

# SPECIFICATION FOR LOCOMOTIVE UNIT NO. 3289

Operated by CONSOLIDATED RAIL CORPORATION ~~Company~~

Built by Electro-Motive GMC at La Grange, Illinois date May 2, 19 77  
Builder's Number 766069-10 Propelled by One 3000 HP Diesel-Electric Power Plant  
Gauge of Wheels 4' 8½"

Number, make, and type of motors 4 EMD DC - 4 Delco AC Voltage 600-215  
Make and type of control equipment EMD Electric Control circuit voltage 64-74  
Make and type of internal combustion engine EMD 2-Cycle 16 Cyl. Model 645  
Kind of air brakes Westinghouse Air Brake Co./New York Air Brake Co. 26 L  
(Give make, type, and schedule number)

Number, make, and type of air compressors One Gardner-Denver Model WBO  
Main air reservoir pressure 130-140 Train line pressure 70

Total weight, working order 276,318 pounds, weight on driving wheels 276,318 pounds,  
weight on trucks 276,318 pounds.  
Maximum tractive effort 65,152 # at 25% adhesion with one-half variable supplies.

EMD 2771

*Handwritten notes:*  
766069-10  
766069 # 10  
I  
121950  
121200  
243150

LOCOMOTIVE INSPECTION AND REPAIR RECORD

In accordance with the Locomotive Inspection Act, 36 Stat. 913, as amended, and with the rules and regulations issued in pursuance thereof, the parts and appurtenances of the locomotive unit have been inspected. All defects disclosed by the inspection were properly repaired, except as shown on the reverse.

OMB Approval No. 04-R-4011

OPERATED BY (Note changes in Remarks)

**CONSOLIDATED RAIL CORPORATION** CODE

MODEL NO. **EMD GP40-2** 1977 **Conrail** CODE

3. Yr. Built 4. OWNER

7. TYPE (Check, if applicable)  NEW  FINAL 8. UNIT NO. **3289**

13. CERTIFIED BY 14. PREV. DATE See instruction 15. OUT-OF-SERVICE

6. PROPELLED BY **DIESEL/ELECTRIC**

12. PERSON CONDUCTING

11. TYPE

A Hydro

B Hammer

C Meters

D Insul

18. Items

19. PERSON CONDUCTING

20. Items

21. PERSON CONDUCTING

22. CERTIFIED BY

9. DATE

10. PLACE

11. TYPE

A Hydro

B Hammer

C Meters

D Insul

18. Items

19. PERSON CONDUCTING

20. Items

21. PERSON CONDUCTING

22. CERTIFIED BY

JAN. TO JUNE 1977 JULY TO DEC. 19

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DEPARTMENT OF TRANSPORTATION  
FEDERAL RAILROAD ADMINISTRATION



ATTENTION: A false entry on this form is punishable by fine or imprisonment (U.S. Code, Title 18, Sec. 1001).

CERTIFICATE

ELECTRO-MOTIVE CERTIFIED MAIN RESERVOIR

Customer's Order No. ....766069-10...

This is to certify that Reservoir No. 77C97. Length 152"...

O.D. ....15"....furnished for: Electro-Motive Division  
General Motors Corporation  
La Grange, Illinois

has been manufactured and tested in accordance with the following specifications:

MATERIAL

Shell: Selected Steel 1/4" thick, of a guaranteed minimum tensile strength of 55,000 pounds per square inch.

Heads: Selected Steel 1/4" thick, of a guaranteed minimum tensile strength of 55,000 pounds per square inch; die formed accurately to diameter of reservoirs.

DESIGN AND CONSTRUCTION

Electro-Motive certified reservoirs are designed for a working pressure of 150 pounds per square inch with a safety factor of not less than 5. These reservoirs are carefully formed to the diameters required and are constructed in accordance with accepted welding standards for unfired pressure vessels. All welding operations are carefully performed by qualified workmen. This construction assures that the reservoirs will be of maximum strength and bottle tight.

Electro-Motive certified reservoirs are enameled by a special process to protect them against corrosion and insure long life. After fabrication, the reservoirs are thoroughly cleaned of scale and foreign matter. Both the inside and outside surfaces of the reservoirs are coated with enamel and baked at a high temperature.

TESTS

The reservoir covered by this certificate has been subjected to a hydrostatic pressure of 300 pounds per square inch, and an inspection for leaks made of all seams and connections.

Reservoir drilled in accordance with Rule 206(c) YES  NO

This Certificate issued at Chicago, Illinois

this .....25th..... day of .....March, 1977.....

ELECTRO-MOTIVE DIVISION OF  
GENERAL MOTORS CORPORATION

*[Signature]*  
.....  
Duly Authorized Officer

(The following detachable portion of this certificate is in compliance with the Bureau of Railroad Safety requirements.)

CERTIFICATE

ELECTRO-MOTIVE CERTIFIED MAIN RESERVOIR

Customer's Order No. ....766069-10..

This is to certify that Reservoir No. 77C97 Length 152"

O.D. ....15".....furnished for: Electro-Motive Division  
General Motors Corporation  
La Grange, Illinois

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DESIGN AND CONSTRUCTION

Electro-Motive certified reservoirs are designed for a working pressure of 150 pounds per square inch with a safety factor of not less than 5. These reservoirs are carefully formed to the diameters required and are constructed in accordance with accepted welding standards for unfired pressure vessels. All welding operations are carefully performed by qualified workmen. This construction assures that the reservoirs will be of maximum strength and bottle tight.

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TESTS

The reservoir covered by this certificate has been subjected to a hydrostatic pressure of 300 pounds per square inch, and an inspection for leaks made of all seams and connections.

Reservoir drilled in accordance with Rule 206(c) YES  NO

This Certificate issued at Chicago, Illinois

this 25th day of March, 1977

ELECTRO-MOTIVE DIVISION OF  
GENERAL MOTORS CORPORATION

*E. J. Mitchell*  
Duly Authorized Officer

(The following detachable portion of this certificate is in compliance with the Bureau of Railroad Safety requirements.)

CERTIFICATE

ELECTRO-MOTIVE CERTIFIED MAIN RESERVOIR

766069-10

Customer's Order No. ....

This is to certify that Reservoir No. 77C85 Length 152"

O.D. 15" furnished for: Electro-Motive Division
General Motors Corporation
La Grange, Illinois

has been manufactured and tested in accordance with the
following specifications:

MATERIAL

Shell: Selected Steel 1/4" thick, of a guaranteed minimum tensile strength
of 55,000 pounds per square inch.

Heads: Selected Steel 1/4" thick, of a guaranteed minimum tensile strength
of 55,000 pounds per square inch; die formed accurately to diameter
of reservoirs.

DESIGN AND CONSTRUCTION

Electro-Motive certified reservoirs are designed for a working pressure
of 150 pounds per square inch with a safety factor of not less than 5.
These reservoirs are carefully formed to the diameters required and are
constructed in accordance with accepted welding standards for unfired
pressure vessels. All welding operations are carefully performed by
qualified workmen. This construction assures that the reservoirs will be
of maximum strength and bottle tight.

Electro-Motive certified reservoirs are enameled by a special process to
protect them against corrosion and insure long life. After fabrication,
the reservoirs are thoroughly cleaned of scale and foreign matter. Both
the inside and outside surfaces of the reservoirs are coated with enamel
and baked at a high temperature.

TESTS

The reservoir covered by this certificate has been subjected to a hydrostatic
pressure of 300 pounds per square inch, and an inspection for leaks made of all
seams and connections.

Reservoir drilled in accordance with Rule 206(c) YES [X] NO [ ]

This Certificate issued at Chicago, Illinois

this 22nd day of March, 1977

ELECTRO-MOTIVE DIVISION OF
GENERAL MOTORS CORPORATION

[Signature]
Duly Authorized Officer

(The following detachable portion of this certificate is in compliance with the Bureau
of Railroad Safety requirements.)

CERTIFICATE

ELECTRO-MOTIVE CERTIFIED MAIN RESERVOIR

Customer's Order No. 766069-10

This is to certify that Reservoir No. 77C85 Length 152"

O.D. 15" furnished for: Electro-Motive Division
General Motors Corporation
La Grange, Illinois

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MATERIAL

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TESTS

The reservoir covered by this certificate has been subjected to a hydrostatic
pressure of 300 pounds per square inch, and an inspection for leaks made of all
seams and connections.

Reservoir drilled in accordance with Rule 206(c) YES [X] NO [ ]

This Certificate issued at Chicago, Illinois

this 22nd day of March, 1977

ELECTRO-MOTIVE DIVISION OF
GENERAL MOTORS CORPORATION

[Signature]
Duly Authorized Officer

(The following detachable portion of this certificate is in compliance with the Bureau
of Railroad Safety requirements.)

**ELECTRO-MOTIVE DIVISION**  
**General Motors Corporation**  
**LaGrange, Illinois**  
**LOCOMOTIVE SERIAL RECORD**

RAILROAD <u>Conrail</u>	LOCO. NO. <u>3289</u>	ORDER NO. <u>766069-10</u>
EMD SER. NO. <u>766069-10</u>	UNIT TYPE <u>GP40-2</u>	UNIT H. P. <u>3000</u>
WEIGHT NO. 1 END <u>137,358</u>	NO. 2 END <u>138,959</u>	TOTAL <u>276,318</u>
<b>APPARATUS                      TYPE                      SERIAL NUMBERS</b>		
ENG. <u>16 645 E3</u>	NO. 1 <u>77C1 1078</u>	NO. 2 _____
MAIN. GEN. <u>AR10A6</u>	NO. 1 <u>77 C1 1129</u>	NO. 2 _____
AUX. GEN. <u>2A 8147</u>	NO. 1 <u>77 C 1170</u>	NO. 2 _____
FILTER BLWR. MTR. <u>I 4737</u>	NO. 1 <u>76 J 0935</u>	NO. 2 _____
AIR COMP. <u>WBO - 8101</u>	NO. 1 <u>684605</u>	NO. 2 _____
OVERNIGHT HEATER OR STM. GEN. <u>None</u>	RIGHT _____	LEFT _____
RADIATOR FAN MTR. <u>8310416</u>	NO. 1 <u>77 C 153</u>	NO. 2 <u>77 C 132</u>
	NO. 3 <u>77 C 158</u>	NO. 4 _____
	NO. 5 _____	NO. 6 _____
DYN. BRK. BLWR. MTR. <u>8324324</u>	NO. 1 <u>77 C 25</u>	NO. 2 _____
STOR. BATT. <u>UD 466</u>	MFG. <u>Exide</u>	SER. NO. <u>1387 - 1396</u>
TRUCK: E. M. D. <input checked="" type="checkbox"/> ALCO <input type="checkbox"/>	NO. 1 <u>77 D1 1025</u>	NO. 2 <u>77 D1 1026</u>
OTHER _____	NO. 1 <u>77 C1 1447</u>	NO. 2 <u>77 C1 1426</u>
TR. MTRS. <u>D 77 B</u>	NO. 3 <u>77 C1 1427</u>	NO. 4 <u>77 C1 1324</u>
	NO. 5 _____	NO. 6 _____
	NO. 7 _____	NO. 8 _____
CERT. AIR RES. NO'S. <u>EMD</u>	NO. 1 <u>77 C 85</u>	NO. 2 <u>77 C 97</u>
	NO. 3 _____	NO. 4 _____
GEAR RATIO <u>61-16</u>	WHL. SIZE <u>40"</u>	AIR BRK. TYPE <u>26 L</u>
SHIP DATE <u>5-2-77</u>	FINAL CHECK AFTER TEST - INSPECTOR _____	

ENGINE 3-21-77 ENGINE TYPE 16-64SE3 ENGINE SERIAL NO. 7701-1078 ORDER NO. 766069-12

CRANKCASE	CRANKSHAFT	GOVERNOR	MAIN OIL PUMP	SCAV. OIL PUMP	WATER PUMP (S)	LINERS	TURBO/BLOWER (S)	CYLINDER HEADS	CAMSHAFTS
SER. NO. 76K94	SER. NO. 7701-1070	SER. NO. 1420485	SER. NO. 77B60	SER. NO. 577029	SER. NO. 77B21	SER. NO. 77B20	SER. NO. 8358500	SER. NO. 76J83	SER. NO. 76J96
THRUST .015	THRUST .015								

PINS	RB	CARRIERS	LB	RB	CONNECTING RODS	LB	RB	PISTONS	LB	RB	LINERS	LB	RB	CYLINDER HEADS	LB	INJECTORS	SER. NO.
1	0118	03037	03034	0145	0379	03805	03783	01736	01341	03493	03497	12968					
2	0329	73	73	096	E73	9971	9953	9937	9934	9943	9949	13112					
3	0695	05439	03161	B1199	0378	03810	03791	06832	B5466	03494	03485	12417					
4	0481	03	73	F3	E73	9953	9953	A19-7	9958	9942	9946	12844					
5	019	03070	03170	B1095	0378	03781	03812	01137	01722	03483	03491	12961					
6	03985	K27	73	F3	E73	9953	9953	9953	9947	9957	9949	13025					
7	0905	0934	03148	0175	0385	03813	03812	01499	01373	03567	03496	13111					
8	03529	73	73	F3	E73	9953	9953	A18-7	9966	9949	9949	12564					
9	03767	03048	03118	0117	0388	03694	03815	01739	01738	03505	03537	13149					
10	04616	73	73	F3	E34	B287	9953	9938	9946	9940	9955	13171					
11	03939	03058	03090	0162	0376	03804	03816	01734	01778	03563	03539	13430					
12	0874	73	K27	096	E73	9953	9951	9945	9934	B097	9943	13024					
13	0427	03050	03036	0140	0380	03814	03809	00839	01688	03561	03553	13027					
14	0387	K27	73	096	F4	9953	9953	9800	9945	9941	9981	13092					
15	0341	01914	03155	B1063	0341	03819	03803	01606	01614	03563	03559	12998					
16	0956	K27	73	F3	WR4	9971	9953	9947	9946	9941	9957	12997					
17			19														
18		VERDER HEAT															
19			10	20													
20		VERDER HEAT															

CARRIER BEARING 565  
 RING COILS. #1 007 #2 589 #3 589 #4 100 #5 103 #6 953

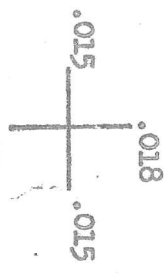


ENGINE SERIAL NO. 77C1-1078

DATE 4/2/77



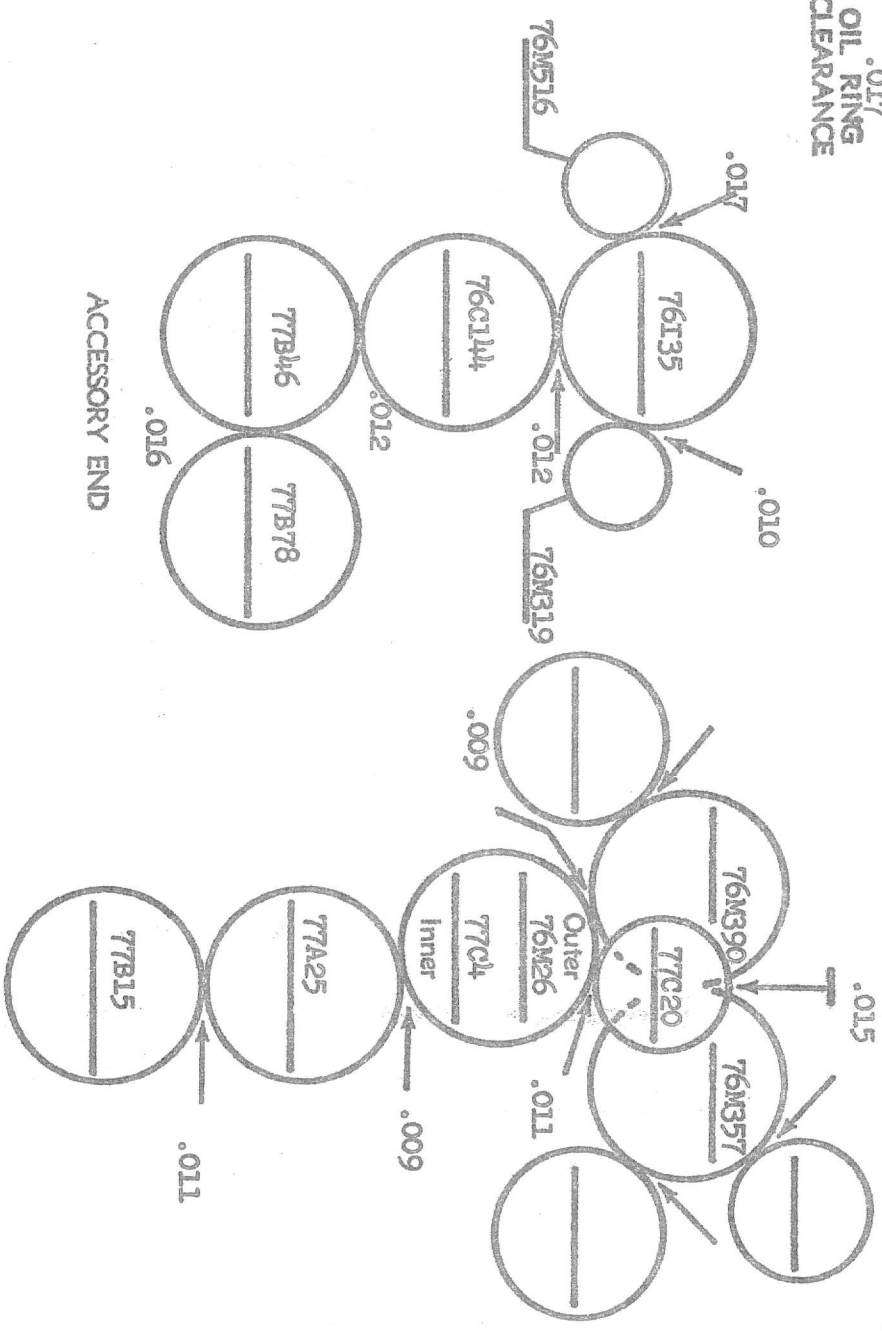
**CAMSHAFT ASSEMBLY**  
 FACE RUNOUT R L  
 STUD RUNOUT R L  
 GEN. END R L  
 ACCY. END R L  
 THRUST .012 R L  
 PARALLEL .718 FR R .716



OIL RING  
 CLEARANCE

**COMPRESSION LEAD READING  
 IN THOUSANDTHS**

Cyl. No.		Cyl. No.	
1	.039 .044	11	.030 .033
2	.039 .043	12	.031 .035
3	.039 .039	13	.032 .033
4	.040 .042	14	.032 .033
5	.038 .041	15	.035 .036
6	.037 .039	16	.037 .037
7	.041 .042	17	
8	.037 .040	18	
9	.033 .035	19	
10	.032 .034	20	



ACCESSORY END

CAMSHAFT DRIVE END

Main Bearing Sizes	1	2	3	4	5	6	7	8	9	10	11	12
90° TO SPLIT LINE												
30° TO SPLIT LINE												
30° TO SPLIT LINE												

# LOCOMOTIVE INSPECTION

## 4 WHEEL TRUCK DATA SHEET

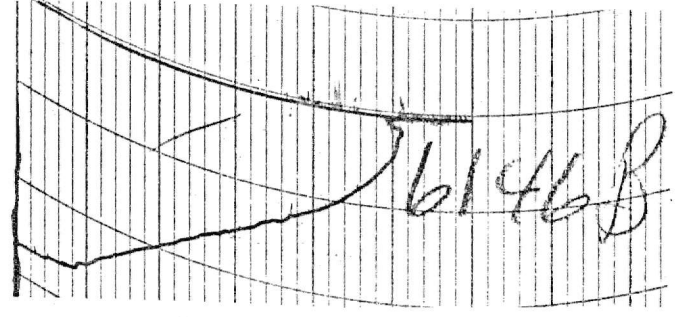
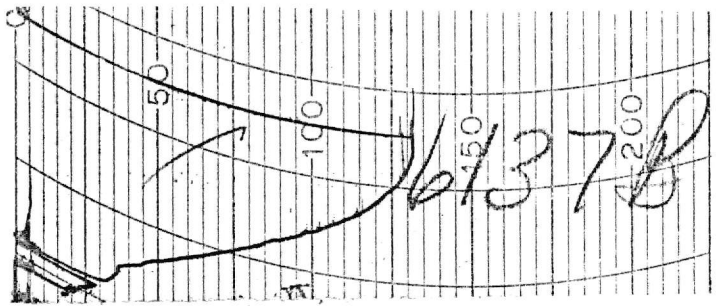
CUSTOMER <i>CONRAIL</i>	ORDER NO. <i>766069-H</i>	R.R. SERIAL NO. <i>3229</i>	<i>10</i>
WHEEL DIA. <i>40"</i>	GEAR RATIO <i>61:16</i>	DATE <i>4-5-77</i>	
AXLE DATE	<i>3-77</i>	<i>2-77</i>	<i>3-77</i>
AXLE MFR.	<i>SFC</i>	<i>SFC</i>	<i>SFC</i>
AXLE EMD NO.	NEW <input checked="" type="checkbox"/> RBLT <input type="checkbox"/> <i>77A795</i> ✓	NEW <input checked="" type="checkbox"/> RBLT <input type="checkbox"/> <i>77A723</i> ✓	NEW <input checked="" type="checkbox"/> RBLT <input type="checkbox"/> <i>77A842</i> ✓
AXLE HEAT NO.	<i>6054268</i>	<i>573135</i>	<i>6054268</i>
WHEEL MFR. NO.	R <i>2-77-65</i> <i>6137</i> ✓	L <i>2-77-65</i> <i>6145</i> ✓	R <i>2-77-65</i> <i>6251</i> ✓
WHEEL HEAT NO.	<i>B</i>	<i>B</i>	<i>B</i>
WHEEL FIT PRESSURE	<i>131</i> TONS	<i>118</i> TONS	<i>115</i> TONS
JOURNAL BOX SERIAL NO.	NEW <input checked="" type="checkbox"/> RBLT <input type="checkbox"/> <i>77C322</i>	NEW <input checked="" type="checkbox"/> RBLT <input type="checkbox"/> <i>77C347</i>	NEW <input checked="" type="checkbox"/> RBLT <input type="checkbox"/> <i>77C349</i>
WHEEL SIZE	<i>345</i> TAPES	<i>345</i> TAPES	<i>345</i> TAPES
GEAR SERIAL NO.	NEW <input checked="" type="checkbox"/> RBLT <input type="checkbox"/> <i>77A13</i>	NEW <input checked="" type="checkbox"/> RBLT <input type="checkbox"/> <i>77A25</i>	NEW <input checked="" type="checkbox"/> RBLT <input type="checkbox"/> <i>77A34</i>
GEAR FIT PRESSURE	<i>100</i> TONS	<i>84</i> TONS	<i>98</i> TONS
GEAR SIDE WHEEL MFR. NO.	L <i>2-77-65</i> <i>6146</i> ✓	R <i>2-77-65</i> <i>6200</i> ✓	L <i>2-77-65</i> <i>6135</i> ✓
GEAR SIDE WHEEL HEAT NO.	<i>B</i>	<i>B</i>	<i>B</i>
WHEEL SIZE	<i>345</i> TAPES	<i>345</i> TAPES	<i>345</i> TAPES
WHEEL FIT PRESSURE	<i>127</i> TONS	<i>120</i> TONS	<i>125</i> TONS
JOURNAL BOX SERIAL NO.	NEW <input checked="" type="checkbox"/> RBLT <input type="checkbox"/> <i>77C293</i>	NEW <input checked="" type="checkbox"/> RBLT <input type="checkbox"/> <i>77C351</i>	NEW <input checked="" type="checkbox"/> RBLT <input type="checkbox"/> <i>77C348</i>
INSPECTOR	<i>CF</i>	<i>CF</i>	<i>CF</i>
AXLE END TO HUB RECORD DIM.	<i>14 1/8</i>	<i>14 5/32</i>	<i>14 3/16</i>
AXLE END TO RACE RECORD DIM.			
GEAR TOOTH COUNT AND COLOR CODE	<i>61T</i>	←—————→	<i>61T</i>
RECORD + OR - TO 11/16" DIM.	<i>OK</i>	<i>OK</i>	

766069-H 10

 Wheel Shop  
 CONRAIL  
 HISTORICAL SOCIETY

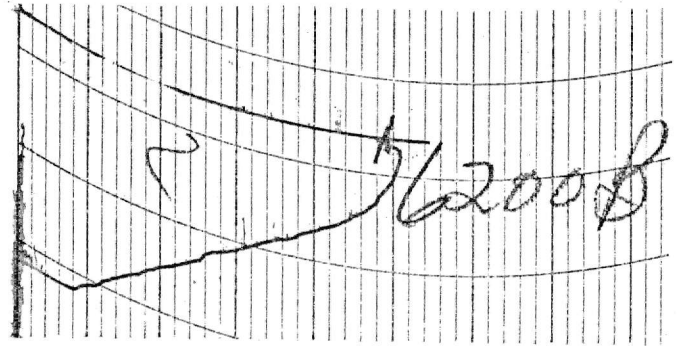
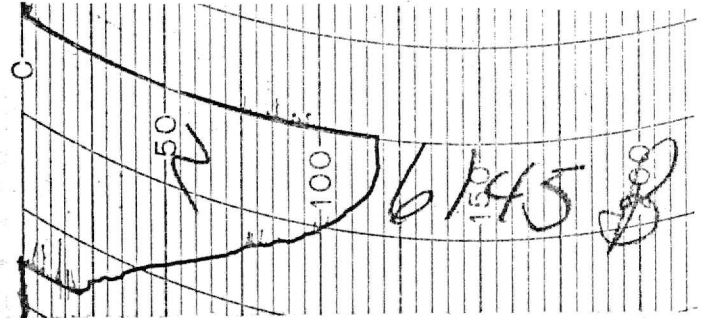
#1 Rockwell 1430

#1 AXLE

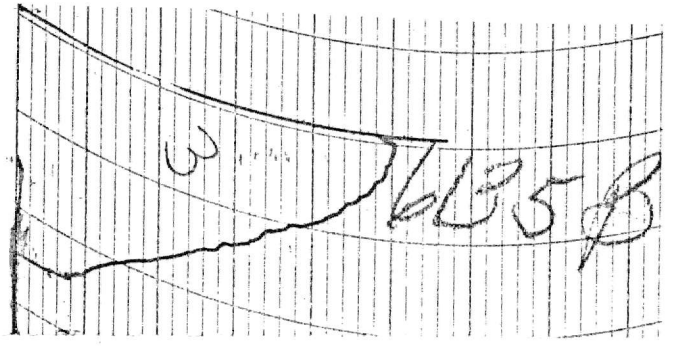
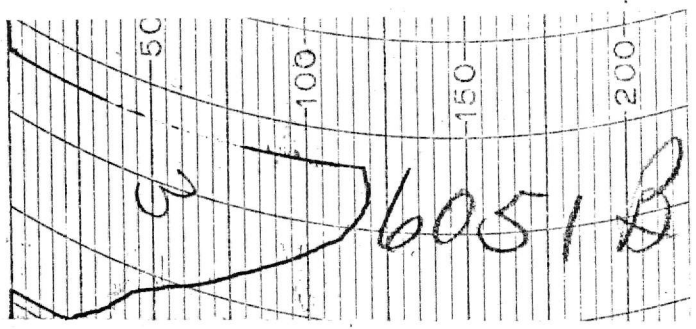


#2 AXLE

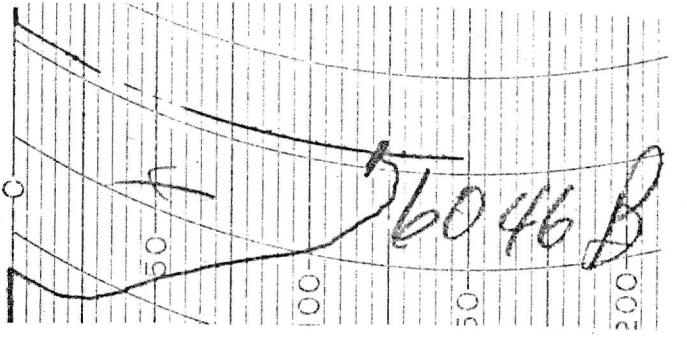
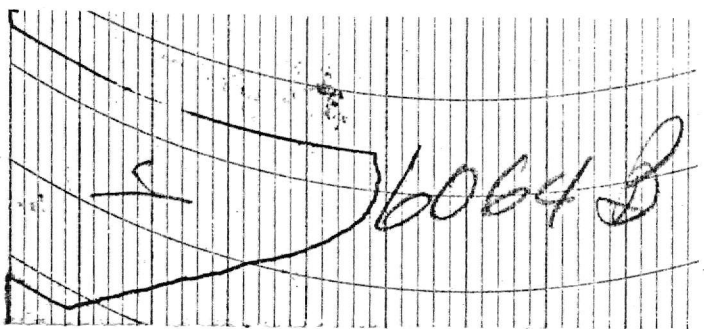
#2 Rockwell 1437



#3 AXLE



#4 AXLE



Standard Forgings Corporation

S.F.C. Lab. No. 2739 Heat No. 6054268 Heat Code 54 Date March 1, 1977  
 Steel Spec. C-1050

FOR PARTS: Diesel Locomotive Axles

CHEMICAL ANALYSIS

	C	Mn	P	S	Si	Cr	Ni	Mo	Va	Cu	B		GRAIN SIZE
MILL	.48	.85	.015	.031	.17								
S.F. CORP.													
S.F. CORP.													

JOMINY HARDENABILITY RESULTS

MILL  S.F. CORP **S-A-C RATING**

1/16ths	1	2	3	4	5	6	7	8	10	12	14	16	20	24	28	32	40	48
Rc																		
Rc																		

TENSILE TESTS

TEST NO.	DIAM. OF TEST PIECES	AREA	YIELD POINT		MAXIMUM LOAD IN POUNDS ACTUAL	TOTAL STRENGTH IN POUNDS PER SQ. IN.	Per Cent Elong.	Reduced Diam.	AREA	Per Cent Reduction	REMARKS
			IN POUNDS ACTUAL	POUNDS Per SQ. INCH							
1	.505	.2003	11100	55500	18800	94000	23.5	.375	.110	45.0	
2	.505	.2003	10900	54500	18500	92500	24.5	.369	.107	46.5	
3	.505	.2003	10900	54500	18600	93000	24.5	.371	.108	46.0	

MATERIAL TESTED

TEST NO.	S.F.C. ORDER NO.	QTY.	DESCRIPTION	SERIALS	CUSTOMER ORDER NO.	SPECIFICATIONS
1	32223	30	No. R-190055 Locomotive	77A774-	670290	M-101-72 Grade "F"
2	"	30	Axles, Drg. No. 8387283	77A869		Ultrasonically Tested
3	"	36	Rev. "A" 2-6-70	Inc.		Per AAR Spec. M-101A
			77A852			

Shipped 96 pcs. to Electro Motive  
 McCook, Ill. Via: Welsh Bros. 3-1-77

Tested By F Slicko  
 Witnessed By Ass't Metallurgist Title

STATE OF INDIANA }  
 COUNTY OF LAKE } ss.  
 March

On this 2nd day of Feb 1977 personally  
 appeared before me Frank Slicko  
 who made oath that the facts, statements and figures  
 herein set forth are true to the best of his information,  
 knowledge and belief

Carl Adams  
 Notary Public  
 MY COMMISSION EXPIRES: April 8, 1980

**CERTIFICATION OF CHEMISTRY AND PHYSICAL PROPERTIES**  
**Standard Forgings Corporation**

S.F.C. Lab. No. 2739 Heat No. 6054268 Heat Code 54 Date March 1, 1977  
 Steel Spec. C-1050

FOR PARTS: Diesel Locomotive Axles

**CHEMICAL ANALYSIS**

	C	Mn	P	S	Si	Cr	Ni	Mo	Va	Cu	B	GRAIN SIZE
MILL	.48	.85	.015	.031	.17							
S.F. CORP.												
S.F. CORP.												

**JOMINY HARDENABILITY RESULTS**  MILL  S.F. CORP **S-A-C RATING**

1/16ths	1	2	3	4	5	6	7	8	10	12	14	16	20	24	28	32	40	48
Rc																		
Rc																		

**TENSILE TESTS**

TEST NO.	DIAM. OF TEST PIECES	AREA	YIELD POINT		MAXIMUM LOAD IN POUNDS ACTUAL	TOTAL STRENGTH IN POUNDS PER SQ. IN.	Per Cent Elong.	Reduced Diam.	AREA	Per Cent Reduction	REMARKS
			IN POUNDS ACTUAL	POUNDS Per SQ. INCH							
1	.505	.2003	11100	55500	18800	94000	23.5	.375	.110	45.0	
2	.505	.2003	10900	54500	18500	92500	24.5	.369	.107	46.5	
3	.505	.2003	10900	54500	18600	93000	24.5	.371	.108	46.0	

**MATERIAL TESTED**

TEST NO.	S.F.C. ORDER NO.	QTY.	DESCRIPTION	SERIALS	CUSTOMER ORDER NO.	SPECIFICATIONS
1	32223	30	No. R-190055 Locomotive	77A774-	670290	M-101-72 Grade "F"
2	"	30	Axles, Drg. No. 8387283	77A869		Ultrasonically Tested
3	"	36	Rev. "A" 2-6-70	Inc.		Per AAR Spec. M-101A
			77A842			

Shipped 96 pcs. to Electro Motive  
 McCook, Ill. Via: Welsh Bros. 3-1-77

Tested By F Slicko  
 Witnessed By Ass't Metallurgist Title

STATE OF INDIANA }  
 COUNTY OF LAKE } ss.  
 March

On this 2nd day of Feb 1977 personally  
 appeared before me Frank Slicko  
 who made oath that the facts, statements and figures  
 herein set forth are true to the best of his information,  
 knowledge and belief.

*Carl Adams*  
 Notary Public  
 MY COMMISSION EXPIRES: April 8, 1980

**CERTIFICATION OF CONFORMANCE AND PHYSICAL PROPERTIES**  
**Standard Forgings Corporation**

S.F.C. Lab. No. 2739 Heat No. 6054268 Heat Code 54 Date March 1, 1977  
 Steel Spec. C-1050

FOR PARTS: Diesel Locomotive Axles

**CHEMICAL ANALYSIS**

	C	Mn	P	S	Si	Cr	Ni	Mo	Va	Cu	B		GRAIN SIZE
MILL	.48	.85	.015	.031	.17								
S.F. CORP.													
S.F. CORP.													

**JOMINY HARDENABILITY RESULTS**  MILL  S.F. CORP **S-A-C RATING**

1/16ths	1	2	3	4	5	6	7	8	10	12	14	16	20	24	28	32	40	48
Rc																		
Rc																		

**TENSILE TESTS**

TEST NO.	DIAM. OF TEST PIECES	AREA	YIELD POINT		MAXIMUM LOAD IN POUNDS ACTUAL	TOTAL STRENGTH IN POUNDS PER SQ. IN.	Per Cent Elong.	Reduced Diam.	AREA	Per Cent Reduction	REMARKS
			IN POUNDS ACTUAL	POUNDS Per SQ. INCH							
1	.505	.2003	11100	55500	18800	94000	23.5	.375	.110	45.0	
2	.505	.2003	10900	54500	18500	92500	24.5	.369	.107	46.5	
3	.505	.2003	10900	54500	18600	93000	24.5	.371	.108	46.0	

**MATERIAL TESTED**

TEST NO.	S.F.C. ORDER NO.	QTY.	DESCRIPTION	SERIALS	CUSTOMER ORDER NO.	SPECIFICATIONS
1	32223	30	No. R-190055 Locomotive	77A774-	670290	M-101-72 Grade "F"
2	"	30	Axles, Drg. No. 8387283	77A869		Ultrasonically Tested
3	"	36	Rev. "A" 2-6-70	Inc.		Per AAR Spec. M-101A
			77A795			

Shipped 96 pcs. to Electro Motive  
 McCook, Ill. Via: Welsh Bros. 3-1-77

Tested By F Slicko  
 Witnessed By Ass't Metallurgist Title

STATE OF INDIANA }  
 COUNTY OF LAKE } ss.

March  
 On this 2nd day of Feb 19 77 personally

appeared before me Frank Slicko  
 who made oath that the facts, statements and figures  
 herein set forth are true to the best of his information,  
 knowledge and belief

*Carl Adams*  
 Notary Public

MY COMMISSION EXPIRES: April 8, 1980

# Standard Forgings Corporation

S.F.C. Lab. No. 2158 Heat No. X573135 Heat Code \_\_\_\_\_ Date Feb. 4, 1977  
 Steel Spec. G-1050

FOR PARTS: No. R-190055 Locomotive Axles

## CHEMICAL ANALYSIS

	C	Mn	P	S	Si	Cr	Ni	Mo	Va	Cu	B			GRAIN SIZE
MILL	.49	.75	.021	.018	.29									
S.F. CORP.														
S.F. CORP.														

## JOMINY HARDENABILITY RESULTS MILL S.F. CORP

I/16 ths	S-A-C RATING																	
	1	2	3	4	5	6	7	8	10	12	14	16	20	24	28	32	40	48
Rc																		
Rc																		

## TENSILE TESTS

TEST NO.	DIAM. OF TEST PIECES	AREA	YIELD POINT		MAXIMUM LOAD IN POUNDS ACTUAL	TOTAL STRENGTH IN POUNDS PER SQ. IN.	Per Cent Elong.	Reduced Diam.	AREA	Per Cent Reduction	REMARKS
			IN POUNDS ACTUAL	POUNDS Per SQ. INCH							
1	.505	.2003	10600	53000	18500	92500	24.0	.371	.108	46.0	

## MATERIAL TESTED

TEST NO.	S.F.C. ORDER NO.	QTY.	DESCRIPTION	SERIALS	CUSTOMER ORDER NO.	SPECIFICATIONS
1	32223	35	No. R-190055 Locomotive Axles, Drg. No. 8387283 Rev. "a" 2-6-70	77A716-77A750 Inc.	670290	M-101-72 Grade "F" Ultrasonically Tested Per AAR Spec. M-101A
			77A723			

Shipped 35 pcs. to Electro Motive  
 McCook, Ill. Via: Welsh Bros. 2-3-77

Tested By Frank Slicko  
 Witnessed By \_\_\_\_\_ Ass't Metallurgist  
 Title \_\_\_\_\_

STATE OF INDIANA }  
 COUNTY OF LAKE } ss.

On this 4th day of Feb. 1977 personally  
 appeared before me \_\_\_\_\_ Frank Slicko  
 who made oath that the facts, statements and figures  
 herein set forth are true to the best of his information,  
 knowledge and belief.

*Carl Wolner*  
 Notary Public

MY COMMISSION EXPIRES: April 8, 1980

14222

GW-344 1-59

LOADING SHEET

GRIFFIN WHEEL COMPANY

PLANT

Bessemer

DATE

3-3-77

PAGE

1 of 1

SHIPPED TO  
Electro-Motive Division

ORDER NO.  
721543

INVOICE NO.  
4167

S.O. NO.  
3064

CARE OF  
General Motors Corporation

FREIGHT OR SWITCHING

SHIPPED

AT  
McCook, Illinois

COLLECT  PREPAID  
LOAD & COUNT  
DH

QTY. DIA. WGT. ROPE SIZE  
36 40 1156 9"

VIA  
Campbell '66'

CHECK COUNT  
DH

ENTERED S.O.  
DH

CAR INITIAL CAR NO. EST. WEIGHT  
41,616

TYPE OF CAR

LOAD LIMIT

BILL OF LADING  
DH

140 M/W  
"B" CD-40

"B" STEEL

"B" STEEL

ENT	DATE CAST		SERIAL NO.	DATE CAST	SERIAL NO.	DATE CAST		SERIAL NO.	DATE CAST		SERIAL NO.
1	2/77	-	5898	346	C7120	2/77	-	6051	345	C7136	
2	-	-	5901		"	-	-	6064		"	
3	-	-	5908		C7122	-	-	6046		"	
4	-	-	5913		"	-	-	6145		C7144	
5	-	-	5927		C7124	-	-	6146		"	
6	-	-	5929		"	-	-	6138		"	
7	-	-	5930		"	-	-	6135		"	
8	-	-	5938		"	-	-	6137		"	
9	-	-	5950		C7126	-	-	6189		C7150	
10	-	-	5956		"	-	-	6200		"	
11	-	-	5954		"	-	-	5916		C7122	
12	-	-	5960		"						
13	-	-	5957	345	"						
14	-	-	5975	346	C7128						
15	-	-	5974		"						
16	-	-	5978		"						
17	-	-	5970		"						
18	-	-	5982		"						
19	-	-	5966		"						
20	-	-	5991		C7130						
21	-	-	6001	345	"						
22	-	-	6030	346	C7134						
23	-	-	6028		"						
24	-	-	6025		"						
25	-	-	6047		C7136						

The wheels are to conform to the requirements for class U-74 for class U-74 for class U-74 steel wheels.



GRIFFIN WHEEL COMPANY - CHEMICAL ANALYSIS - E.Q.S. CAST STEEL WHEELS

REPORTED FROM Bessemer, Alabama

DATE March 3 19 77

DATE CAST	2/27	2/27	2/27	2/27	2/27	2/27	2/27	2/27	2/27	2/27			LAB TECH
HEAT NO.	C7120	C7122	C7124	C7126	C7128	C7130	C7134	C7136	C7144	C7150			
CARBON	62	64	64	65	64	60	62	64	62	57			
MANGANESE	75	77	77	76	74	64	65	67	65	70			MELTER
SILICON	33	38	39	41	37	34	37	33	34	38			
PHOSPHORUS	015	019	014	013	016	012	012	015	012	014			
SULPHUR	027	030	027	022	026	023	028	027	023	028			
DATE CAST													LAB TECH
HEAT NO.													
CARBON													
MANGANESE													MELTER
SILICON													
PHOSPHORUS													
SULPHUR													
DATE CAST													LAB TECH
HEAT NO.													
CARBON													
MANGANESE													MELTER
SILICON													
PHOSPHORUS													
SULPHUR													

CHECK ANALYSIS

DATE CAST													
HEAT NO.													
CARBON													
MANGANESE													
SILICON													
PHOSPHORUS													
SULPHUR													
DATE CAST													
HEAT NO.													
CHROMIUM													
NICKEL													
COPPER													

FERRO ALLOYS REPORT	SHIPPER	DATE REC'D	P.O. NO.	SI	CR	MANG	V	C