nut and apply a film of oil to the outer face of the lockwasher.

9. Run the lock nut up against the lockwasher and torque it to 100-150 ft-lbs.

10. Bend one tab of the lockwasher over the adjusting nut.

11. Bend one tab of the lock-



E2130-A

FIG. 3 Access To Lock Ring

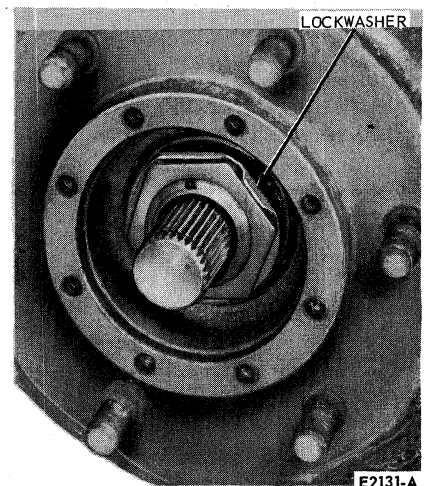
washer (in the opposite direction) over the lock nut. Use a blunt tool when bending the tabs to avoid making any chips which could cause serious bearing damage.

12. Apply Silastic Sealer to the front and rear mounting faces of the splined drive plate.

13. Position the drive plate, install the retaining screws and torque them to specifications.

14. Install the retaining lock ring.

15. Position the outer hub cap and install the retaining screws and torque them to specifications.



E2131-A

FIG. 4 Locknut and Washer Assembled



## 5 DISASSEMBLY AND ASSEMBLY

### FRONT WHEEL GREASE SEAL AND BEARING REMOVAL AND INSTALLATION AND/OR REPACKING

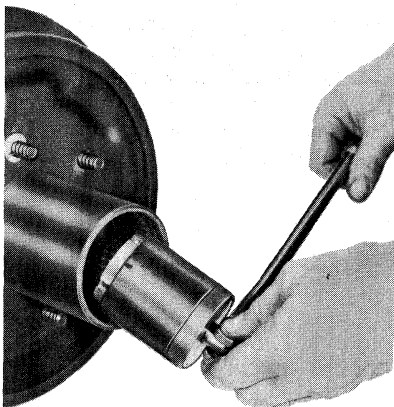
Wheel bearing lubricant has been changed from sodium base grease to lithium base grease.

Sodium base grease is not compatible with lithium base grease and should not be intermixed. Therefore, do not lubricate front and/or rear wheel bearings without first ascertaining the type of original wheel bearing lubricant. Usage of incompatible bearing lubricants could result in premature lubricant breakdown.

If bearing adjustment will not eliminate looseness or rough and noisy operation, the hub and bearings should be cleaned, inspected, and repacked with specified wheel grease. If the bearing cups or the cone and roller assemblies are worn or damaged, they should be replaced.

#### Bronco and F-100

1. Raise the vehicle and install safety stands.
2. Back off the brake adjusting screw if necessary.
3. Remove the front hub grease cap and driving hub snap ring (Fig. 1).
4. Remove the splined driving hub and the pressure spring. This may require a slight prying assist (Fig. 2).
5. Remove the wheel bearing lock nut, lock ring, and adjusting nut (Fig. 5), using tool T59T-1197-B.



F 1814-A

FIG. 5 Lock Nut, Lock Ring and Adjusting Nut Removal

6. Remove the hub and drum assembly. The outer wheel bearing and spring retainer will slide out as the hub is removed (Fig. 6).

7. Carefully drive the inner bearing cone and grease seal out of the hub (Fig. 7) using T69L-1102-A.

8. Inspect the bearing cups for pits or cracks. If necessary, remove them with a drift (Fig. 8). If new cups are installed, install new bearings. The bearing should be lubricated with CIAZ-19590-B wheel bearing grease. Clean all old grease from the hub. Pack the cones and rollers. If a bearing packer is not available, work as much lubricant as possible between the rollers and the cages.

9. Position the inner bearing cone and roller in the inner cup and install the grease retainer.

10. Carefully position the hub and drum assembly on the spindle.

11. Install the outer bearing cone and roller and the adjusting nut.

12. Using Tool T59T-1197-B and a torque wrench, tighten the bearing adjusting nut to 50 ft-lbs while rotating the wheel back and forth to seat the bearings.

13. Continue rotating the wheel, loosen the adjusting nut and then re-torque it to 30-40 ft-lbs.

14. Back off the adjusting nut approximately 1/4 turn (90 degrees).

15. Assemble the lock ring by turning the nut to the nearest notch where the dowel pin will enter.

16. Install the outer lock nut and torque to 50 ft-lbs. Final end-play of the wheel on the spindle should be 0.001 to 0.010 inches.

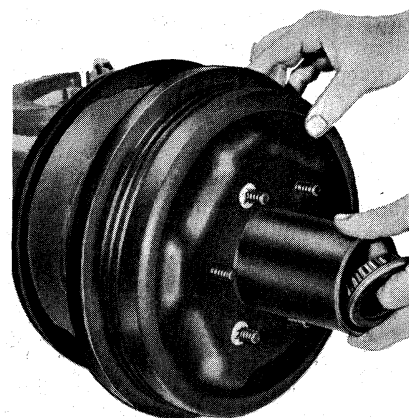
17. Install the pressure spring and driving hub snap ring and after applying non-hardening sealer to the seating edge of the grease cap, and install the grease cap. If equipped with free-running lock-out hubs, refer to Front Wheel Drive Lock-Out Hub Installation in Group 15.

18. Adjust the brake if it was backed off.

19. Remove the safety stands and lower the vehicle.

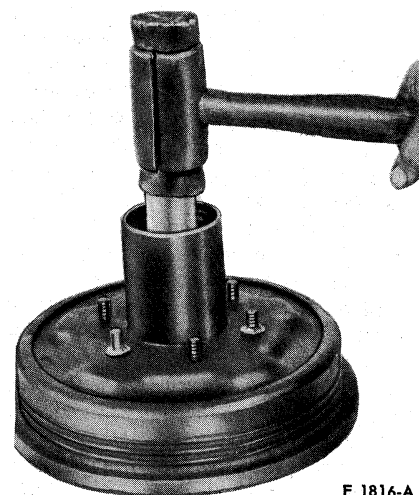
#### F-250

1. Raise the vehicle and install safety stands.
2. Back off the brake adjusting screw, if necessary. Remove the wheel cover, if installed.
3. Remove the front hub grease cap. Remove the driving hub retaining snap ring (Fig. 2, Part 11-02) and slide



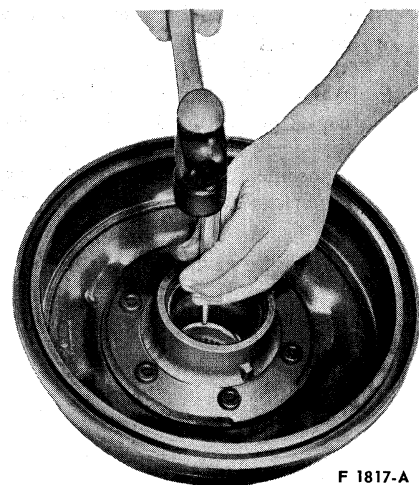
F 1815-A

FIG. 6 Hub, Drum and Outer Bearing Removal



F 1816-A

FIG. 7 Inner Bearing Cone and Grease Seal Removal



F 1817-A

FIG. 8 Bearing Cup Removal



the splined driving hub from between the axle shaft and the wheel hub. Remove the driving hub spacer. (If equipped with free-running lock-out hubs, refer to Front Wheel Drive Lock-Out Hub Removal).

4. With Tool T59T-1197-B, remove the lock nut, washer, and wheel bearing adjusting nut (Fig. 2, Part 11-02) from the spindle. Remove the wheel, hub and drum as an assembly. The wheel outer bearing will be forced off the spindle at the same time. Protect the spindle and inner bearing cone from dirt.

5. Remove the grease retainer and the inner bearing cone and roller assembly from the hub with Tool 1175AB, and T50T-100-A. Discard the grease retainer.

6. Clean the lubricant off the inner and outer bearing cups with solvent and inspect the cups for scratches, pits, excessive wear, and other damage. If the cups are worn or damaged, remove them with a drift.

7. Thoroughly clean the inner and outer bearing cones and rollers with solvent, and dry them thoroughly. **Do not spin the bearings with compressed air.**

**Inspect the cone and roller assemblies for wear or damage, and replace them if necessary. The cone and roller assemblies and the bearing cups should be replaced as a unit if damage to either is encountered.**

8. Thoroughly clean the spindle and the inside of the hub with solvent to remove all old lubricant.

Cover the spindle with a clean cloth, and brush all loose dust and dirt from the brake assembly. **To prevent getting dirt on the spindle, carefully remove the cloth from the spindle.**

9. If the inner bearing cup was removed, install the cup or a new cup in the hub. **Be sure to seat the cup properly in the hub.**

10. Install the outer bearing cup in the hub with a suitable tool. **Be sure the cup is properly seated in the hub.**

11. Pack the inside of the hub with specified wheel bearing grease. Add lubricant to the hub only until

the grease is flush with the inside diameter of both bearing cups.

12. All old grease should be completely cleaned from the bearings before repacking them with new grease. Pack the bearing cone and roller assemblies with wheel bearing grease. A bearing packer is desirable for this operation. If a packer is not available, work as much lubricant as possible between the rollers and cages. Lubricate the cone surfaces with grease.

13. Place the inner bearing cone and roller assembly in the inner cup, and install the new grease retainer. **Be sure that the retainer is properly seated.** Coat the grease retainer sealing lip with a liberal amount of grease.

14. Install the wheel, hub, and drum assembly on the wheel spindle. **Keep the hub centered on the spindle to prevent damage to the grease retainer or the spindle threads.**

15. Install the wheel outer bearing cone and adjusting nut. Adjust the front wheel bearings as detailed in Section 3 under Front Wheel Bearing Adjustment.

#### F-600

1. Remove the wheel and tire from the hub and drum. Remove the outer hub cap retaining screws, and remove the cap.

2. Remove the retaining lock ring (Fig. 3).

3. Remove the retaining screws and remove the splined drive plate.

4. Bend the tab of the lockwasher away from the lock nut and remove the lock nut (Fig. 4).

5. Remove the lockwasher and discard it.

6. Remove the adjusting nut.

7. Remove the hub and drum carefully from the spindle. Cover the spindle to protect it from dirt and foreign material. If the drum is difficult to remove, back off the brake adjustment to provide clearance.

8. Carefully remove the inner bearing and seal.

9. Clean the bearing recess and using a suitable solvent, clean the

bearings. **Do not spin dry with compressed air.** Repack the bearings with grease after drying thoroughly. Inspect the bearing cups. If cracked, pitted, or otherwise damaged, they should be replaced. If they are replaced, the bearings should also be replaced.

10. The cups can be removed using a hammer and a drift.

11. Install the new cups using Tool T68T-1174-AB for the inner bearing cup and Tool T68T-1173-AB for the outer bearing cup.

12. Install the inner bearing, lubricate and install the grease seal using Tool T68T-1173-AC.

13. Position the hub and drum on the spindle.

14. Install the outer bearing and the adjusting nut. Install the wheel and tire on the hub and drum.

15. While rotating the wheel back and forth to correctly seat the bearings, torque the adjusting nut to 50 ft-lbs.

16. Back off the adjusting nut from 1/4 to 1/3 turn.

17. Position a new lockwasher against the adjusting nut and apply a film of oil to the outer face of the lockwasher.

18. Run the lock nut up against the lockwasher and torque it to 100-150 ft-lbs.

19. Bend one tab of the lockwasher over the adjusting nut.

20. Bend one tab of the lockwasher (in the opposite direction) over the lock nut. **Use a blunt tool when bending the tabs to avoid making any chips which could cause serious bearing damage.**

21. Apply Silastic Sealer to the front and rear mounting faces of the splined drive plate.

22. Position the drive plate, install the retaining screws and torque them to specifications.

23. Install the retaining lock ring.

24. Position the outer hub cap and install the retaining screws and torque them to specifications.

# PART 11-14 Wheel Hubs and Bearings — Rear (Full Floating Axle)

Applies To All 250 and Higher Series Vehicles				
COMPONENT INDEX		Page	COMPONENT INDEX	Page
DESCRIPTION .....		14-01	DISASSEMBLY AND ASSEMBLY .....	14-02

## 1 DESCRIPTION

On all the full-floating axle wheel hubs with tapered roller bearings, a seal is installed behind the inner bearing to keep the wheel bearing lubricant from the brake lining and brake drum (Figs. 1 and 2).

Two methods of wheel bearing lubrication are used on the full floating axles. The wheel bearings are packed with wheel bearing lubricant (C1AZ-19590-B). However, axle lubricant will flow into the wheel hubs and bearings during vehicle operation.

On these axles, wheel bearing grease is the primary lubrication for the high bearings during extended operation in a tilted condition. On these axles the wheel hub is also vented through the axle housing vent. The seal assembly (500-9000 Series) mounts on the wheel hub and seals on a wear sleeve (wiper) which is installed on the axle housing tube (Fig. 2).

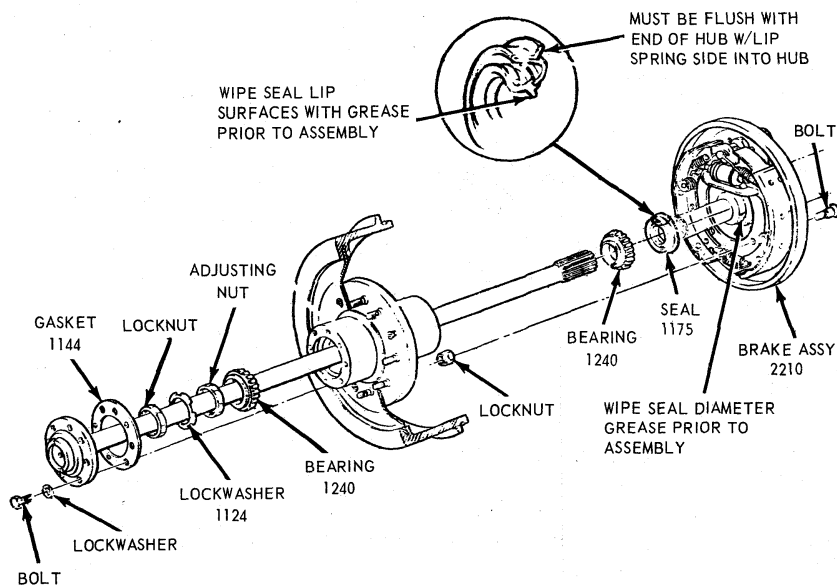
The wear sleeves (500-9000 Series) must be installed squarely on the axle housing using the appropriate tools

(Fig. 3). Do not use heat on the wear sleeves to facilitate installation. Use the proper tool as shown in Fig. 3. The sleeves are designed with flanges to eliminate the possibility of installing the sleeves backwards. Although preservative has been applied to the wear sleeve prior to packaging, a light oil (SAE-10 or its equivalent) should be applied to the wear sleeve to facilitate assembly of the sleeve to the axle housing. After installation of the wear sleeve, the clearance between the end of the wear sleeve and inner wheel bearing shoulder should be 0.010 to 0.025 inches (Fig. 2).

The seal assembly is to be installed in the wheel hub. The garter spring should be checked to assure the spring is in the spring groove behind the primary seal lip after the seal is in position. Before installing the wheel, apply grease (C1AZ-19590-B) between the lips of the seal.

The wheel bearings must be thoroughly cleaned and repacked with lithium base grease (C1AZ-19590-B) before installing the wheel assembly.

To prevent damage to the primary and secondary lips of the seal assembly, a locator sleeve or tool should be used to guide the hub and drum onto the axle. A new seal assembly must be installed whenever a wheel is removed.



E 1972-A

FIG. 1 Rear Wheel Hub—Dana Full-Floating Axle

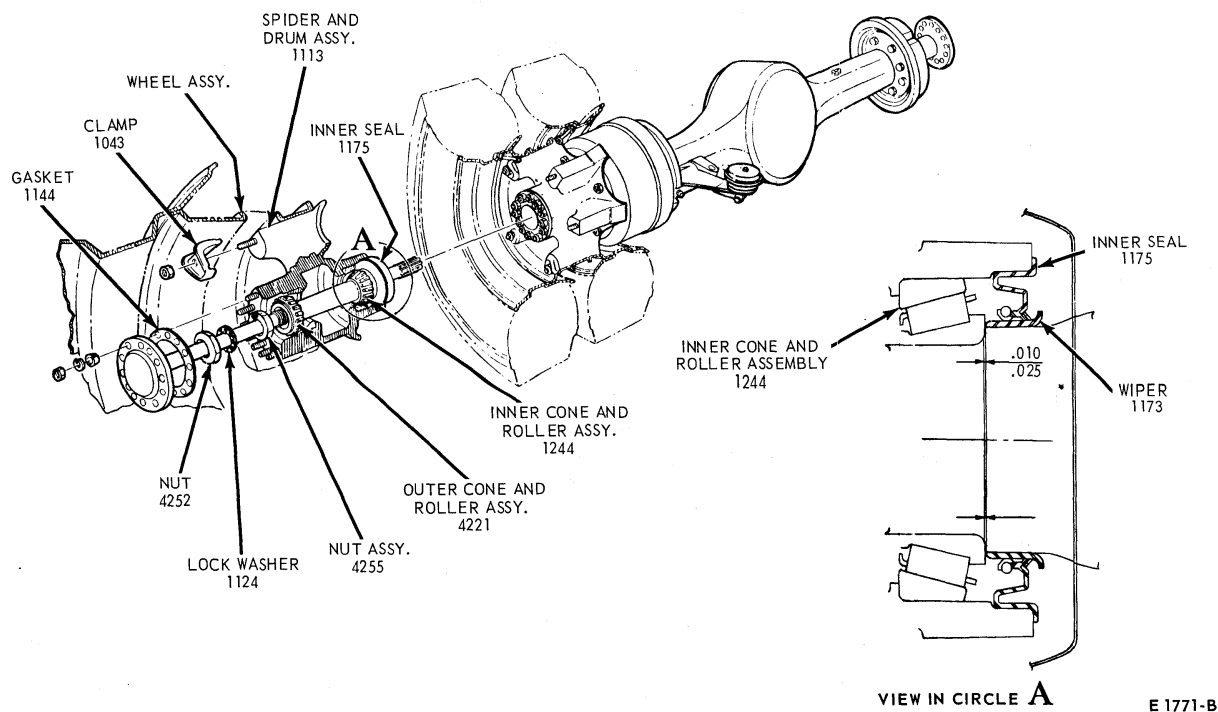


FIG. 2 Typical Rear Wheel Hub—Full-Floating Axle—500-9000 Series

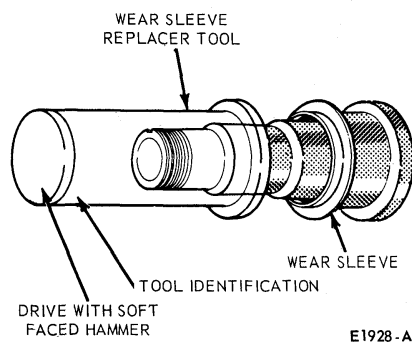


FIG. 3 Tool Application of Wear Sleeve (Wiper) Installation

## 5 DISASSEMBLY AND ASSEMBLY

### BEARINGS, CUPS AND SEALS

#### F-250, F-350, E-300 and P-3500-4000 Series

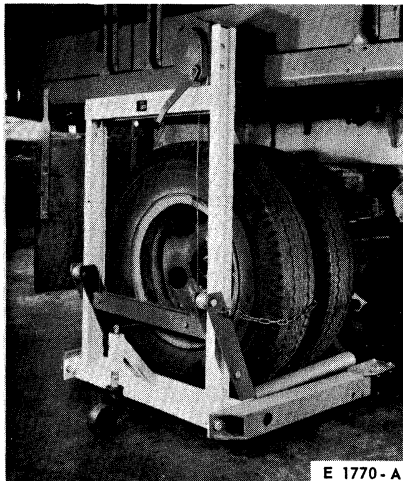
1. Set the parking brake and loosen the axle shaft retaining bolts (Fig. 1).
2. Raise the rear wheels off the

floor and place work stands under the rear axle housing so that the axle is parallel with the floor. Back off the rear brake adjustment.

3. Remove the axle shaft retaining bolts.
4. Remove the axle shafts.
5. Remove the wheel locknut, lockwasher and wheel bearing adjustment nut.

6. With the type of wheel jack shown in Fig. 4, raise the wheel to the point that all weight is removed from the wheel bearings. Remove the outer bearing cone. Now, pull the wheel assembly **straight** out and away from the axle.

7. Thoroughly clean the spindle of the axle housing.



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FIG. 4 Typical Wheel Jack

8. With a brass drift, and care to prevent damaging the bearing cage, drive the inner bearing cone and inner seal out of the wheel hub.

9. Clean all old grease and axle lubricant out of the wheel hub.

10. Inspect the bearing races and rollers for pitting, galling or erratic wear patterns. Inspect the rollers for end wear. Replace the bearings if worn or damaged.

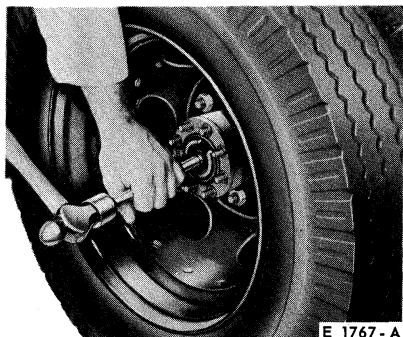
11. If the bearing cups are to be replaced, drive them out with a brass drift. Install the new cups with a tool such as OTC 27797.

12. Check for proper seating of the new bearing cups by trying to insert a 0.0015 inch feeler gauge between the cups and the wheel hub.

13. Pack each bearing cone and roller assembly with a bearing packing tool.

14. Place the inner bearing cone and roller assembly in the wheel hub. Install a new hub inner seal.

15. Position the wheel assembly at the axle housing. Carefully slide the



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FIG. 5 Axle Shaft Removal—Tapered Dowels

wheel assembly straight (to avoid seal damage) onto the axle housing spindle.

16. Install the outer wheel bearing and start the bearing adjuster nut. Remove the wheel jack.

17. Torque the adjusting nut to 50-80 ft-lbs. while rotating the wheel. Back off (loosen) the adjusting nut  $\frac{3}{8}$  of a turn.

18. Install a new lockwasher coated with oil and smooth side out. Install the lock nut. Torque the lock nut to 90-110 ft-lbs. With the lock nut at proper torque, the wheel assembly must rotate freely and with an end play of 0.001-0.010 inch.

19. With a satisfactory end play and freely turning wheel bend two lockwasher tabs inward over flats of the adjusting nut and two tabs outward over flats of the lock nut.

20. Install the axle shaft, gasket, lock washers and axle shaft retaining bolts. Torque the lock bolts to 40-50 ft-lbs.

21. Adjust the brakes. Then, remove the work stands and lower the vehicle.

#### 500-9000 Series

Some vehicles are equipped with Stemco seals as a regular production option. For detailed instructions, refer to Part 11-01.

1. Set the parking brake and loosen the axle shaft stud nuts.

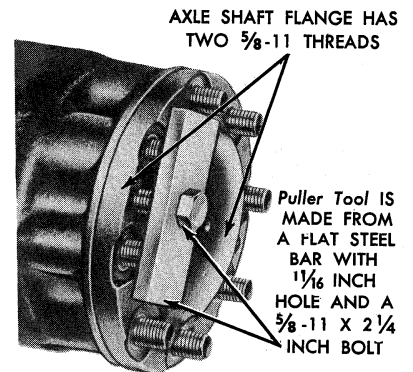
2. Raise the rear wheels off the floor and place the work stands under the rear axle housing so that the axle is parallel with the floor. Back off the rear brake adjustment.

3. Remove the axle shaft stud nuts.

4. If tapered dowels are installed in the axle shaft flange, place a drift in the center of the flange and strike it sharply to loosen the dowels (Fig. 5). Remove the axle shaft.

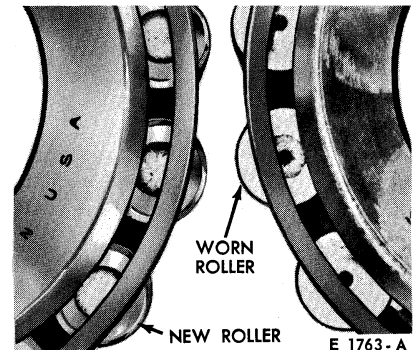
On axles where tapered dowels are not used, two puller threads ( $\frac{5}{8}$ -11) are provided in the axle shaft flange. These axle shafts may be pulled with a slide hammer installed in the puller threads or with the type of tool shown in Fig. 6. This tool can be made from a piece of flat steel bar with an  $\frac{11}{16}$  inch hole in it, and a  $2\frac{1}{4}$  inch long  $\frac{5}{8}$ -11 bolt. As the bolt is turned clockwise, the axle pulled away from the thread load becomes pulling an axle shaft puller on the oppo flange.

5. Bend the lock from the locknut, and locknut, lock washer, adjusting nut.



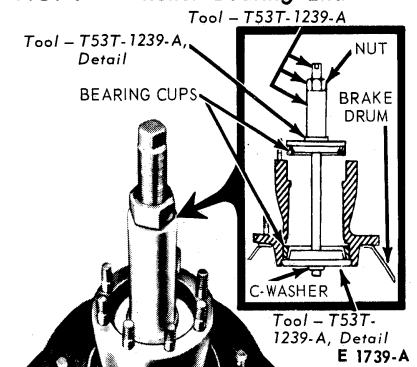
E 1768 - A

FIG. 6 Axle Shaft Puller



E 1763 - A

FIG. 7 Roller Bearing End



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FIG. 8 Installing Bearing Cup

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