

① - Rec No.

850
13366

RECORDATION NO. 1425

1-351A119

Agatha L. Mergenovich
Secretary
Interstate Commerce Commission
Washington, D. C. 20423

No. **DEC 17 1981**
File # 50.00
ICC Washington, D. C.

DEC 17 1981 - 3 50 PM
INTERSTATE COMMERCE COMMISSION

Dear Ms. Mergenovich:

Enclosed for recordation under the provisions of Section 11303(a) of Title 49 of the U.S. Code are the original and five counterparts of a Reconstruction Agreement dated as of October 1, 1981. This Reconstruction Agreement is a primary document.

A general description of the locomotives covered by the enclosed document and intended for use related to interstate commerce is set forth in Schedule A attached to this letter and made a part hereof.

The names and addresses of the parties to the Reconstruction Agreement are as follows:

- Owner: IC Equipment Leasing Company
111 East Wacker Drive, Suite 2700
Chicago, Illinois 60601
- Rebuilder: Waterloo Railroad Company
Two Illinois Center
233 North Michigan Avenue
Chicago, Illinois 60601

The undersigned is the Owner mentioned in the enclosed document and has knowledge of the matters set forth therein.

Please return the original and ^{three}~~five~~ copies of the Reconstruction Agreement to Larry Elkins, Esq., Chapman and Cutler, 111 West Monroe Street, Chicago, Illinois 60603.

Also enclosed is a check in the amount of \$50.00 covering the required recording fee.

A short summary of the enclosed primary document to appear in the Index follows:

Reconstruction Agreement between IC Equipment Leasing Company, as Owner, 111 East Wacker Drive, Suite 2700, Chicago, Illinois 60601, and Waterloo Railroad Company, as Rebuilder, Two Illinois Center, 233 North Michigan Avenue, Chicago, Illinois 60601 covering the reconstruction of 11 locomotive hulks into 11 rebuilt locomotives.

Very truly yours,

IC EQUIPMENT LEASING COMPANY

By Christine J. Jann
Its Treasurer
OWNER AS AFORESAID

Enclosures

Christine J. Jann

SCHEDULE A

DESCRIPTION OF EQUIPMENT

<u>Number of Items</u>	<u>Description of Hulks</u>	<u>Description of Rebuilt Units</u>
11	SW-14 locomotives marked and numbered as follows: IC 451- IC 453- IC 474 - IC 483 - ICG 448 : ICG 452- ICG 459 ICG 469 ICG 473✓ ICG 481° CIW 104	ICG 1489- ICG 1499, both inclusive

Interstate Commerce Commission
Washington, D.C. 20423

12/17/81

OFFICE OF THE SECRETARY

Larry Elkins, Esq.

Chapman and Cutler

111 West Monroe Street
Chicago, Illinois 60603

Dear

Sir:

The enclosed document(s) was recorded pursuant to the provisions of Section 11303 of the Interstate Commerce Act, 49 U.S.C. 11303, on **12/17/81** at **3:50pm**, and assigned re-
recording number(s). **13366, 13367, 13368**

Sincerely yours,

Agatha L. Mergenovich
Agatha L. Mergenovich
Secretary

Enclosure(s)

13366

RECORDATION NO. Filed 1425

DEC 17 1981 - 3 20 PM

INTERSTATE COMMERCE COMMISSION

Matter No. 34624-7

RECONSTRUCTION AGREEMENT

Dated as of October 1, 1981

Between

WATERLOO RAILROAD COMPANY

REBUILDER

and

IC EQUIPMENT LEASING COMPANY

OWNER

(I.C.G. No. 81-4)
(11 Rebuilt Locomotives)

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Attachment to Reconstruction Agreement:

Schedule A - Description of Equipment

RECONSTRUCTION AGREEMENT

THIS RECONSTRUCTION AGREEMENT dated as of October 1, 1981 is between WATERLOO RAILROAD COMPANY, an Iowa corporation (the "Rebuilder") and IC EQUIPMENT LEASING COMPANY, an Illinois corporation (the "Owner").

R E C I T A L S:

A. The Owner and the Rebuilder, inter alia, have entered into a Participation Agreement dated as of October 1, 1981 (the "Participation Agreement").

B. Pursuant to a Hulk Purchase Agreement dated as of October 1, 1981 (the "Hulk Purchase Agreement") between the Owner and the Rebuilder, the Owner has agreed to purchase certain used locomotives described in Schedule A hereto (collectively the "Hulks" and individually a "Hulk") which are to be reconstructed by the Rebuilder in accordance with the specifications set forth in Annex I of Schedule A hereto (hereinafter, with such modifications therein as may be approved by the parties hereto, called the "Specifications"), and the Owner proposes to pay for such reconstruction of the Hulks at the price, in the manner and upon the terms and conditions hereinafter provided.

C. Pursuant to an Equipment Lease dated as of October 1, 1981 (the "Lease") the Owner will, upon completion of the reconstruction of a Hulk (such reconstructed Hulk being herein called an "Item of Equipment" and such items collectively herein called the "Equipment"), lease, as lessor, the Item of Equipment to Illinois Central Gulf Railroad Company (the "Lessee"), as lessee.

NOW, THEREFORE, in consideration of the premises and of the covenants and agreements hereinafter set forth, the Owner and the Rebuilder hereby agree as follows:

SECTION 1. RECONSTRUCTION OF THE EQUIPMENT.

The Rebuilder agrees at all times under and pursuant to the instruction, direction and control of the Owner (i) to reconstruct the Hulks, in accordance with the Specifications, for the Owner, (ii) to number and mark each Item of Equipment with the road numbers specified with respect thereto in the Lease, (iii) to cause each Item of Equipment to be plainly, distinctly, permanently and conspicuously marked by a plate or stencil printed in contrasting colors upon each Item of Equipment in letters not less than one inch in height with the words "Subject to a Security Interest Recorded with the I.C.C.", and (iv) to deliver each Item of Equipment to the Owner, as and when so reconstructed, marked and numbered, all for the Reconstruction Cost provided in Section 5 hereof. The Rebuilder warrants to

the Owner that the design, quality and component parts of each Item of Equipment as so reconstructed will conform to all applicable laws, to all United States Department of Transportation and Interstate Commerce Commission requirements and specifications, if any, and to all standards recommended by the Association of American Railroads reasonably interpreted as being applicable to railroad equipment of the character of the Equipment (as so reconstructed) as of the date such Item of Equipment is delivered to the Lessee; provided, however, that in the event any such requirements, specifications or standards as of such date are revised from the requirements, specifications or standards as in effect on the date hereof, the Rebuilder shall consult with the Owner and obtain its consent to modify the Specifications to conform to such revision.

SECTION 2. TIME AND PLACE OF DELIVERY; WARRANTY.

The Owner will deliver the Hulks, or cause the Hulks to be delivered, to the Rebuilder at the plant of the Rebuilder located at the rebuilding site identified in Schedule A hereto. The Rebuilder will deliver the reconstructed Equipment to the Owner for acceptance in the manner provided in Section 4 hereof with freight charges, if any, prepaid by the Rebuilder at the delivery point or points mutually agreed upon by the Owner and the Rebuilder from time to time following the execution and delivery of this Agreement, but such delivery and acceptance for each Item of Equipment shall take place prior to the Outside Delivery Date provided in Section 3 hereof. The Rebuilder agrees and warrants to the Owner that it will not accept for reconstruction, nor commence any reconstruction of, any Hulk if (i) the Rebuilder cannot fully reconstruct such Hulk in accordance with the Specifications prior to the Outside Delivery Date provided in Section 3 hereof, (ii) an Event of Default under the Lease, or an event which, with the lapse of time or the giving of notice, or both, would constitute an Event of Default thereunder, shall have occurred, (iii) there shall have been commenced any proceeding or there shall have been filed any petition under the Federal or any local bankruptcy or insolvency laws by or against the Rebuilder or any of its property, or (iv) the Owner or any Participant (as defined in the Participation Agreement) shall have delivered written notice to the Rebuilder that any condition contained in Sections 4.1 through 4.6 of the Participation Agreement which is by its terms to be satisfied on or prior to the date of such notice has not been satisfied or waived.

SECTION 3. OUTSIDE DELIVERY DATE.

The Rebuilder agrees that all Items of Equipment will be reconstructed and delivered prior to December 30, 1981 (the "Outside Delivery Date"). The Rebuilder's obligations to so reconstruct and deliver shall be absolute and unconditional, regardless of any

events which might otherwise be deemed to constitute force majeure. In the event that the Rebuilder fails to perform such obligations, Section 11 hereof shall apply.

SECTION 4. INSPECTION AND ACCEPTANCE.

The Owner shall designate a representative to accept delivery of each Item of Equipment hereunder, which representative may be an employee of the Lessee. Notwithstanding the acceptance of an Item of Equipment hereunder by the Owner, all of the Rebuilder's obligations herein set forth shall survive delivery, including, without limitation, the obligation to rebuild the Hulks in accordance with the Specifications.

SECTION 5. PAYMENT FOR RECONSTRUCTION OF EQUIPMENT.

The reconstruction cost for each Item of Equipment shall be the amount set forth on Schedule A hereto for such Item of Equipment (the "Reconstruction Cost"). The Reconstruction Cost for each Item of Equipment shall be set forth in an invoice covering the respective Items furnished by the Rebuilder to the Owner on or prior to the Rebuilt Equipment Closing Date (as defined in the Participation Agreement) on which the Reconstruction Cost thereof is to be paid by the Owner, which invoice shall be accompanied by a statement of the Rebuilder setting forth its opinion to the effect that the Reconstruction Cost of the Items of Equipment covered thereby plus the Hulk Purchase Price (as defined in the Hulk Purchase Agreement) of the reconstructed Hulks covered by that invoice does not exceed the fair market value of such Items of Equipment. Subject to the fulfillment of the applicable conditions in the Participation Agreement, payment of the Reconstruction Cost for each Item of Equipment shall be made to the Rebuilder on the Rebuilt Equipment Closing Date therefor under the Participation Agreement by wire transfer of immediately available funds to such bank located in the United States as the Rebuilder shall designate by not less than five days' prior notice to the Owner in writing.

SECTION 6. RECONSTRUCTION WARRANTY.

THE OWNER MAKES NO WARRANTIES WHETHER WRITTEN, ORAL, STATUTORY OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WITH RESPECT TO THE HULKS OR THE EQUIPMENT OR IN CONNECTION WITH THIS AGREEMENT OR THE DELIVERY AND SALE OF THE EQUIPMENT HEREUNDER. The Rebuilder warrants that the Hulks will be reconstructed in accordance with the Specifications and any changes thereto approved by the Owner and warrants the reconstructed Items of Equipment will be free from defects in material, workmanship and design under normal use and service, the obligation of the Rebuilder under this Section 6 being

limited to making good at its plant any part or parts of any reconstructed Item of Equipment, which shall, within one year after the delivery of such reconstructed Item of Equipment to the Owner, be returned to the Rebuilder with transportation charges prepaid, and which upon examination by the Rebuilder, shall be disclosed to its reasonable satisfaction to have been thus defective. This warranty is expressly in lieu of all other warranties (other than warranties of subcontractors and suppliers which are hereby assigned to the Owner, and the warranties of the Rebuilder contained herein), express or implied, and of all other obligations or liabilities on the part of the Rebuilder except as herein provided, and the Rebuilder neither assumes nor authorizes any person to assume for it any other liability in connection with the reconstruction of the Equipment and delivery of the reconstructed Equipment except as aforesaid. The Rebuilder further agrees with the Owner that the acceptance of any reconstructed Item of Equipment hereunder shall not be deemed a waiver by the Owner of any of its rights under this Section.

SECTION 7. REPRESENTATION AND WARRANTY AS TO TITLE.

The Rebuilder represents that upon completion of the reconstruction of each Item of Equipment hereunder, at the time of delivery and acceptance of such Item by the Lessee as lessee under the Lease, such Item will be free and clear of all liens and encumbrances of persons claiming by, through or under the Rebuilder, other than the right of the Rebuilder to be paid the Reconstruction Cost for such Item as herein provided and the liens and encumbrances created by the Owner under the Operative Agreements (as defined in the Participation Agreement). The Rebuilder further warrants that it will pay and discharge any and all claims which might constitute or become a lien or charge upon such Item other than claims arising from, through or under the Owner unless the Rebuilder shall, in good faith and by appropriate legal proceedings, contest the validity thereof in any reasonable manner which will not, in the opinion of the Owner, affect or endanger the title and interest of the Owner to such Item. The Rebuilder's obligations under this Section 7 shall survive the completion of reconstruction and payment for the Equipment as provided herein.

SECTION 8. REBUILDER'S INDEMNITY.

The Rebuilder hereby agrees to indemnify and hold the Owner and the Note Purchaser (as defined in the Participation Agreement) and their respective successors, assigns, directors, officers and agents harmless from and against any and all losses, claims, liabilities and expenses which arise out of or relate to the ownership interest of the Owner in any Hulk during the period of reconstruction thereof or the reconstruction of such Hulk or any testing or other processing of such Hulk prior to acceptance of such reconstructed Hulk by the Lessee under the Lease (including

claims for patent, trademark or copyright infringement in connection with the reconstruction of such Hulk as provided herein and claims for strict liability in tort).

SECTION 9. INSURANCE.

The Rebuilder will at all times during the period from the delivery of a Hulk to it hereunder to and including the (a) delivery of such Hulk as an Item of Rebuilt Equipment to the Lessee under the Lease or (b) sale or other disposition of a Non-completed Hulk (as defined in Section 11 hereof) pursuant to Section 11 hereof, at its own expense, cause the Hulks to be insured, in the same manner and to the same extent as if such Hulks were subject to the insurance provisions of Section 11 of the Lease, and evidence thereof shall be furnished as provided in the Lease.

SECTION 10. RIGHT OF INSPECTION.

During reconstruction, including, without limitation, all phases of fabrication and assembly, the Hulks and all work thereon shall be subject to inspection and approval by the Owner and the Note Purchaser; provided, however, that any inspection or failure to inspect by any such party shall not affect any of their respective rights hereunder. The Rebuilder shall grant to the authorized inspectors of each such party access to all portions of its plant where Hulks are being reconstructed.

SECTION 11. FAILURE TO RECONSTRUCT.

If and to the extent that any Hulks are not reconstructed and accepted pursuant to this Reconstruction Agreement and the Lease on or before December 30, 1981 (the "Non-completed Hulks"), the Rebuilder agrees, upon receipt of written instructions to such effect from the Owner and as agent for the Owner, to sell the Non-completed Hulks to a party other than the Rebuilder or any affiliate of the Rebuilder, on or before December 30, 1981, at the highest cash price obtainable. On December 30, 1981, the Rebuilder will pay to the Owner the Net Proceeds from such sale and, if such Net Proceeds (as defined below) are less than the Aggregate Hulk Purchase Price (as defined below) plus interest thereon at the Prime Rate (as defined in the Notes) for the period from and including the Hulk Closing Date (as defined in the Participation Agreement) to but not including December 30, 1981, the Rebuilder will, as liquidated damages for failure to complete the reconstruction of the Non-completed Hulks as provided in this Reconstruction Agreement, pay to the Owner on December 30, 1981, an amount equal to the difference; provided that all rights of both the Rebuilder and the Owner in and to the Non-completed Hulks and the proceeds thereof shall be subject and subordinate to the prior right and security interest therein of the Secured Party under the Security Agreement.

The Owner agrees to furnish to the Rebuilder all such bills of sale, without recourse or warranty, as shall be reasonably required to enable the Rebuilder to effect the sale of the Non-completed Hulks for the account of the Owner as aforesaid. For purposes of this Section only, "Aggregate Hulk Purchase Price" shall mean the sum of the respective Hulk Purchase Prices for each Non-completed Hulk and "Net Proceeds" shall mean gross sales proceeds less selling expenses less, to the extent Net Proceeds are not reduced below the Aggregate Hulk Purchase Price plus interest thereon as described above, the Rebuilder's reasonable Reconstruction Cost plus a reasonable overhead factor (such latter deduction being hereinafter referred to as the "Rebuilder's Portion of the Gross Proceeds").

SECTION 12. NOTICES.

Any notice to be given by either party hereto to the other shall be in writing and shall be deemed to have been duly given when delivered personally or otherwise actually received at the following addresses:

If to the Rebuilder: Waterloo Railroad Company
Two Illinois Center
233 North Michigan Avenue
Chicago, Illinois 60601
Attention: Treasurer

If to the Owner: IC Equipment Leasing Company
111 East Wacker Drive, Suite 2700
Chicago, Illinois 60601
Attention: Treasurer

or at such other address as such party shall hereafter furnish to the other party in writing.

SECTION 13. SUCCESSORS AND ASSIGNS.

References to any party herein shall be deemed to include the successors and assigns of such party; provided, however, that no assignment by the Rebuilder or any assignee thereof shall subject any assignee to, or relieve the Rebuilder from, any of the obligations of the Rebuilder hereunder. Each party hereto may conclusively assume that there has been no assignment of the other party's rights under this Agreement unless and until it shall have been notified in writing of any such assignment by such assignor.

SECTION 14. LAW GOVERNING.

This Reconstruction Agreement shall be construed in accordance with the laws of the State of Illinois.

SECTION 15. EXECUTION IN COUNTERPARTS.

This Agreement may be executed in several counterparts, each of which so executed shall be deemed to be an original, and such counterparts together shall constitute but one and the same instrument.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their respective officers thereunder duly authorized as of the day and year first above written.

(Seal)

Attest:

M. A. O'Connor
Secretary

WATERLOO RAILROAD COMPANY

By R. W. Hart
Its Vice President

REBUILDER

(Seal)

Attest:

E. M. Skill
Authorized Officer

IC EQUIPMENT LEASING COMPANY

By J. W. Buhner
Its Authorized Officer

OWNER

STATE OF ILLINOIS)
) SS
COUNTY OF COOK)

On this 30th day of October, 1981, before me personally appeared LW Baker, to me personally known, who being by me duly sworn, says that he is a Treasurer of IC EQUIPMENT LEASING COMPANY, that one of the seals affixed to the foregoing instrument is the corporate seal of said corporation, that said instrument was signed and sealed on behalf of said corporation by authority of its Board of Directors, and he acknowledged that the execution of the foregoing instrument was the free act and deed of said corporation.

Mary P. Amick
Notary Public
Amick

[NOTARIAL SEAL]

My commission expires:

My Commission Expires Jan. 21, 1985

STATE OF ILLINOIS)
) SS
COUNTY OF COOK)

On this 30th day of October, 1981, before me personally appeared R. W. Durr, to me personally known, who being by me duly sworn, says that he is a Vice President of WATERLOO RAILROAD COMPANY, that one of the seals affixed to the foregoing instrument is the corporate seal of said corporation, that said instrument was signed and sealed on behalf of said corporation by authority of its Board of Directors, and he acknowledged that the execution of the foregoing instrument was the free act and deed of said corporation.

Virginia D. Shanahan
Notary Public

[NOTARIAL SEAL]

My commission expires:

May 4, 1984

DESCRIPTION OF EQUIPMENT

Reconstruction Specifications: See Annex I hereto

Outside Delivery Date: December 30, 1981

Location of Rebuilder's Plant: Paducah, Kentucky

<u>Number of Items</u>	<u>Description of Hulk</u>	<u>Description of Rebuilt Units</u>	<u>Reconstruction Cost per Item</u>	<u>Aggregate Reconstruction Cost</u>
11	SW-14 locomotives marked and numbered as follows:	ICG 1489- ICG 1499, both inclusive	\$426,200	\$4,688,200
	IC 451			
	IC 453			
	IC 474			
	IC 483			
	ICG 448			
	ICG 452			
	ICG 459			
	ICG 469			
	ICG 473			
	ICG 481			
	CIW 104			

ANNEX I
TO DESCRIPTION OF EQUIPMENT

Specifications for Reconstruction

The design, quality and component parts of each Item of Equipment as reconstructed will conform to all applicable United States Department of Transportation and Interstate Commerce Commission requirements and specifications, if any, and to all standards recommended by the Association of American Railroads reasonably interpreted as being applicable to railroad equipment of the character of the Equipment (as so reconstructed) as of the date of delivery of such Item and to the further specifications attached to this Annex.

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GENERAL DATA

MODEL	ICG SW14
HORSEPOWER	1200 ± 50
ENGINE	12-567 "BC" or "C"
(15) MAIN GENERATOR	D25 (D15C if <u>not</u> rewound)
AUXILIARY GENERATOR	10 KW
(2) TRACTION MOTOR	D-47 (minimum)
AIR BRAKE	26 NL
SAND CAPACITY	24 cu. ft.
FUEL CAPACITY	600 gal. (minimum)
COOLING WATER CAPACITY	230 gal.
LUBE OIL CAPACITY	170 gal.
GEAR RATIO	62/15
WEIGHT (APPROX.)	242,000 - 248,000 Lbs.

Note: All units equipped for M.U. operation.

Main Frame

1. Strip frame and sand blast.
2. Inspect the following critical areas for damage and wear and restore to standard dimensions:
 - a. Draft gear pockets
 - b. Center castings
 - c. Air ducts
 - d. Fuel tank supports
 - e. Mounting pads for engine, main generator and air compressor
3. Repair all damaged and worn areas.
4. Check frame alignment and straighten as required.
- (32) 5. Make all required frame alterations and install drains per Dwg. 8257 - drains must not drain on rails.
6. Install all new channel type handrail stanchions with handrails included on both sides per dwg. 8642.
7. Inspect and renew all piping that is critically worn and renew all under frame piping less than 3/4" I.P.S. with rigid copper tubing.
8. Install uncoupling levers in accordance with FRA Side Step Rule 231 - renew as required per dwg. 8480.
- (33) 9. Rework all bent endplates and install new pilot plate with adjustable plate on each end per Dwg. 8668.
10. Rework all corner steps in accordance with FRA Rule 231 per dwg. 8480.
11. Provide panel for electric emergency fuel shut off button per dwg. 8482.
- (16) 12. Renew all traction motor underframe leads using Neoprene cable cleats, URE Service B-14125, as replacement clamps, and with reworked (new as required) solder type clasp connectors, 8160270, on underframe ends.

Main Frame (continued)

13. Install MU arrangement at each end (as required):
 - a. Hinged ramps per dwg. 8170
 - (57) b. "Captain's hook" cable holder, 8472802, under each ramp.
 - c. Hand rail arrangement with bendaway stanchions and safety chains per dwgs. 8678 and 8674
 - d. Trainline electrical receptacles, 8242444, per dwg. 8589
 - e. Platform lights per dwg. 8480
- (34) 14. Delete
15. Install step light at each down step per dwg. 8477.
- (51) 16. Delete Frog brackets.
17. Pipe engine air box drains below frame to drain outside the rails per dwg. 8257-A.

Fuel Tank - 600 Gallon Capacity

1. Remove and steam tank.

2. Cut open top of tank.

3. Inspect interior for loose or worn plates, for cracks, and any other possible damage - repair as required.

4. Thoroughly clean interior of tank.

5. Reweld top back in position, test tank for leaks, ensure that all water is removed.

6. Install long fuel sight glasses, 8370681, on each side per dwg. 8643. Remove all other fuel sight glasses from the tank.

7. Install fuel tank drain valve and cover per dwg. 7323.

8. Install vent pipe in accordance with the following:

- a. Install one each 2" vent pipe on right side per dwg. 8643 to vent outside rails.
- b. Delete flame arrester, 8167296.
- c. Install Farr vent filter canister, B-36253, with element, B36272.
- d. Remove all other vent piping.

9. Install reworked or new Houston automatic shut-off fuel fill system with:

- a. Coupler H-1023
- b. Cap H-1024
- c. Horizontal pilot valve H-1029-C , dwg. _____
- d. Aeroquip hose

haft Gear - Coupler - 485-5A gear with "E" coupler

1. Dismantle, clean, and inspect yoke and coupler for wear and damage - weld and machine back to standard as required.
2. Renew all pins and bushings.
3. Renew all rubber gear pads.
4. Rework coupler carrier.

Cab

1. Manufacture complete new cab with new design front end sheet per dwg. 8251.
2. Install all new conduit and wiring.
3. Install insulation in ceiling and walls. Cover ceiling, area on each side of side windows and area over front and rear windows with perforated metal, and cover area below windows with 3/16" sheet iron on the sides and 1/8" sheet iron front and rear.
- (52) 4. Install new sand boxes with round fill covers, 8347857, per dwg. 8251,-- delete screens.
5. Install 1" Benelex flooring.
6. Install new cab doors with safety hooks:
 - a. Front door, 9089628, with lock body, 8284665, and and handle, 8154876
 - b. Rear door, 8370440, with lock assembly, 8370808Provide door handle clearance of 2 1/2" between handrail and opened rear door.
7. Install steps and skirts with rubber bumper, 8024232, to provide door stop:
 - a. At front door, per dwg. 8251 - Sheet 1
 - b. At rear door, per dwg. 8569
8. Install FRA Part 223 certified glazing - Type I for front and rear facings; Type II polycarbonate for side facings (ref. dwg. B100632 Rev. C and JTN dwg. 35072). Use J. T. Nelson kit 58032 which includes glazing, sliding sashes, seals, and J frames.
- (25) 9. Install Schell bay window, S-53326-3L- on engineer's side only (Schell's left hand designation). Cab awnings are deleted; however, install per dwg. _____ for future use.

Cab (continued)

10. Install cab ceiling lights, 9096838.
11. Install dual sealed beam headlights and modulite panels - use new Translite housing C14685-A, as required.
12. Install class lights, 8355678.
13. Install ratchet lever hand brake, 8191508.
14. Install electric cab heaters from Prime Mfg. Co. per dwg. _____:
 - a. Engineer's side, PM-5006-3
 - b. Fireman's side, PM-5002 (strip heater)
15. Install rail mounted GP type cab seats, 9087100 - one on each side.
16. Install emergency brake valve per dwg. C51166.
17. Install cab accessories per dwg. 8261:
 - a. Federal card holder, PPC-12182
 - b. Card holder, PPC-12208
 - c. Flag, fusee, torpedo holder, PPC-5002614
 - d. Dry chemical holder, PPC-11433
 - e. 24 hour trip inspection holder, PPC-11437
 - f. Decal "Procedures for Starting and Shutting Down Diesel Engines"
 - (46) g. Water cup dispenser from PPC (ICG Dwg. J2864)
- (26) (24) 18. Install new (AAR) console controller manufactured per dwg. 8281 with space provided for integral mounting of AAR clean cab radio. Install per dwg. 8261 with brace between stand and cab front wall.
19. Install 20 lb. Ansul fire extinguisher per dwg. 8261.
20. Install Ajax 685 water cooler.
- (3) 21. Install fresh air ventilator, 626-040, on outside of cab; and trim, 2756-010, on inside of cab per Dwg. 8251.

Carbody (Long Hood)

1. Remove hood, strip all components, and sand blast.
2. Inspect and renew all damaged and rusted out sections.
3. Modify radiator compartment and fan housing (as required) per dwgs. 8485 and 8278 respectively.
- (53) 4. Inspect and clean out sand boxes and modify inlet chute for round cover, 8347857, or renew boxes (as required) per dwg. _____, -- delete screens.
5. Qualify or renew (as required) all door hinges and latches - latches to be 8158536.
6. Qualify roof hatches over prime mover.
7. Install (as required) bolt on roof hatch for auxiliary generator change out per dwg. D52774.
8. Recondition all door louvers and carbody filter holders (ref. dwg. C51154).
9. Apply putty, sand, clean, and apply primer.
10. Renew all wiring and renew all conduit as required.
11. Install 6" radiators - 3 sections per side.
12. Install radiator air discharge screens, 8370775, (or shop made, dwg. _____).
13. Install Ogontz model EMD S4 cooling system by-pass valve.
14. Rework or renew (as required) shutter assembly, 8371821, and screen, 8307776. (Screen may be shop made per dwg. _____.)
15. Install dual sealed beam headlight and modulite panels - use new Translite housing assembly, C14685-A, as required.
16. Install class lights, 8355678.
17. Install new Salem magnet valves per dwg. _____.
18. Install hose, 8169073, or equivalent, to bell ringer.
19. Donalson engine air filter system, model EYB12-0145, bolted to blower adapter.
- (47) 20. Modify right side per Dwg. _____ for bolt-on panel to facilitate changing of air compressor. (1457 - first unit to receive this modification)

Radiators - 6" cores

- (35) 1. Assemble radiator sections with new radiator cores.
- (36) (27) 2. Delete
3. Delete
4. Delete
5. Delete
6. Delete
7. Delete
8. Delete radiator header screens.
- (37) 9. Assemble cores with new heads and straps for 6" cores (qualified heads and straps are acceptable).
10. Renew all gaskets.
11. Water hydro assembled radiator section at 50 - 60 PSI.
12. Delete

Traction Motor Blower System - SW9 Type

- (13) 1. Qualify SW9 type arrangement as required.
2. Install with all new bearings.
 3. Install with all new belts.
 4. Inspect belt sheaves and renew as required.
 5. Install inspection door per dwg. D52767 in top of guards covering fan belts for front and rear traction motor blowers.

Cooling Fan - SW9 Type

- (13) 1. Qualify 5-belt SW9 type arrangement as required.
2. Install with all new bearings.
- (38) 3. Install all new belts - adjust idler to provide 1/4" belt deflection at center of span between idler and upper sheave when 10 to 15 lb. pressure is applied (ref. EMD MI 1216).
4. Inspect belt sheaves and renew as required.

(17) (13) Note: As of November 1980, there remains only nineteen SW7/NW2 which will require conversion of traction motor blower system and cooling fan system - all remaining units will be SW9's.

Trucks - Gear Ratio 62/15 - Roller Bearing Type

(Ref. Axle, Elliptical Springs, and Journal Box sections.)

1. Dismantle; sand blast frame and bolster.
2. Sand blast or roto blast: swing hanger, brake hangers and brake rods.
3. Visually inspect frame for cracks and worn areas; repair as required.
4. Tram frame and straighten as required.
5. Weld and grind pedestal jaws as required.
6. Weld and redrill traction motor support lug.
7. Renew all pins and bushings.
8. Renew all worn wear plates.
9. Install tested and matched coil springs.
10. Weld on metal pedestal liners, PPC 2814.
11. Install reworked and tested or new elliptical springs.
12. Install reworked brake cylinders.
13. Rework brake hangers and straps.
14. Install reworked journal boxes.
15. Rework or install new quik-just slack adjusters - Touchstone 22152-22A
16. Rework gear cases renewing all seals; fasten with huck fasteners.
17. Reinforce spring pockets and bolster air duct per dwg. 7760.
18. Chamfer all brake lever openings.

Wheel/Axle Assembly (roller bearing type) 62/15 Gear Ratio

1. Reflectoscope and qualify all axles.
2. Inspect (magnaglo) and qualify gear, replace as required with new or reprofiled 62-tooth gear.
3. Install new axle EMD 8288849 or modify axle for installation of roller bearings per dwg. D53134.
4. Polish and roll traction motor support bearing area; turn if necessary.
5. Mount new 40" wheels - AAR D40 class B; mount using boiled linseed oil - Spec. ANSI/ASTM D260.

Journal Boxes (roller bearing type) - Timken 6 1/2" x 12"

1. Install housing, Timken K-125601.
2. Roller bearing assembly, Timken HM-133444 - 90075 (includes axle end cap and locking plate).
3. Torque cap screws 360-390 ft. lbs. and ensure that locking plate tabs are bent against cap screw heads.

Note: See Timken sheets A-34676 and A-39212 for list of component parts.

Elliptical Springs

1. Clean in hot tank.
2. Inspect for defects.
3. Check free height.

If springs fail inspection or free height check - following must be done:

- a. Cut band
- b. Reset leaves or manufacture new
- c. Quench and temper leaves
- d. Reband with new band
- e. Test spring

Equipment Rack

1. Manufacture new frame per dwg. 8178.
2. Install qualified 4-element lube oil filter tank.
- (7) 3. Install new water tank with baffle manufactured by shop per Dwg. _____.
4. Install SW-1500 lube oil cooler, 8365865 (ref. lube oil cooler section).
5. Install large sock type primary fuel filter, 9502100.
6. Install fuel strainer, 8341983 (includes element, 9324489).
- (28) 7. Install fuel oil heater 9417269, mounted vertically with thermostatic mixing valve, 9091415, per dwg. _____. No manual valves in line. (1448, 1451 and all subsequent units have this heater - previous units had Vapor 588-2 preheaters).
8. Install temperature manifold, 8367623, with the following Sundstrand switches with 3 pole plug, 8324136:

<u>Switch</u>	<u>Sundstrand P/N</u>	<u>Close</u>	<u>Open</u>
SH	975-0485-006	175° F	165° F
ETS	975-0485-011	200° F	190° F
9. Install pressurized cooling system with PPC-6213, 7 P.S.I. pressure cap.
10. Install prime/start switch - 8441983.
11. Install air compressor control panel with Salem 775 test fitting on air gauge.
12. Install lube oil pressure gauge.
13. Install reworked fuel pump and motor.
14. Install all piping per dwg. 8178.
15. Install all new conduit and wiring; governor wiring to be high temperature wire, AAR Spec. 590.
- (39) 16. Connect equipment rack piping to engine water pumps with shop modified Morman coupling tee (in lieu of tee, 8390156).

Lube Oil Cooler - 8365865

1. Requires -

2 each 8221295 - Outlet Coupling

2 each 8213940 - Gaskets

2. Install and pipe per lube oil and water piping dwg. 8178.

Engine - Model 567 "BC" or "C"

1. Strip and clean case and pan in hot tank.
2. Convert "B" to "BC" as required.
3. Paint crankcase and oil pan with sealer.
4. Inspect and repair or correct as required:
 - a. "A" frame alignment
 - b. Crankcase and oil pan
 - c. Thrust collar
 - d. Lower liner
 - e. "P" pipe alignment
5. Spot face main bearing caps for hardened flat washer and nut.
6. Tap all bolt holes and repair by installing new thread inserts, RKK. furnished by Tridair Industries.
- (58) 7. Rework all component parts - dismantle, clean, inspect, renew all worn parts, seals, and gaskets: both lower liner Viton seals, 9316850 (use 8228554 until stock runs out):
 - a. Water pumps
 - b. Lube oil pumps
 - c. Blowers - test run for 1 hour
 - (14) d. Crankcase protector, 8464678 - adjust reset to 60" H₂O (ref. Pointer 10-13-80)
 - e. Oil separator
 - f. Governor - electro hydraulic with rotary terminal shaft - overspeed trip setting set at 920-935 RPM (for 8th notch speed setting of 800 RPM)
 - g. Governor drive
 - h. Injectors - No. 5229295 - BC
5229290 - C
 - i. Harmonic balancer - 6 spring packs, new spring plate and pins required.

Engine - Model 567 "BC" or "C" (continued)

- j. Accessory drive gear
- k. Lube oil relief valve
- l. Auxiliary generator drive assembly
- m. Overspeed trip housing - use seals, 9095686
- n. Front and rear housing assemblies
- o. Lube oil crossover manifold assembly
- (18) p. Top deck frames (mount with gasket and TDAS oil sealing caulk), covers and piping.
- q. Lube oil strainer housing
- r. Camshaft assemblies:
 - (1) Polish all journals and cams
 - (2) Check run out
 - (3) Renew all bearings
- s. Idler gear stubshaft assembly - machine for increased oil passage per dwg. 7784.
- t. Layshaft:
 - (1) Inspect and straighten - remove burrs
 - (2) Spray weld, grind, and polish all worn areas
- u. Handhold cover assemblies
- v. Power assemblies:
 - (1) Cylinder heads - inconel valves
 - (2) Pistons - Koppers or EMD rings
 - (3) Liners - reworked cast iron or chrome plates
 - (4) Connecting rods
 - (5) Carriers

Engine - Model 567 "BC" or "C" (continued)

- (6) Wrist pin
- (7) Rocker arms
- (8) Valve bridges
- (9) Cylinder head, overspeed trip mechanism, injector control linkage

Note: Use Parker head-to-liner seal assembly 698-058; install dry and torque to 240 ft. lbs.

w. Crankshaft assembly - qualified steel or chrome plated:

- (1) Remove all plugs and clean oil passages.
- (2) Magna-glow inspection for cracks.
- (3) Measure all journals.
- (4) Inspect and polish all journals.
- (5) Apply new pipe plugs and clean oil passages.
- (6) Install new main bearings - Clevite.
- (7) Install new connecting rod bearings - Clevite.
- (8) All journals must be standard dimensions.
- (9) Bolt on stub end - if stub end is damaged.
- (10) Inspect oil slinger.

8. Reassemble all parts using new gaskets and seals.

Engine - Model 567 "BC" or "C" (continued)

9. Install new:
 - a. Cylinder relief valves, PPC -11695
 - b. Idler and blower drive gear bushings and thrust washers
 - c. Spin-on fuel filter, 8423132 (or approved equal)
 - d. Data badge plates
 - e. Injector timing badge plate, 8293392
 - f. Lower liner inserts
 10. Install new style flywheel (old style modified per dwg. _____) using new hardened washers and nuts.
 11. Water hydro test engine.
 12. Set injector racks and injector timing.
 13. Set exhaust valves.
 14. Take cylinder head clearance lead readings.
 15. Fill out all engine rebuild data sheets.
 16. Load test engine in test cell per instructions from R. W. Leedy
May 20, 1980.
- (19) Note: Model AC engines may be used whenever "BC" or "C"s are not available. Whenever an "AC" model is used, mount accessory housing (front) using gasket and TDAS oil sealing caulk.

Exhaust System

1. Install manifolds with spark arrestors, Farr Kit L-55025.

Air Brake Schedule - 26 NL

1. Install system in accordance with air brake schematic dwg. 8122.
2. Install new 6-NR distributing valve portion with safety valve, 560775.
3. Install ball type vented 1 1/4" angle cock, 8416261, on brake pipe trainline.
4. Install brake cylinder quick release valve 41835 with 1/4" orifice in exhaust.
5. Install Salem air gauge test fittings at the following points:
 - a. Main reservoir gauge - use 775
 - b. Air compressor control switch - use 775-3
 - c. Emergency sand switch - ESS - use 775-3
 - d. Pneumatic control switch PCS - use 775-3
6. Install Swagelok fittings on all copper tubing.
7. All trainline air piping cut-out cocks are to be ball type-locking handle.
8. All trainline air piping less than 3/4" IPS must be copper tubing.
9. Install two KM-2 vent valves, 705435.
10. Install brake valve exhaust pipes through floor per dwg. 8144.
11. Install MU air hoses at end plates per dwg. 8135.

Air Compressor - WBO Low Base

1. Dismantle and clean all parts.
- (48) 2. Delete
3. Renew all bearings, seals and gaskets.
4. Renew piston rings.
5. Qualify pistons and wrist pin, install new as required.
6. Install Triangle drilled HP connecting rod, 6250.
- (40)7. Install Triangle full-flow oil system:
 - a. Oil pump/filter kit - 65511
 - b. Crankshaft with 180° conversion on oil pump eccentric
 - c. LP Piston - 6344 HP Piston - 6342
 - (48) d. Expander type ring set 6604 consisting of:
 - 1 each top compression ring 6721)
 - 2 each top compression ring 6722) for HP piston
 - 1 each expander ring 6724)
 - 6 each compression rings 6742) for 2 each
 - 2 each expander ring 6744) LP pistons
8. Remanufacture cylinder head assemblies.
9. Install honed to standard size cast iron cylinder liners - install sleeved liners as required.
10. Remanufacture inter cooler.
11. Renew new shims and check crankshaft lateral.
12. Install PPC dip stick, PPC-10516.
13. Fiberglass filter EMD 8402067 - or equivalent.
14. Install Aeroquip quick-disconnect fitting, 5600-4-4, for checking oil pressure. (Delete oil pressure gauge)
15. Install EMD Compressor Sediment Removal Kit - 8498379.
16. Replace crankcase breather valve assembly with Reed type, 9519501.
17. Load test 4 hours.
18. Install fan drive sheave, 8164679, (5-belt SW9 type) and blower drive sheave, 8163168.
19. Install on locomotive and install water piping per Dwg. L-1258 using 2 each 3-way valves, 705690.

Main Reservoir

1. Remove, clean and inspect.
2. Reservoirs are to be drilled according to FRA Rule 206(c).
3. Install system in accordance with main reservoir piping schematic 8130.
4. Install reworked safety valve or install new J-1 type, set 146-148 PSI.
5. Salem 818-1-20 auxiliary air filter.
6. Salem 824-1-50 filter to brake system vented in line with or toward center of locomotive.
7. Weld adapter block on No. 1 and No. 2 main reservoirs for Salem 580H automatic drain valve per dwg. _____.
8. Check valve with 1/4" orifice in main reservoir equalizing trainline.

Sanding - Electric

1. Install in accordance with sanding piping schematic, 8129.
2. Install Salem 277-2 sand traps - outboard sanding only.
3. Delete inboard sanders.
4. Remove all old trainline sanding air piping.
5. Sand capacity - 24 cubic feet.

Air Horn

1. Install Nathan three (3) chime P-14R2 per dwg. 8261.
2. Install modulating horn operating valve, Viloco 11062 (8318019).
with vertical handle 9099639 in control stand.
3. Renew horn mounting (rubber) pad, 8185843.

Crossing Bell

1. Install top of long hood per dwg. 6947.
2. Install Salem 506 double-acting bell ringer.
3. Install hose 8169073 to ringer.
4. Install operating valve, Salem 616-1A, in control stand.

Hand Brake

1. Install ratchet type, 8191508, 18" lever with 11'7" chain per
dwg. _____

High Voltage Electrical Cabinet

1. Modify or manufacture new frame, dwg. 8644.
2. Rework copper buss bars or renew.
3. Install new electric reverser.
4. Install new electric power contactors.
5. Rework fuse holders and battery switch.
6. Rework shunt field resistors or renew.
7. Install new automatic ground relay, 8443302.
8. Install new fast-on terminal boards.
9. Install Power Parts voltage regulator, PPC-12081.
10. Install new relays, switches and resistors.
11. Install new wiring with fast-on lugs. Wire size to be 14 AWG minimum wire size 12 and 14 AWG should be Exane insulation.
12. Install voltage transition - no motor field shunting.
13. Thru-cable wheel slip system.
- (49) 14. Delete
15. Engine room light switch mounted on L-side of cabinet.
16. Install carbody latch type cover on back of high voltage cabinet (engine room side) dwg. _____.
- (41) 17. Install ground relay reset button, 8230431 (8265676 as alternative)
- ~~18.~~ 18. Install truck cut out switch, 8276326.
19. Apply truck cut out name plate, 8350437.
20. Install double pole ground switch, Graybar TC785.

High Voltage Cabinet Electrical List:

- 5 each - 8361775 - (8357416 may be used, but only as substitute)
Relay - FOR - RER - ER - PCR - GFR
- 2 each - 8357416 - Relay - FPC - TR
- (41) 1 each - 8254055 - Contactor - SF
- 1 each - 8254056 - Contactor - BF
- 3 each - 8461331 - Contactors - P1 - P2 - S12
- 2 each - 8464113 - Reverser - RVF - RVR
- 1 each - 12081 - Regulator - Voltage (Power Parts)
- (41) 2 each - 8277235 - Relay - FTR - BTR
- 2 each - 8276598 - Relay - Time Delay - TDB - TDS
- 1 each - 8277466 - Resistor - RE10A-B-C
- 1 each - 8398604 - Resistor - RE8
- 1 each - 8314386 - Resistor - RE6
- 1 each - 8371296 - Resistor - RE4
- 1 each - 8260224 - Resistor - RE1
- (41) 7 each - 8421017 - Rectifier - CR2 - 4 - 6 - 32 - 33 - 34 - 35
(alternative - 8375607)
- 1 each - 8158951 - Rectifier - CR1
- 1 each - 8458698 - Circuit Breaker 15A (Aux. Gen. Fld.)
- 1 each - 8458699 - Circuit Breaker 30A Headlight
- 2 each - 8458724 - Circuit Breaker 30A Cab Heater - Lights
- 1 each - 8458738 - Circuit Breaker 40A Control
- 2 each - 8458739 - Circuit Breaker 15A Fuel Pump - Radio
- 1 each - 8485669 - Circuit Breaker 60A Cab Heater

Wire, Cable, Conduit - Terminal Boards

1. All 12, 14, and 16 AWG wire shall be Exane insulated. All other size wire shall meet AAR Spec. 589.
2. Fast-on terminals - except No. 8 wire size or larger - stud type.
3. Replacement wires shall be of the same size removed except where a larger size is specified or required.
4. No splices are to be pulled into conduit. All connections are to be made at terminal boards where possible, otherwise only in junction boxes or fittings.
5. Whenever wires or harnesses are laid on or bent around edges of metal or other material, anti-chafing protection shall be provided between the wires and the edges.
6. All wires and cables to be identified at each termination. Wire markers must be suitable for diesel use; oil and solvent resistant.
7. Trainline receptacles shall be AAR standard. Trainline wires to be 14 AWG except 4, 13, and 25 to be 12 AWG. Use shroud type MU pins on both trainline receptacles. The MU junction box at each end shall be eliminated. Connections for the MU receptacles shall be made at TB3 and TB6.
8. Renew high voltage power cables with ITT Hypalon insulation.
- (54) (20) 9. All wire to meet AAR spec. 589. All wire size #8 and smaller to be Exane (or approved equal) with irradiated cross linked polyolefin insulation.
- (55) 10. Use high temperature lugs and high temperature wire to all resistors.

- (21) Main Generator - D25 (rewound) Note: D25 if generator has been rewound within the past 12 years, rework in accordance with the following specifications - designation will be D15C.
1. Cob blast armature and stator.
 - (8) 2. High frequency test armature - if it does not pass test, or if age of armature cannot be determined, or if armature is 12 years old or older, replace with rewound armature.
 3. Armature placed in varnish vacuum impregnator 4 hours.
 4. Armature baked 10 hours at 300° F.
 5. Armature commutator is turned in lathe.
 6. Armature commutator slots are undercut on automatic undercutter.
 7. Armature is dynamically balanced. (As required)
 8. Armature commutator slots are cleaned and vee'd.
 9. Armature is assembled using new bearing and gaskets.
 10. Main head bushing is checked and new case hardened bushing installed as required.
 - (9) 11. Qualify frame coils and leads; if coils do not qualify, or if 12 years or older, or if age cannot be determined, renew.
 12. Frame is dipped in varnish.
 13. Frame is baked 8 hours at 300° F.
 14. Brush holders are remanufactured.
 15. Install new brushes DE-8 8307806.
 16. Hi-pot main generator.
 - (10) 17. Prior to cleaning Hi-pot components - 1000 VDC for 10 seconds.

Auxiliary Generator - 10 KW

1. Cob blast armature and frame.
2. Test armature - if armature does not pass test, it will be replaced with rewound armature.
3. Armature dipped in varnish.
4. Armature baked 8 hours at 300° F.
5. Armature commutator is turned and undercut.
6. Armature commutator slots are cleaned and vee'd.
7. Armature is assembled with new bearings and gaskets.
- (42) 8. Install new DE8 brushes 9096991
9. Frame coils and leads are checked and replaced if needed.
10. Frame is dipped in varnish.
11. Frame is baked 8 hours at 300° F.
12. Armature and frame are assembled with new brushes and reworked brush holders.
13. Auxiliary generator is electrically tested.

(11) Traction Motors D47 - D77

1. Cob blast armature and frame.
 2. High frequency test armature - if it does not pass test, it will be replaced with rewound armature.
 3. Armature placed in varnish vacuum impregnator 4 hours.
 4. Armature baked 8-10 hours at 300° F.
 5. Armature commutator turned in lathe.
 6. Armature commutator slots are undercut.
 7. Armature commutator slots are cleaned and vee'd.
 8. Armature is dynamically balanced.
 9. Armature is assembled using new factory remanufactured bearing assemblies, new gaskets and new inserts.
 10. Frame is gaged at all critical points.
 11. Frame is welded and machined at points as required.
 12. Frame coils and leads are checked and renewed as required.
 13. Frame is dipped in varnish.
 14. Frame is baked 8 to 10 hours at 300° F.
 15. Brush holders are remanufactured.
 16. Install new brushes DE7 9322058.
 17. Install new pinion as required.
 18. Traction motor tested and run for 1 hour.
- (22) 19. Qualify power cables with solder type clasp connectors, 8109922.
- (56) 20. Test motors with Hipotronics test equipment.

Magnetic Reverser

1. Install new - 2 each 8464113.

Magnetic Power Contactors

1. Install new - 3 each 8461331.

Isolation Switch Panel

1. Delete - all components are installed on controller.

Fuel Pump and Motor

1. Dismantle and clean.
2. Qualify field coils.
3. Qualify armature, turn, undercut, saw and "V".
4. Insulate with "Dolph" insulation spray.
5. Renew bearings, qualify end bells.
6. Renew brushes 8078488.
7. Assemble and test run.
8. Remanufacture fuel pump.

Batteries and Box

1. Install new batteries, Exide MS-420 - 420 amp hour.
2. Renew all rusted out panels and angle iron.
3. Install support for battery tray.
4. Paint interior of battery boxes with:

Coopers Creek Chemical
C-4 Gloss Black M-202
Asphalt Protective Coating

5. Install blocking for battery trays per dwg. 8659.
- (43) 6. Connect battery cables to battery terminals nearest to where the cables enter the battery box and connect jumpers to all other terminals.

Console (AAR) Controller

1. Manufacture new control stand frame per dwg. 8182.
2. Install 26L air brake equipment (ref. Air Brake Section).
3. Install throttle mechanism, 9091052.
4. Install 4 1/2" gauges, Salem 794-266, (black background with white numbers) and cover assembly, Salem 3960-002.
5. Install push-test warning light assemble No. 8484375 - warning lights:
 - a. PCS - pneumatic control switch - 8482357 - MU units
 - b. WS - wheel slip - 8482355
 - c. Sand - sanding - 8482354
 - d. GR - ground relay - 8483704
 - e. Hot engine - 8483724
 - f. Low oil - 8483711 (Gov. down)
6. Install all new switches, including:
 - a. Sand switch - latching type - 8315490
 - b. Lead truck sand switch - 8331384
 - c. Platform lights
 - d. Step lights
 - e. "Road Service/Switch" switch - 8140577
 - f. "Series/Automatic" switch - 8113755 -
for transition control
 - g. MU headlight switch (top) in box on right
end of controller per dwg. 8142
 - h. Isolation switch (bottom) in box on right
end of controller per dwg. 8142
 - i. Headlight switch, 8455355, with a date code of 7916 or above

Console (AAR) Controller (continued)

- (29) 7. Mount AAR Ad Hoc radio tray (Motorola TDM6581-A is acceptable) for mounting of AAR clean cab radio.
 8. Install emergency fuel shut off button, 8384650.
 9. Install all new wiring.
 10. Install brake valve handle holder on right lower end of controller per dwg. 8261.
-
- (50) 11. Install indication light for No Battery Charging Indication: holder, 8438423; lamp, 8421182; blue lens, 8438427.

Load Regulator - Vane Type

1. Degrease and cob blast clean.
2. Renew gaskets and seals.
3. Renew brushes.
4. Test resistors - renew as required.
5. Renew wiring as required.
6. Assemble and test.

Dynamic Brake

1. None

ATS - Cab Signal

1. None

(30) Radio

- (44) 1. Install Motorola RSX-410 radio (clean cab package - radio plus clean cab tray), Model R43RHH1180E with handsetless option W849, dispatcher signaling option 487, and PROM module programmed for the following frequencies:

<u>Channel</u>	<u>Frequency</u>	<u>Channel Designation</u>
1	161.190 MHZ	Old ICG frequency
2	160.920 MHZ	Old GAO frequency
3	161.460 MHZ	Y1 - 1st switching channel
4	161.280 MHZ	Y2 - 2nd switching channel
5	160.950 MHZ	Southern Railroad frequency
6	161.130 MHZ	Old FRISCO frequency
7	160.410 MHZ	Missouri Pacific frequency
8	161.160 MHZ	Burlington Northern frequency
9	160.680 MHZ)	
10	160.335 MHZ)	
11	160.740 MHZ)	Johnson Yard switching channels
12	160.650 MHZ)	

2. Mount the Motorola clean cab package in AAR Ad Hoc tray (Motorola TDN6581-A is acceptable) mounted in the control stand.
 3. Install antenna, Sinclair Radio Labs model Excaliber 2Z01, on top of cab.
 4. Install power plug assembly, Genesis Electronics socket, 97-3108-B-18-45, and clamp, MS-3057-10A; and antenna plug assembly, AMP 330830
- (44) Note: 1451 was first SW-14 to be equipped with clean cab radio.

Speed Indicator - Recorder

1. None

Water Cooler

1. Install AJAX 685

Sanitary (Toilet) Facilities

1. None

Fire Extinguisher

1. Apply two (2) 20 lb. ANSUL - one in cab and one in engine room.

Paint

1. Paint per dwg. C100254. Use Performance Polymer "Polyac" paint for all of outside above belt rail and for inside cab.
2. Delete ACI labels.
3. Modulite number panels, white with black numerals:

<u>Old Road Number</u>	<u>New Road Number</u>
ICG	1450 -
NW-2	
SW-7	
SW-9	

4. Color code water, fuel and lube oil piping flanges and valve handles.
5. Apply decal supplied by Power Parts Company, "FULLY EQUIPPED FRA PART 223 GLAZING."

Final Test

1. Check for leaks - water, fuel, lube oil and air systems.
2. Air cure main generator.
3. Sequence test all circuits.
4. Check all lights.
5. Load test one hour - check shutter opening and setting of temperature switches.
6. Record all pressure, vacuum and temperature readings.
7. Set transition.
8. Make final movement and running checks.

Records - forwarded to Chicago

1. Complete Locomotive Data Sheets.
2. Engine Rebuild Sheets.
3. MACS Reports.

Test Run - 72 Hour Inspection

1. The finished locomotive will be used in yard service at Paducah, with a Quality Inspector on board to monitor operation and settings on unit.
2. Following test run, unit will be given 72 Hour Inspection and:
 - a. Take oil sample for laboratory analysis.
 - b. Correct all exceptions noted by Quality Control.
 - c. Change all lube and fuel oil filters.
 - d. Retorque engine.
 - e. Check truck lubrication.
 - (45) f. Check cooling fan belt adjustment - readjust as required (ref. Cooling Fan section).

Weight - fully loaded

1. Furnish scale ticket adjusted for supplies.

Shipping Dead-In-Train

1. Shipping units dead-in-train:
 - a. Cover exhaust stacks.
 - b. Drain cooling water in freezing weather.
 - c. Test air brake with single car tester (for dead-in-train).

Acceptance

1. Acceptance by ICG Mechanical Officer from Chicago.

Revision Notations

- (1) Index Page (per M.D. and P.S. agreement of 10-21-80)
- (2) Page 0 (per M.D. and P.S. agreement of 10-21-80)
- (3) Page 6 (to change to correct type for double thick walls)
- (4) Page 10 (per R. W. Paddock - file 1240)
- (5) Page 10 (per M.D. and P.S. agreement of 10-21-80)
- (6) Page 10 (to specify present practice)
- (7) Page 13 (to conform to OEM standards)
- (8) Page 27 (per M.D. and P.S. agreement of 10-21-80)
- (9) Page 27 (per M.D. and P.S. agreement of 10-21-80)
- (10) Page 27 (per M.D. and P.S. agreement of 10-21-80)
- (11) Page 29 (per M.D. and P.S. agreement of 10-21-80)
- (12) Page 36 (per verbal instructions from R. W. Paddock 10-30-80)
- (13) Page 9 - Item 1 (to note that remaining units to be rebuilt are SW9's not requiring conversion)
- (14) Page 15 - Item 7(d) - (per RWL per EMD Pointer)
- (15) Page 0 - To denote rewound models to be D25 instead of D15 (RWP File 872-137)
- (16) Page 1 - To specify current practice
- (17) Page 9 - Note - to correct error in count
- (18) Page 16 - Item 7(p) - to add use of TDAS compound per RWP (verbally)
- (19) Page 18 - Note - per RWL
- (20) Page 26 - Item 9 - per EGK
- (21) Page 27 - To denote rewound models to be D25 instead of D15 (RWP File 872-137)
- (22) Page 29 - Item 19 - To specify present practice
- (23) Page 3 - Item 8(a) - To allow for more convenient assembly.
- (24) Page 6 - Item 18 - Per RWP file 872-137 12/22/80

Revision Notations (Continued)

- (25) Page 5 - Item 9 - For clarification of Schell's designation
- (26) Page 6 - Item 18 - To delete brand name (ref. Radio section for brand)
- (27) Page 8 - Item 2 - Deletions - Due to discontinuing reworking cores at Paducah Shop
- (28) Page 13 - Item 7 - To denote which units had new type preheater
- (29) Page 33 - Item 7 - To delete brand name (ref. Radio section for brand)
- (30) Page 34 - Radio Section - To change to Motorola radio vice Harmon brand
- (31) Index Page - Revision Notations - Add Page 39
- (32) Page 1 - Item 5 - Changed for clarification.
- (33) Page 1 - Item 9 - Per RWP verbally.
- (34) Page 2 - Item 14 - Information on drains is incorporated in Item 5, page 1.
- (35) Page 8 - Item 1) To reflect current and past practice of installing
- (36) Page 8 - Item 2) new radiator cores in rebuilt locomotives and sending
- (37) Page 8 - Item 9) reworked cores to the field (slick item).
- (38) Page 9 - Item 3 - Cooling Fan section - To specify correct belt adjustment.
- (39) Page 13 - Item 16 - Per suggestion #2662, Ref. #312.
- (40) Page 21 - Item 7 - Per D. D. Moore.
- (41) Page 25 - To correct part numbers (8421017 rectifier approved by PEM)
- (42) Page 28 - Item 8 - To comply with ICG MI 5401.
- (43) Page 31 - Item 6 - Per approved suggestion, Ref. No. 324.
- (44) Page 34 - Item 1 - To change model designation per K. H. Corajod.
- (45) Page 37 - Item 2(f) - To specify correct belt adjustment.
- (46) Page 6 - Item 17(y) - To specify cup dispenser from PPC per M.D./P.S. agreement 2/11/81.
- (47) Page 7 - Item 20 - To add bolt-on panel per M.D./P.S. agreement 2/11/81.
- (48) Page 21 - To clarify piston ring information.
- (49) Page 24 - To delete battery charging indicator and to indicate no battery charge with light on control stand.
- (50) Page 33 - Add Item 11 - To delete battery charging indication and to indicate no battery charging with light on control stand.

Revision Notations (Continued)

- (51) Page 2 - Item 16 - To delete use of frog brackets per RWP file copy 1235 2/26/81.
- (52) Page 5 - Item 4 - To delete screens per RWP file 1235 3/13/81.
- (53) Page 7 - Item 4 - To delete screens per RWP file 1235 3/13/81.
- (54) Page 26 - Item 9 - To allow use of any approved brand of irradiated cross linked polyolefin insulated wire per ABD 3/23/81.
- (55) Page 26 - Item 10 - To specify high temperature wire and lugs to resistors per ABD 3/23/81.
- (56) Page 29 - Item 20 - To initiate Hipotronics test of motors per MD/PS agreement 10/21/80.
- (57) Page 2 - Item 13(b) - To change from cable cradle to "captain's hook" cable holder per Chicago originated material change.
- (58) Page 15 - Item 7 - To add part number of new lower liner seals per Engr. change No. 1 3-26-81.