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OF THE
CSXT® HISTORICAL SOCIETY

_____Volume 9 Number 2_______

DEATH ON THE RAILS

PRESIDENT'S MESSAGE

Due to Covid-19 concerns, there will be no in person 2021 CSXTHS Convention. Present plans are to have a 2021 Zoom Convention instead of a live and in person convention. We plan to hold the 2021 CSXTHS Zoom Convention on Saturday, June 5. If you would like to make a Power Point presentation, 30 to 60 minutes in length, contact us at CSXTHS@gmail.com.

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TABLE OF CONTENTS

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The CSXTHS web page can be found at https://www.csxthsociety.org/

Articles and photos for publishing in CSXTHS Journal are always welcomed.

CSXTHS is an equal opportunity organization and membership is open to all regardless of age, creed, sex, or race.

THE DEATH OF AN AMTRAK ENGINEER, THE DEATH OF A FRIEND

Doug Riddell

Robert Brooks Woodward Sr. was a friend and a colleague of mine. He was known among his friends and those working on the railroad as Brooks. He and I were both Amtrak engineers and officers in the Brotherhood of Locomotive Engineers (BLE). We worked together to ensure that BLE Division 14 provided the best service to its members. In 1994, Brooks was BLE #14 Secretary-Treasurer and I was the Division's Richmond, Virginia, representative. Brooks had started his railroad career in 1963.

On the evening of Sunday, 15 May 1994, Brooks and I, along with W. A. "Bill" Black," were at Washington Union Station preparing for our runs. Brooks held the same job I had once held, Assistant Engineer on Amtrak's Silver Meteor between Florence, South Carolina, and Washington, D. C. Thus, six nights a week Brooks and Black ran the Silver Meteor; three nights, from Florence to Washington and three nights from Washington to Florence. Brooks lived with his wife Chris, his high school sweetheart, in Laurinburg, South Carolina, only an hour's drive from Florence.

Brooks and I spent our last hours together taking care of a seniority issue concerning one of our BLE Brothers. With a few phone calls, Brooks and I settled the problem to the satisfaction of our previously disgruntled Brother. Being an officer in the Brotherhood meant that one was on call 24/7 to settle issues that arose between management and the members of the Brotherhood. As we parted to go to our trains, Brooks paused to call his wife Chris and tell her that he loved her. Any marriage that can survive the trials and tribulations that working for the railroad inflicts upon the emotional and financial stability of a marriage is headed by a woman secure in her own worth. The wife of an Amtrak engineer will be welcomed into heaven by St. Peter in recognition of all she suffered on earth in providing a happy homelife for her family.

Brooks' last words as we stood in Amtrak's Washington Union Station crew room to me were, "I got to go, Doug." With that he went to the crew room entrance, hesitating as if there was something left unsaid. Then Robert Brooks Woodward St, age 41, smiled, turned and walked through those doors and into eternity.

The next morning, Monday, the phone rang and rang at my house. Before I could inflict my venom on the caller whom I assumed would try to sell something to me, I recognized my mother's voice on the line. – "Wreck? Silver Meteor? North Carolina?" – "No, Mom, I'm fine," I assured her. --- The train was en route to Florida? – Oh my God! Brooks and Bill!

Shortly thereafter I got a call from Greg Baxter, Amtrak Transportation Master. "How bad was it, I asked?" He replied, "Both engines overturned, 18 cars on the ground." Then the question every railroader asks with a prayer in the wing – a question I've asked so many times, and so many times let out a huge sigh of relief when the answer was in the affirmative: "Everyone's okay, aren't they?" However, this time there was silence. A wave of fire gathered somewhere in my innermost soul in an attempt to deny the truth that I had not yet herd and did not want to hear. Greg's whispered reply confirmed my dread, "Woodward confirmed dead. Black too, we believe."

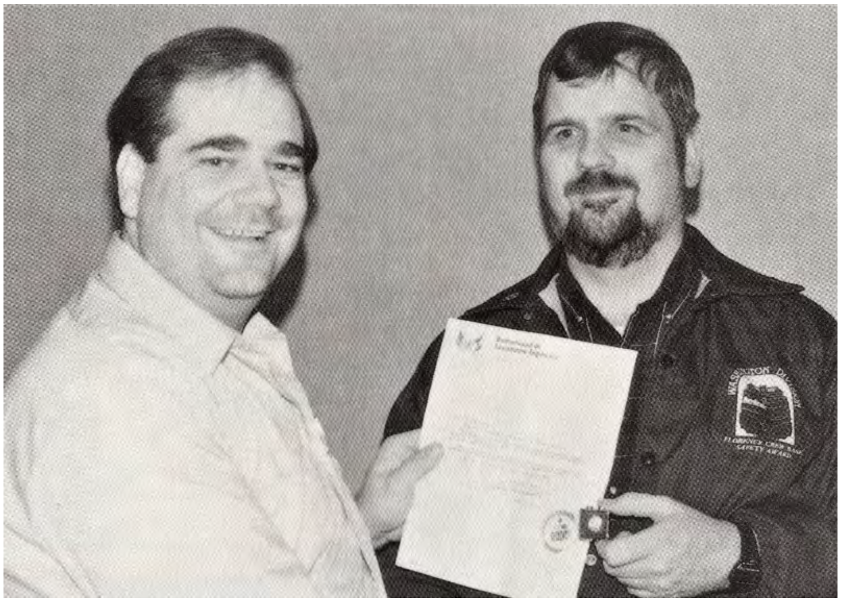
Upon hearing this, I cried out, “No! God, No! He was was just standing there. I just saw him. No! he’s not dead!” I went through the whole litany of emotions: anger, rage, denial, and disbelief, I turned to prayer, begging to awaken from this nightmare, but it was no nightmare.

As I got control of myself, I head Greg say, “Doug, you’re needed at the station. Please come in if you feel you can make it.” I managed to answer his request in the affirmative. After showering, shaving, and dressing, I drove to Greendale. Upon arrival at the office, I learned that Bill was alive and had been airlifted to Duke University Medical Center in Durham, North Carolina. Bill would survive but lose a leg due to the trauma he suffered in the wreck.

Later that day I spoke with Brother Ron McLaughlin from BLE Cleveland Headquarters. Brooks and McLaughlin had been involved in the investigation of the 1993 Sunset Limited derailment, which sent the locomotives and part of the train into the waters of the Big Bayou Canal located near Mobile, Alabama. Mclaughlin said to me, “Brooks stood there as that (Amtrak) engine was pulled from the muddy floor of that bayou and wondered aloud what those three men in the cab felt when they suddenly saw that damaged bridge and looked death in the face. I’m sure he knows now. We lost a good man, Doug. A very good man.”

Slowly over the next few days things returned to normal. The wreck site was cleaned up, a funeral service was held for Brooks, and my phone stopped ringing. At least it stopping ringing with questions concerning Brooks. Then on 12 May 1995 the events of 16 May 1994 vividly returned to the forefront as I read the following bulletin as I entered it into my Timetable binder: “Effectively 0001 hours May 12, 1995 with reference to timetable special instructions for the South End Subdivision regarding Method of Operations, that segment of track known as “Selma DTC” (Direct Traffic Control) block is renamed the “Woodward” DTC Block.”

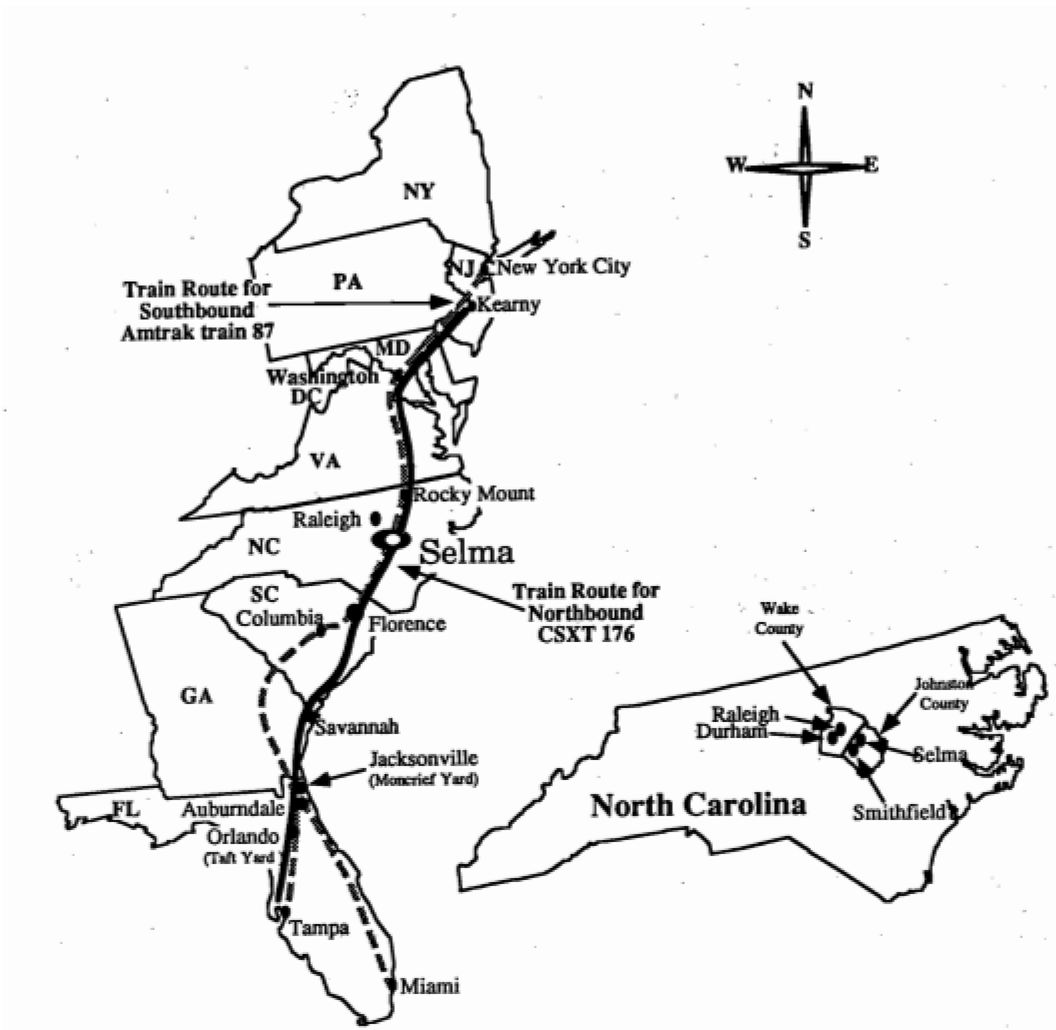
Brooks’ fellow BLE brothers did not forget him. In recognition of the service, he had provided BOE #14, they had the Division renamed “R. Brooks Woodward Memorial Division 14.”



Doug Riddell and R. Brooks Woodward (Doug Riddell)

THE COLLISION OF CSXT TRAIN #176 AND AMTRAK TRAIN #87

The basic facts of this incident as determined by the National Safety Board was as follows. That at 4:36 AM Eastern Time, on 16 May 1994, southbound Amtrak Train #87, the Silver Meteor, collided near Selma, North Carolina, with an intermodal trailer, REAZ 232980, that had either fallen or was falling from flat car KTTX 251988, that was part of a passing northbound CSX Transportation freight train, CSXT Train #176. Amtrak Train #87 consisted of two locomotives and 18 cars, while CSXT Train #176 consisted of three locomotives and 52 cars. All but the last car of Amtrak Train #87 derailed and only one car of CSXT Train #176 derailed. Onboard the Amtrak train the assistant engineer was killed, the engineer seriously injured, and one on board Amtrak crew member and 119 passengers received minor injuries. The operating crew on CSXT Train #176 sustained no injuries.



A map showing the Silver Meteor route and the location of the crash

Amtrak Train #87, the Silver Meteor, left New York, New York, at 3:15 PM on Sunday, 15 May 1994, for Miami, Florida. The train consisted of two F-40PF locomotives, Amtrak ATK 357 and ATK 325, and 16 cars: a material handling car, a baggage car, a baggage dormitory car, 10 coach cars, 2 lounge cars, a sleeper car, a buffet car, and a dining car. The train operating crew consisted of an engineer, assistant engineer, conductor, and two assistant conductors plus an 18-person non-operating crew that staffed the dining car, lounge cars, and sleeping car. Train #87, during its run from New York, had three operating crews, New York, to Washington D.C.; Washington to Florence, South Carolina; and Florence to Jacksonville. The engineer for the run from Washington to Florence was 55 year old William A. Black and the assistant engineer was 41 year old Robert Brooks Woodward Sr.

The crew of Amtrak Train #87 went on duty at 10:20 PM on 15 May 1994 while at Washington Union Station. Their train was 20-minutes late into Union Station and thus they did not pull from Washington until 11:45 PM. From Washington to Rocky Mountain, North Carolina, the train was operated by Robert Brooks Woodward Sr. At Rocky Mountain, Woodward moved to the left side of the locomotive and William A. Black took the throttle. The train left Rocky Mountain at 4:00 PM, 10 minutes late, on 16 May 1994, with 415 passengers on board.

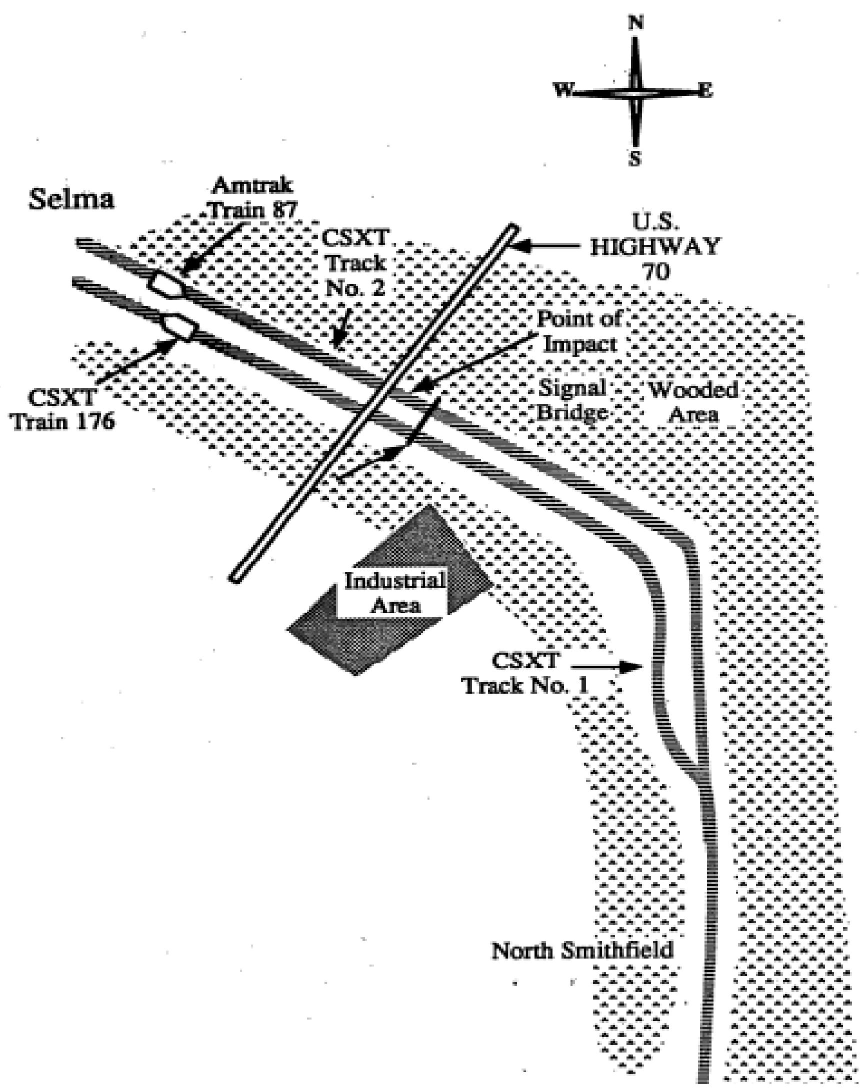
CSXT Train #176, with three locomotives, CSXT 6231, an EMD GP40-2; CSXT 5936, a GE B40-8; and CSXT 5854, a GE B36-7, on the front end, departed Tampa, Florida, at 12:40 AM on 15 May 1994 for CSXT's Trailer On Flat Car (TOFC) Terminal at Taft Yard, Orlando, Florida. Here CSXT Train #176 picked up 28 cars, including flat car KTTX 251988 (#1) carrying intermodal trailer REAZ 232980. KTTX 251988 was an 89-foot long flat car designed to carry two 45-foot intermodal trailers. It was owned by TTX Company. Trailers were loaded onto KTTX 251988 by placing them with their rear doors facing each other. The trailer hitches were on each end of KTTX 251988, which was equipped with "permanently erected hitches, not retractable hitches, positioned at opposite ends of the car … the car could accommodate two trailers up to 45 feet in length .., by allowing additional striker length and some overhang at the ends of the cars, therefore handling 90 feet of trailer on an 89-foot car."

Internodal trailer REAZ 232980 had been built in 1983 by VanCo of Florence, New Jersey. It was owned by TransAmerican Corporation. The shipper was Mid-Florida Mining company of Lowell, Florida, who had loaded it with 43,400 pounds of kitty litter. The trailer was 45-feet long by 8.17 feet wide, 13.34 feet high, and weighed 13,300 pounds. Its underframe consisted of corrosion resistant high strength low alloy steel. The superstructure and side sheet were aluminum and galvanized steel. The interior of the trailer had plywood lining. The trailer's landing gear was a Homan vertical two-speed, low profile with heavy duty sand shoes.

During the journey, CSXT Train #176, from Orlando to Jacksonville, was inspected by the crew of two CSXT trains holding in sidings who reported no anomalies. At Jacksonville, the train received a new crew and left the yard at 3:55 PM bound for Savannah, Georgia. The train now consisted of three locomotives and 74 cars. At Savannah, 22 cars were dropped off, a new crew boarded the train, and they took it, with its 52 cars, to Florence.

On 16 May 1994, CSXT Train #176 departed Florence northbound at 2:10 AM. The train consisted of three locomotives and 50 loaded and 2 empty cars. It had a trailing tonnage of 4,449 and a length of 6,188 feet. At Cromartie Siding, CSXT Train #176 passed a CSXT coal train. Upon passing the coal train, the coal train's conductor radioed CSXT Train #176 that she looked good, i.e. no problems with CSXT Train #176 loads were observed. The CSXT Defect Detector at Mile Post A165.9 reported that CSXT Train # 176 had no defects after it passed the detector.

Between Selma, North Carolina, and North Smithfield, North Carolina, the CSXT track becomes double track. CSXT Train #176, as it reached North Smithfield, was diverted onto Track #1, freight train maximum speed 45 MPH. Amtrak #87 would run through the double track section on Track #2, passenger track speed 79 MPH. Having reached the double track section first, CSXT #176 took Track #1 and pulled for the end of the double track at Selma. Here the CSXT conductor got on the ground to observe the passing of Amtrak Train #87. As Amtrak Train #87 cleared CSXT #176 its conductor radioed Amtrak Train #87 that she was looking good. No more than he had said this and there was a crash and CSXT Train #176 went into emergency.



A map showing the layout of the track at the location of the crash

William A. Black, Amtrak Train #78 engineer, would later tell investigators that as they were running past CSXT #176 at about 4:36 AM, “I saw this thing coming, I saw it hanging off. I hollered for Brooks to hit the deck. I recognized something hanging off of one of the flatcars.” The object was REAZ 232980, a trailer, that had been placed on flatcar KTTX 251988, the 51st car in CSXT Train #176 train. Although Black set Amtrak Train #78’s emergency brake, it was too late and they hit REAZ 232980. Both Amtrak locomotives, ATK 357 and ATK 325, plus the following 17 Amtrak passenger cars, went on the ground. The lead Amtrak locomotive, ATK 357, broke free of its trailing unit and rolled down the side of the track. It came to rest on its left side where assistant engineer Brooks was riding. With its fuel tanks ruptured, locomotive ATK 357’s cab caught on fire. The other locomotive, ATK 325, and the remaining cars remained upright. However, Amtrak locomotive ATK 325 was draped with the remains of trailer REAZ 232980.

The crew of CSXT Train #176 had no more than told Amtrak Train #78 that they looked good when their train went into Emergency. A look down the track showed Amtrak Train #78 on the ground. The crew of CSXT Train #176 immediately notified the local 911 service and Jacksonville of the accident. Emergency Service personnel, with their equipment, quickly arrived on the scene. They transported 97 passengers, 1 Amtrak staff person, and engineer Black to local hospitals for trauma treatment.

In the aftermath of the wreck Amtrak reported the following equipment damage:

Locomotive ATK 357 incurred massive damage to its front end. The locomotive “showed contact damage from the right front corner extending inward toward the center line for 9 inches. The sheet metal that covered the right side of the front hood and the control compartment was torn and collapsed inward 1.5 feet. All windows, except on the left side of the control compartment, and both windshields were missing. The seats for the engineer and the assistant engineer had separated from their attachment points. The automatic brake and the emergency valve levers were found in the emergency position. The trucks with their motors received major damage.” The locomotive’s event recorder was inoperable at the time of the incident due to mechanical problems. Amtrak’s locomotives were at this time not required to have operating event recorders.

Locomotive ATK 325 received severe damage to the left side “from the forward control compartment wall extending rearward for the length of the control compartment, which included the engine access door. The damage extended from the roof line downward to the left side sill. The left side windows and the sheet metal below the windows were missing. The trucks with their motors received minor damage.”

The material handling car ATK 1501 had scrape marks on its right side, both front and rear. The baggage car, ATK 1228, had a 3-foot slash through its outer roof skin above the right rear door. The B-end collision post on the baggage/dormitory car, ATK 1611, was slightly bent to the left. The other cars in the train had damage at their ends, with some having slightly bent collision posts. All the cars suffered damage to their running gear. Amtrak placed the damage to the train at $3,550,000.

CSXT reported the following: Flatcar KTTX 251988 was found 40-feet north of the point of impact on its side and angled to the west of Track 1. It's A-end was 4-feet from the track and its B-end 24-feet. The car's deck, hitch mechanism, and B-end were damaged. The last flat car in the train, TTWX 972882, had damage to its B-end safety equipment. Some 819-feet of Track #2 and 234 feet of Track #1 was damaged and had to be replaced. In addition, seven of the communication lines poles had been destroyed and one signal equipment case had been rendered inoperatable. Total damage to CSXT equipment, track, and signaling was $180,000.

CSXT went on to say that when flat car KTTX 251988 was righted the, "A-end hitch indicator lock was in the open position and the remains of the second trailer CSXZ 238848 was still attached to the B-end hitch." Upon an examination of the A-end hitch by the NTSB it was found that the jaws were in the locked position and the hitch handle indicator pin was in the full unlocked position.

An aerial view of the wreck scene. Amtrak locomotive ATK 357 is in the lower right. Behind her is locomotive ATK 325 with the remains of trailer REAZ 232980 on top of her. Directly behind locomotive ATK 325 is material handling car ATK 1501 and lying at angle to the track is baggage car ATK 1229. (Amtrak)

The National Transportation Safety Bord (NTSB) focused their investigation on why trailer REAZ 232980 had become detached from its flatcar KTTX 251988. Loading of trailer REAZ 232980 onto flatcar KTTX 251988 had been carried out by CSX Intermodal Corporation (CSXI) at Orlando Florida Taft Yard. The CSXI ramps at which trailers were loaded onto or unloaded from flatcars required four different man power skills. These four skilled positions were supervisor, groundman, tractor driver, and packer.

The Supervisor oversaw the work of the groundman, tractor driver, and packer and insured that the trailers were properly tied down on the flatcars.

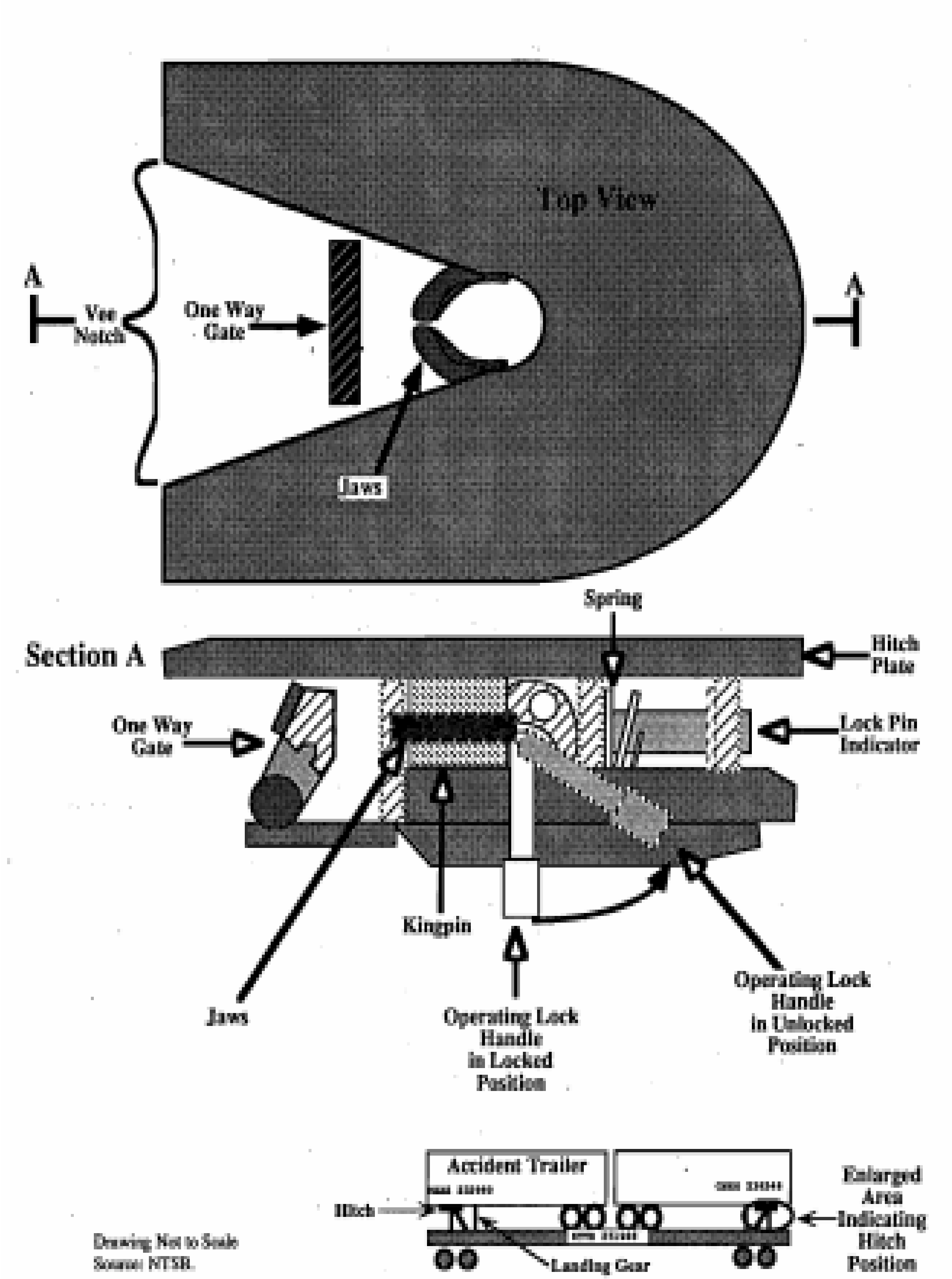
The groundman, as the name indicates, worked on foot. He gave directional hand signals to the packer to assist him in alignment when loading and unloading trailers from flatcars. During loading, he was responsible for examining the indicator pin, locking jaws on the hitch, and positioning the trailer so it was secure. During unloading, the groundman moved the hitch unlocking lever to unlock the jaw's position so the packer could lift the trailer clear from the flatcar.

The yard tractor driver operates a modified truck tractor that is used to bring the trailers from the holding yard to the flatcars for loading or take the trailer when unloaded to designated parking slots in the holding yard.

The packer operates a large, modified rubber tire hydraulic powered forklift which is used to side load or side unload trailers from flatcars. The packer follows the hand signals given by the groundman in maneuvering his forklift. The forklift is equipped with a special attachment that allows the packer to safely grab the trailer to be lifted to or from the flatcar.

The trailer hitch that attached REAZ 232980 to flatcar KTTX 251988 was a cushion fixed hitch with a semiautomatic locking head. The hitch, as all hitches did, consisted of a slotted top plate, a one-way gate at the entrance to the slot, a locking device within the slot, and an operating or unlocking handle on each side. Trailer REAZ 232980 had centered on its bottom, 4-feet from the bulkhead of the trailer, a post-like device 3-inches long, that resembled a dumbbell with several stacked cylinders of which the center cylinder is smaller in diameter than the outer cylinders. The locking jaws of KTTX 251988 trailer hitch had an inside retaining ring that fitted the smaller center cylinder of the kingpin to prevent vertical and horizontal movement of the trailer on the flatcar once the jaws were locked around the kingpin.

The proper operation of the hitch depends on the movement of the trailer's kingpin through the flatcar's locking jaws, which presupposes the locking jaws to be in the correct sequence position before any movement of the kingpin into or out of the hitch and the locking jaws. The passage of the kingpin from the unloading of the previous trailer would normally open the locking jaw into the ready-to-load position, When this failed to happen, the operating handle and locking jaw had to be opened manually. This was done by moving the operating handle to the unlocked position and prying open the locking jaw with a pry bar.



A view of the trailer hitch mounted on railroad flatcars designed to carry trailers

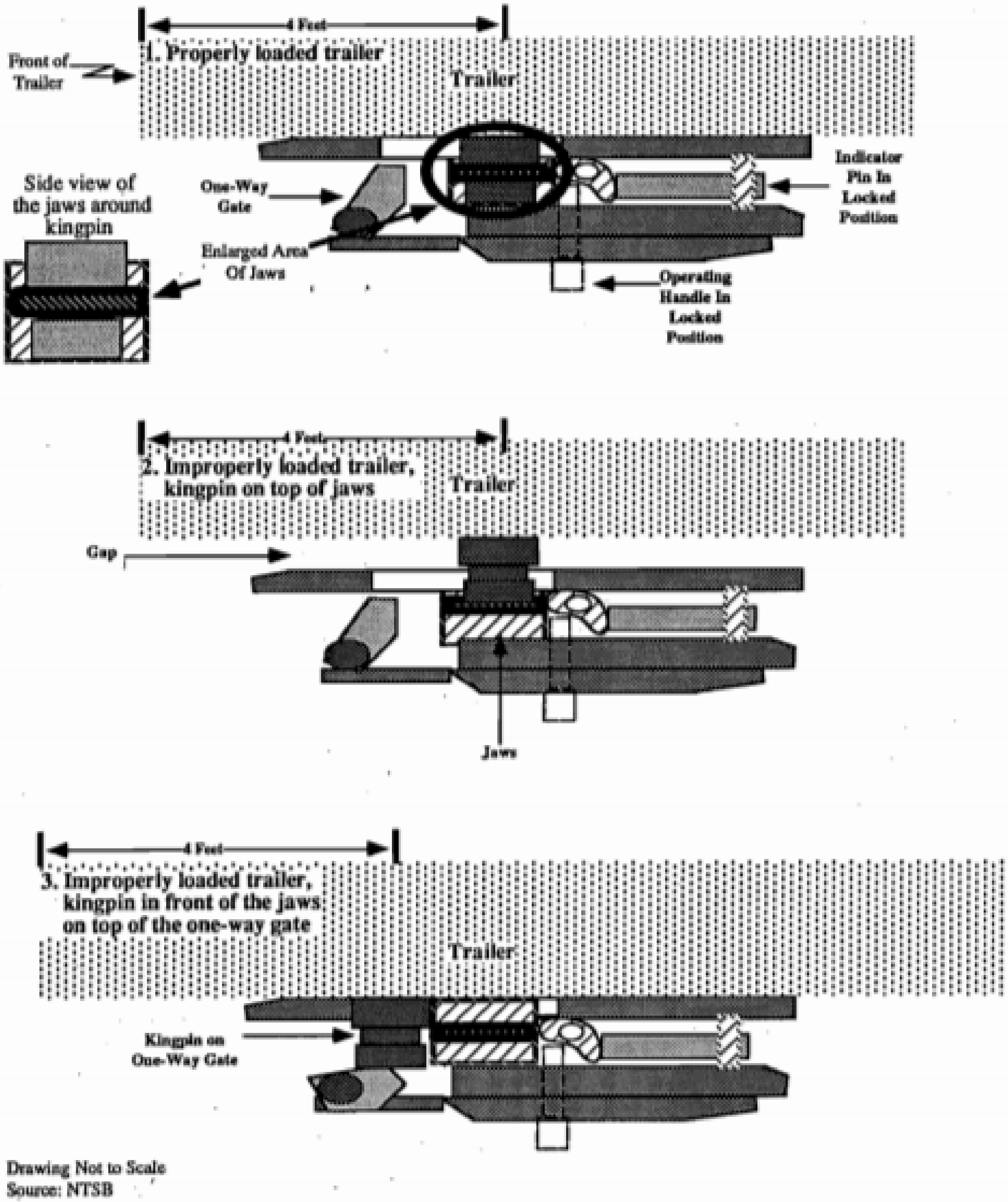


Figure 9. -- Side views of trailer locked and mislocked on an intermodal hitch.

To position a trailer's kingpin into the slot of the flatcar's trailer hitch, the kingpin had to first depress a spring loaded, hinged one-way gate at the entrance to the slot. The one-way gate allowed movement of the kingpin into but not out of the slot. This is a safety feature to ensure the kingpin does not slide forward out of the slot. To remove the kingpin from the trailer hitch, the operating handle has to be rotated to unlock the jaws. To visibly show that the kingpin is locked in place, an indicator pin, painted yellow, is employed. The indicator pin is located on the back of the hitch head. When the indicator pin is flush with the hitch's head, the jaws and handle are locked. When the indicator pin extends above the hitch's head, .75 inches, the jaws and handle are not locked in place and the trailer is not secured to the flatcar.

The crew working Orlando's Taft Yard's ramp on the morning of 15 May 1994 stated that it was always necessary to check the indicator pin because occasionally a trailer's kingpin would not lock into the flatcar's trailer hitch. All said that they checked each flatcar they loaded that night, to include flatcar KTTX 251988 with trailer REAZ 232980, to ensure that all trailers were securely locked in place. Yet the fact remains that REAZ 232980 on 16 May 1994 became detached from KTTX 251988's trailer hitch, turned perpendicular to the flatcar, and impinged upon the pathway for Amtrak Train #87, with tragic results.

CSXT stated that while the operating crews of CSXT Train #176 inspected the cars of their train at Orlando, Jacksonville, Savannah, and Florence, their inspection was focused on the train's trucks and braking systems and ensuring that nothing was extending beyond the sides of the cars they were pulling. The operating crews of CSXT Train #176 had no training in securing trailers to flatcars. CSXT went on to say that as of now trains carrying trailers on flatcars before leaving a yard are visibly inspected to ensure that each trailer's kingpin is locked into the flatcar's trailer hitch.

As a result of this accident, the NTSB issued the following recommendations concerning TOFC loading operations:

1) That there be a post loading pre departure inspection of all loaded TOFC cars by personnel other than the loading crew.
2) Establish a uniform set of training requirements for TOFC loading crews.
3) Develop standard operating procedures for loading TOFC flat cars.
4) Establish preventive maintenance intervals for TOFC securement systems.
5) Ensure trailers to be loaded are compatible with the lifting mode for placing or taking the trailer off the flat car.

In issuing them, NTSB noted that in the past eight years they had investigated nine accidents caused by shifted loads or unsecured lading, one of which in 1992 had involved a secured trailer falling from a flatcar.

(#1) KTTX reporting marks were given by TTX Company to its "Twin-45" TOFC flat cars. These flat cars had non-retractable hitches and could carry two 45-foot trailers.

CSXT TRACK GEOMETRY CAR
ROGER F. SILBAUGH & LARRY DUPONT

(CSXTHS photographer unknown)

Track Geometry Car testing is nothing new for CSX. As a matter of fact, it has been in use for over 56 years having started on a predecessor road of CSX in 1936. Our Track Geometry Car has progressed from a total mechanical measuring system in the early development, to an electro-mechanical-analog system to it's current digit acquisition system. Our present Track Geometry Car (TGC-2) is a converted six (6) axle coach weighing 86 tons which produces very good track load dynamics. Along with the TGC-2 is the Power Car (PC-4) which is equipped with two (2) 190 KVA electrical generators to make it a self-contained unit.

Our track geometry system has the capability to measure, display, analyze and store all track parameters for every two linear feet of track tested. The car will operate at track speeds up to 60 mph. The track parameters and other information are stored on magnetic tape and also displayed on a strip chart that is produced during the test. The following is a description of the track parameters that are measured or calculated and displayed on the chart:

- **Gage**: Distance measured between the heads of the rail at right angles to the rail in a plane five-eighths of an inch below the top of the rail.
- **Rate Gage**: A sudden significant change in gageover a short distance.
- **Alignment** (curvature): The deviation from uniform alignment on tangent (straight) track or the degree of curve.
- **Cross-level**: The relative elevation of the two rails on tangent track.
- **Superelevation**: The relative elevation of the tworails on curved track.
- **Surface** (right and left rail): Deviation of uniform profile on each rail.

- **Dip**: The deviation from uniform profile of both rails over an eleven foot chord.
- **Cross-level Index Modified**: Cross-level evaluation over a continuing 400 foot sample distance to identify characteristics that contribute to harmonic rocking of cars.
- **Vertical and Lateral Accelerations:** The lateral and vertical accelerations of the geometry car body in gravity "g" forces.
- **Curve Speed**: Permissible operating speed calculated from degree of curvature and superelevation as measured by the geometry car.

In addition to the track parameters listed above, the following additional information is shown on the strip chart:

- Track identification: Division, subdivision, track type, test speed and Federal Railroad Administration designated track class.
- Milepost number and tenth mile marker.
- Track speed and/or FRA track class change.
- Landmarks such as roadcrossings, railroad crossing diamonds, turnouts, signals, bridges, tunnels, defect detectors and curves.
- Track geometry defects identified by various type.

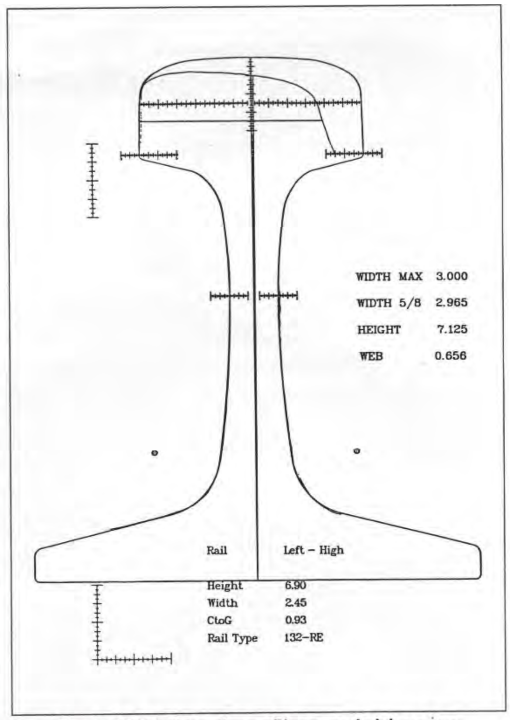
The Track Geometry Car is equipped with an automatic defect marking system. It sprays a paint mark on the ties in the middle of the track which marks the location of any track geometry defect that exceeds Federal Railroad Administration Track Safety Standards and CSX Engineering Standards.

Division personnel get a panoramic view of the track and right-of-way through the rear observation window. An immediate view on four (4) designated track geometry monitors positioned in the rear offer displays of the strip chart, defect report, mile summary analysis, curve report and graphical display of current defects compared to last test. At the end of a Roadmaster's territory, he is given a copy of the strip chart, defect report and curve report. Division Engineer and Assistant Division Engineers are given copies of these reports for their territory.

The Track Geometry Car tests Amtrak routes at least three times per year. Other main service routes and designated hazardous material routes are tested two times per year. Selected other routes are tested once per year. Certain other lines may be tested more often as needed for maintenance purposes or special tests.

As mentioned earlier, the Track Geometry Car collects a tremendous amount of data by taking measurements every two feet and storing on magnetic tapes. This data is maintained in headquarters where additional reports are formatted to provide more information on the condition of our tracks. These reports are then sent to the divisions on floppy disk for their further use in assessing conditions and help plan short term and long term track maintenance work. Some of the reports that are available are as follows:

- Track chart giving plot of computed curvature and superelevation.
- Detailed curve analysis report.
- Track Quality Index by mile and track segment.
- Track Gage by mile and track segment.
- Track Surface by miles and track segment.
- Single exception, exception count and length for each track geometry parameter by mile and track segment.



New 132 RE rail profile overlaid on an LRS measured profile.

Work is ongoing with CSX Technology to store calculated track geometry data on CSX mainframe computer. This enables division field people to access the mainframe computer from their office terminal to review and retrieve any detailed information they may need to evaluate their territory. An effort is currently under way to use Track Quality Index data to develop a program that will identify track degradation over time considering speed, tonnage, type of terrain and other factors. This will help to identify the required cycle time for performing major track surfacing work for long term maintenance planning.

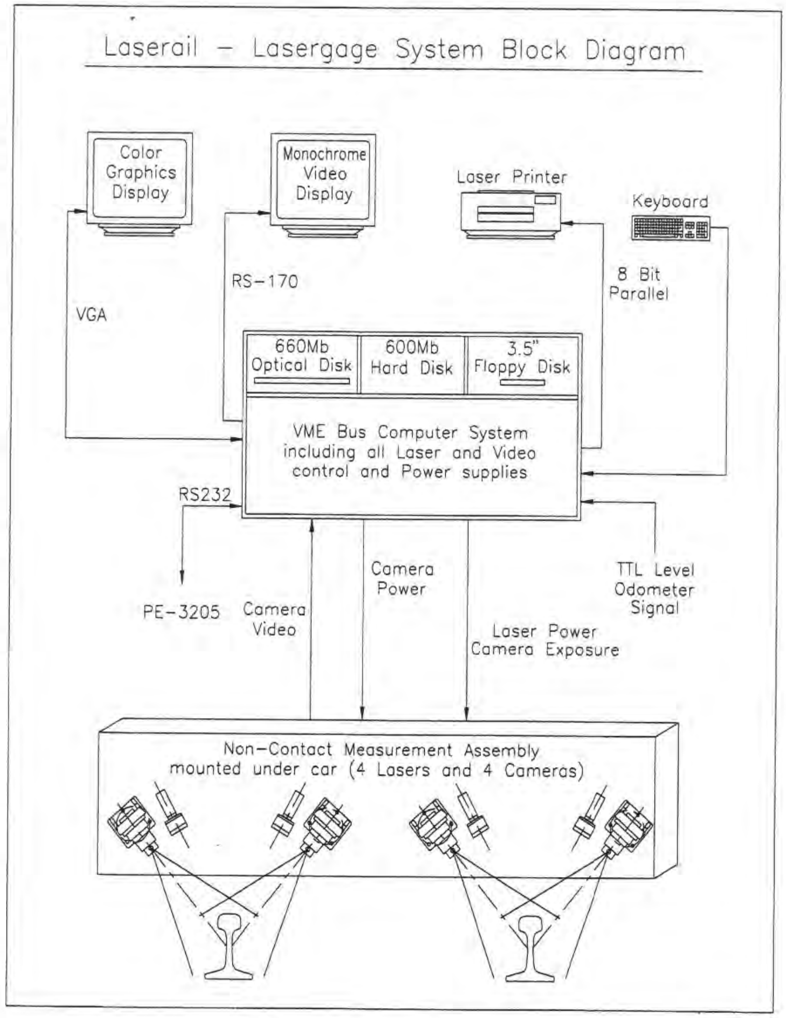
Since the Track Geometry Car covers the main service routes and major branch lines several times each year, several other new technology innovations have been added to the Track Geometry Car. These systems all contribute to help make CSX Engineering more effective in maintaining the railroad for a safe operation.

One of those systems was covered in the September/October 1991 issue of INGENUITY. That was an article on the Hot Bearing Simulator System. The Hot Bearing Simulator System, HBS-1000, was specifically designed to dynamically test the operation and alignment of defect detectors equipped with both rail and ballast mount scanners. The dynamic characteristics, speed, car weight, track dynamics, and varying weather conditions are critical to defect detector operation and could not be accurately evaluated previously. That system has been in operation on the TGC-

2 since March 1991 and continues to perform it's function very well. The personnel responsible for maintaining the defect detectors are very supportive as it gives added assurance that the detectors are functioning as intended under actual rather than static operating conditions.

Another system that has just been installed on the Track Geometry Car is a rail profile measuring system, known as "Laserail". The Laserail system (LRS) is the latest state-of-the-art technology available for providing accurate cross section measurement of the rail. LRS uses two cameras and two lasers per rail to measure the rail transverse profile. This is done by using two lasers to project a very thin beam of light scanning from the field foot to the gage foot.

Only a small section of the web which is shadowed by the rail head is not covered. The lasers are mounted perpendicular to the gage and field sections of each rail. The lasers are temperature controlled in order to produce a monochromatic beam. Bandwidth optical interference filters, tuned to the wavelength of the laser light, are used to block out sunlight. LRS has a high tolerance to sunlight requiring only limited shielding. Two high speed shuttered CCD array cameras running in synchronization are used to measure the position of the laser light. Each camera is equipped with a lens and iris motor for exposure control. The cameras are mounted on each side of the rail at approximately a 45 degree angle toward the rail and facing to the rear of the Track Geometry Car. The software provides the command to pulse the laser to turn on and also synchronization of the cameras to view the bright image of the rails transverse profile. This video image is converted to digital and 300 data points covering the rail from the field foot to the gage foot are processed and stored. Both field and gage base fillet radii and webs are measured, which are used to determine the rail section. At the present time, a rail profile will be sampled and stored at 16 foot intervals. The system will also measure track gage at a point 5/8 inch below the centerline of the rail head and sampled every 2 feet.



Calibration is accomplished by rotating the laser box ninety degrees and attaching a calibration fixture, which occupies the normal position of the rail. The fixture supports an array of nine very thin rods which allow the angles between the cameras and lasers to be measured. LRS also provides automatic real-time calibration monitoring by calculating a correlation factor from points on the rail head which are measured by both field and gage cameras. The correlation factor is displayed on the profile monitor to alert a condition requiring calibration.

The image and gage processors are a VME bus system using two 486/33 processors utilizing bus-interface coprocessing techniques.

An image tracking algorithm maintains a lock on the rail position in camera's field of view. This provides almost total immunity to interference from unwanted objects in the field of view. Dynamic threshold is used to minimize the distortion of profiles due to variations in image intensity.

A pixel search algorithm extracts raw coordinate information from the cameras image and rejects distorted profiles. The computer analyzes the digitized camera image to locate the rail in field of view. The rail profile information is extracted, reduced to X-Y coordinate and stored to disk (500K per mile). The data is transferred to 650 megabyte optical disk cartridges and transported to the headquarters in Jacksonville.

The profile data is inverted to ascending milepost and processed using a Profile Analysis System program. The system identifies the rail section and calculates the rail head wear for height, width and centerline to gage face. This data will be stored to the mainframe computer for future analysis.

On our Track Geometry Car, a monitor is positioned at the rear of the car which displays the profile of each rail in real time as the car moves along the track. Selected profiles can also be printed in real time to furnish plots for information and use of division personnel.

The data obtained from Laserail provides an immediate evaluation of existing rail wear condition. This data will be displayed on a graphical wear chart as well as a printout showing three levels of wear criteria. In addition, continued collection of rail wear data over time will provide a good base for projecting the rate of wear, particularly on curves, and therefore the long term replacement needs. One immediate benefit that will be available, in addition to wear, is the ability to identify the lateral displacement of the rail head under load compared to the vertical plane of the rail. This information will help to identify excessive tie plate wear and superelevation variations where we have extreme operating conditions. Another benefit, presently under development, is the ability to relate the rail profile to a rail grinding program. Software development is progressing that will identify the number of grinding passes and patterns required to restore the rail to the desired profile before the grinding train arrives on the territory.

Needless to say, the Track Geometry Car is no longer just a track geometry defect finder. It has become a tremendous source of data collection and has a variety of applications. It has become an integral part in developing short, medium and long term plans for the track maintenance planning of our railroad by helping to ensure that our annual maintenance budget priorities are properly established.

(CSXTHS photographer unknown)

LIFE RETURNS TO THE MONON

Lee Gordon

The Volume 7 Issue Number 2 of the CSXTHS Journal reported on the proposed abandonment by CSXT of the Monon Railroad track that ran north from New Albany, Indiana, to Bedford, Indiana. This report has turned out to be somewhat premature for in September 2020 CSXT again began providing rail service on this former Monon track from Mile 314.5 on the Ohio River to Mile 317.7, the site of the former Pillsbury Plant. This plant site was recently purchased by Sazerac who converted it to a bottling plant named Northwest Ordinance Distilling. On September 6, 2020, CSXT, after having to rebuild a city block of track that had been removed during sewer construction, delivered to the Northwest Ordinance Distilling Plant a loaded tank car. An empty gondola car was also dropped off to load ties that had been recently replaced. Since September 6th, CSXT has been providing once a week service from Osborn Yard in Louisville to Northwest Ordinance Distilling. The local CSXT switcher drops off loaded tank cars and picks up empty tank cars at the bottling plant.

This view of 15th and Beeler in New Albany, Indiana, shows the condition of the CSXT track on February 19, 2020. (Lee Gordon)

CSXT 6540 and CSXT 2524 were the power for the first run to Northwest Ordinance Distilling. Local Y128, which originated at Louisville's Osborn Yard, had in its consist an empty gondola for loading with ties and a loaded tank car for the plant. Note the fuzee burning on the crossing and the conductor talking the train over the road. (Lee Gordon)

Upon reaching the plant's siding, the set of CSXT locomotives ran around the tank car. With the Conductor now hanging from the rear of the tank car, CSXT 2524 slowly backed the car through the plant's lead switch into their yard. (Lee Gordon)

CSXT 2524 and CSXT 6540, with their loads delivered. run light through the streets of New Albany. The Conductor rides the locomotive's front steps so he can quickly step on the ground to flag a cross street. (Lee Gordon)

CSXT 3318 – A GE ET44AH
A WALK AROUND

CSXT has on its roster 225 ET44AH locomotives, CSXT 3250 to CSXT 3474. These locomotives are cataloged by General Electric as ES44AC. CSXT, however, in December 2007 began to call these locomotives ET44AH. The “ET” recognizes that they are GE Evolution Series locomotives; the “44” refers to their 4400 horsepower; the “A” is for AC power and the "H" refers to HTE (high tractive effort) adhesion-management software with which these locomotives are equipped.

CSXT chose to assign their own classification to GE’s evolution series because they differ somewhat from the standard ES44AC as delivered by GE. The CSXT locomotives have received computer software upgrades and increased dead weight. The software upgrades allow these locomotives an increased tonnage rating due to subsystems that produce high levels of tractive effort at low speeds. In order for a locomotive to be classified as an "AH" by CSXT, it has to 1) have an increased nominal weight (currently to 432,000 pounds); 2) steerable trucks; 3) TM3 adhesion control software; 4) software that raises the normal 30,000 traction force to 33,000 pounds-force, which is the maximum amount of tractive effort that each traction motor is permitted to produce; and 5) GE's Rail Cleaner, which directs high-pressure air onto the rails in front of the sand nozzles forward of axle number one.

Head-on -view of CSXT 3318 in February 2020.

A quarter shot down the right side of CSXT 3318

A view of the engineer's side of the locomotive

A close-up CSXT 3318 plow

A quarter view from the rear of CSXT 3318 up her right side

A quarter view from the rear of CSXT 3318 up her left side

The engineer's side of CSXT 3318 cab

The mid-section of the right side of CSXT 3318 showing fuel tank and air reservoirs

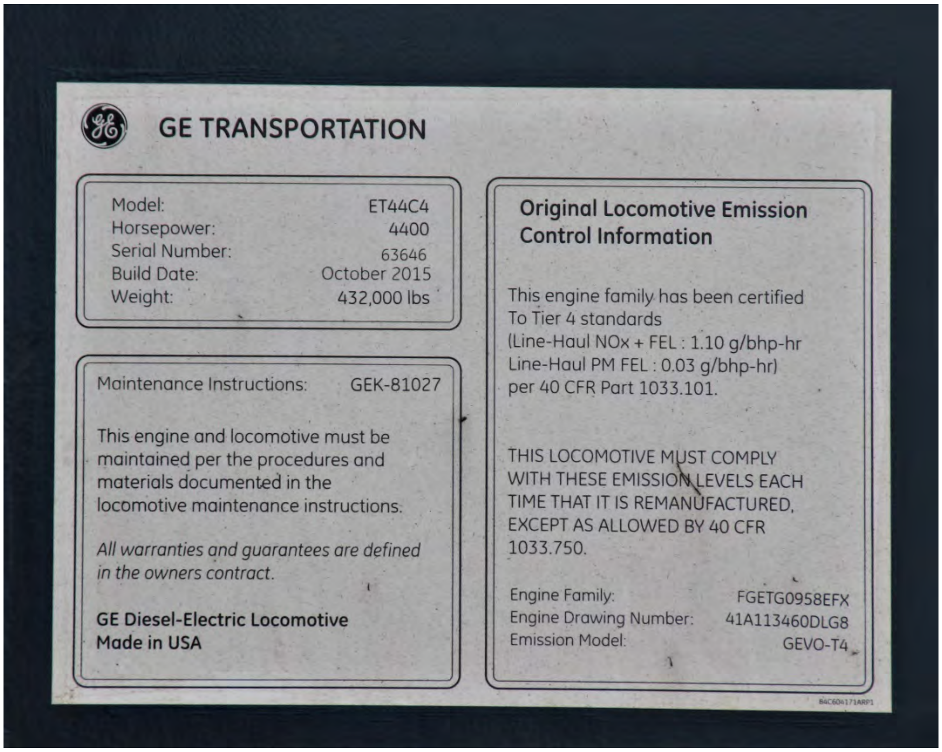
The rear right side of CSXT 3318

A close-up of the grill on the right side of CSXT 3318

The conductor's side of CSXT 3318 cab

The middle left section of CSXT 3318 showing the fuel tank

The rear section of the left side of CSXT 3318



CSXT 3318 builder plate

A close-up of the rear truck on CSXT 3318 showing the A1A wheel arrangement

AN ABANDONED COAL WASH PLANT
U.S. STEEL CORBIN KENTUCKY FACILITY

From 1955 to 1984, U.S. Steel operated a large coal mine at Lynch, Kentucky, on the Louisville & Nashville Railroad (L&N) Cumberland Valley Subdivision (CV). In 1981, CSXT took over the CV from L&N. In 1984, U.S. Steel sold its coal mine operation at Lynch and Corbin to ARCH Mineral Corporation.

Due to the lack of level land at the Lynch Mine face, U.S. Steel built a coal wash plant to service this mine on the east side of the L&N Corbin Yard. Newly mined coal was transported by rail from the Lynch mine face to the Corbin coal wash plant. After the coal had been treated, non-coal and non-marketable coal was heaped on the site in spoil piles. Arch Mineral continued to operate this coal wash plant until 2010. At this time, the wash plant was closed but its buildings not torn down. At the time of closing, an estimated 41 million tons of recoverable coal was buried in the spoil piles.

In 2018, ARQ of London England bought the abandoned coal wash plant site. They planned to use new technology to reclaim coal buried in the spoil piles. They planned to ship the recovered coal by rail to a Gulf port for transportation overseas. Production was to have started in January 2020 with a workforce of fifty. However, this coal recovery operation ran afoul of EPA and a changing world coal market. Thus, no coal was recovered from the spoil piles. U.S. Steel's Corbin Coal Wash Plant still stands, once again abandoned and slowly deteriorating, a monument to when Coal was King. Unfortunately, Kentuckians can no longer claim that coal is the Commonwealth's "Black Ace in a hole."

A general view of the remains of the coal preparation plant. The hopper cars on the right were in storage.

The main coal wash plant. The hopper cars are in storage.

One of the tipples used to feed stockpiled coal to the wash plant

A close-up of the wash plant.

This building was being used by ARQ as their local office.

What is left of the US Steel railyard at the wash plant. A rotary dump can be seen in the left bay of the building in the center

The wash plant also received coal trucked in from nearby mines.

ARQ was using the equipment on the right to dig exploratory trenches in the spoil piles.

In the foreground is a spoil pile with its sprinkling of coal nuggets.

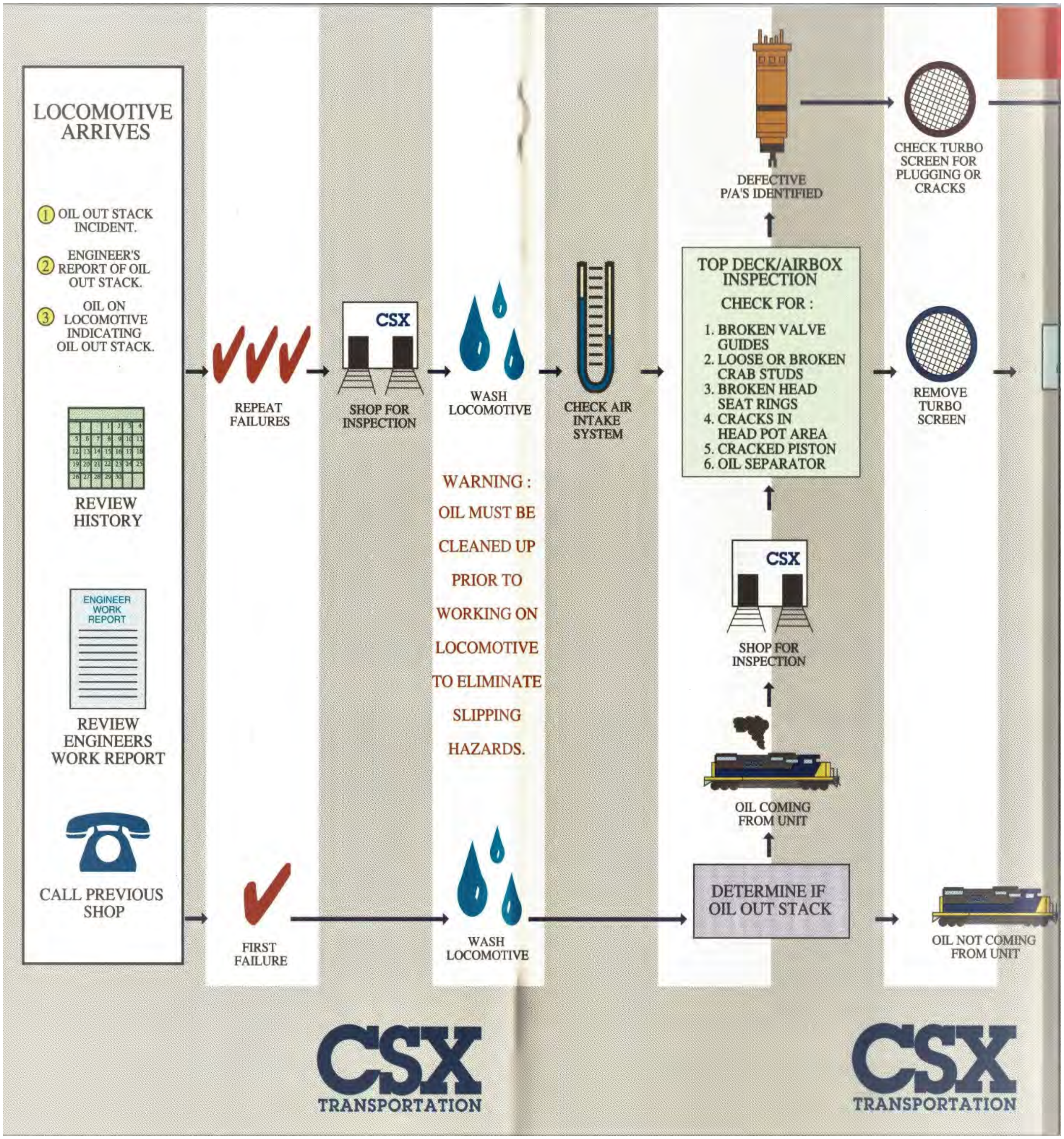
PROGRESS RAIL CAR REPAIR SHOP AT CORBIN, KENTUCKY

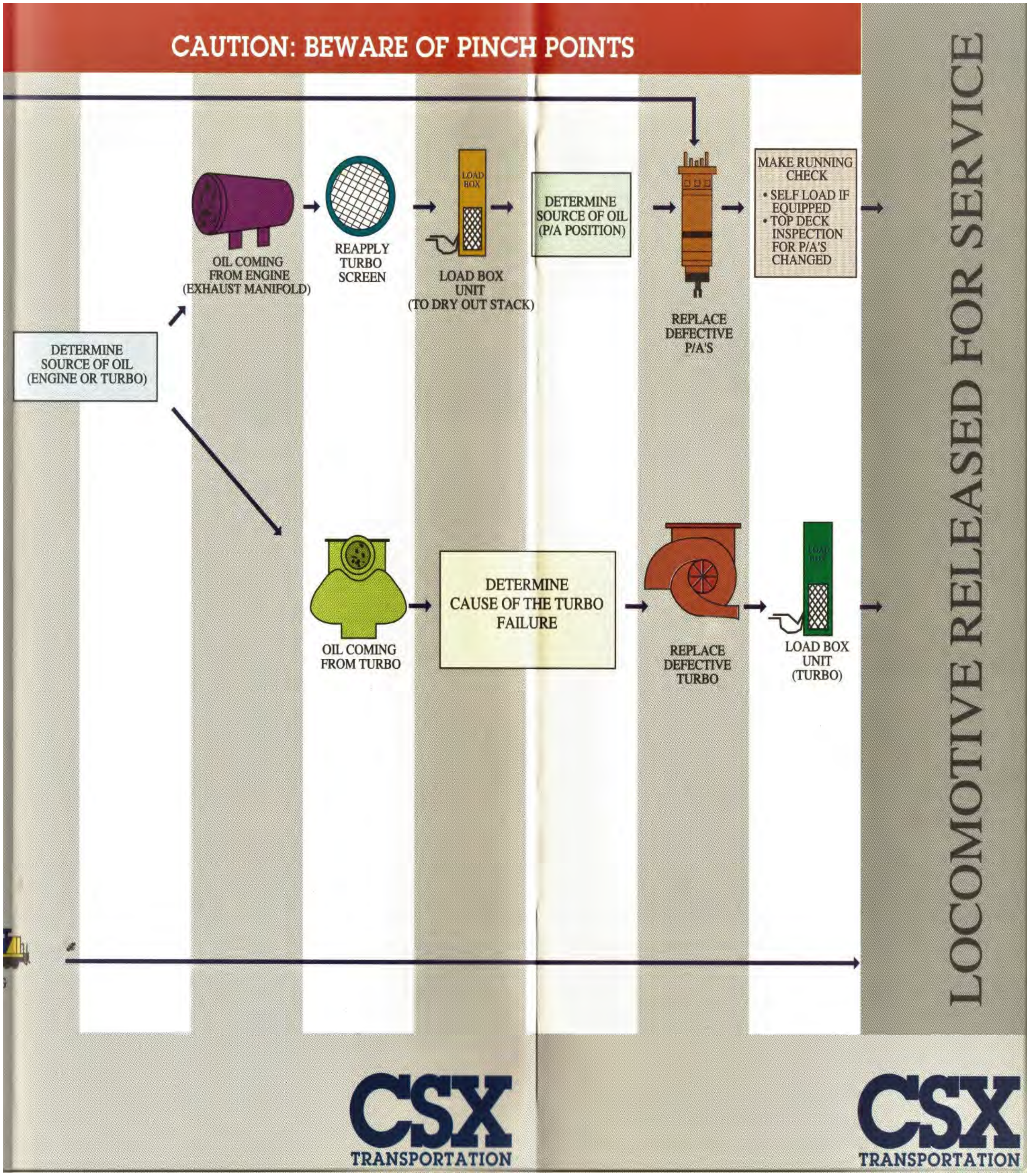
In 2015, when CSXT closed its Corbin Yard repair facilities, there was still a need for a local hopper car repair center. Hopper cars in coal service are constantly experiencing damage to running gear and brake systems. Progress Rail thus leased part of the closed Corbin Coal Wash Plant from ARCH Mineral. A Family Line caboose purchased from CSXT by Progress Rail was transported to the leased work site to serve as a tool room. Work on damaged coal hoppers was undertaken under a roof, but the sides were open to the elements. Progress Rail based a locomotive at the hopper car repair site to retrieve damaged cars from CSXT's Corbin Yard and return repaired cars to the yard.

The Progress Rail, Corbin hopper car repair yard tool room

A view of the hopper repair car area. The Progress Rail locomotive is framed by a rotary coal car dumper.

CSXT TROUBLE SHOOTING GUIDE
OIL OUT STACK
TURBOCHARGE EMD LOCOMOTIVES




CAUTION: BEWARE OF PINCH POINTS
DETERMINE SOURCE OF OIL (ENGINE OR TURBO)
OIL COMING FROM ENGINE (EXHAUST MANIFOLD)
REAPPLY TURBO SCREEN
LOAD BOX
LOAD BOX UNIT (TO DRY OUT STACK)
DETERMINE SOURCE OF OIL (P/A POSITION)
REPLACE DEFECTIVE P/A'S
MAKE RUNNING CHECK
• SELF LOAD IF EQUIPPED
• TOP DECK INSPECTION FOR P/A'S CHANGED
OIL COMING FROM TURBO
DETERMINE CAUSE OF THE TURBO FAILURE
REPLACE DEFECTIVE TURBO
LOAD BOX UNIT (TURBO)
LOCOMOTIVE RELEASED FOR SERVICE
CSX TRANSPORTATION
CSX TRANSPORTATION

SAFETY IS OF FIRST IMPORTANCE. ALL SAFETY RULES AND GUIDELINES MUST BE ADHERED TO WHEN PERFORMING THIS INSTRUCTION.

① ② ③ **Locomotive Arrives**
- Oil out stack incident.
- Engineer's report of oil out stack.
- Oil on locomotive indicating oil out stack.

Review History
- Review locomotive history for last year.
- Shopping history (OMSH)
- Incident history (OMIH)
- Power assembly history (OMA1)
- Component history (OMCL)
- Oil history (OMOH)

Call Previous Shop
- For specific information on last repairs call previous shopping location.

Review Engineers Work Report
- Review engineers report for additional information.

First Failure
- Based on the last thirty day history this is the first indication of oil out stack on this locomotive.

Repeat Failure
- Based on the last thirty day history, this locomotive is found to have 2 or more reports of oil out stack in the last thirty days.

Shop For Inspection
- Locomotive must be shopped for more extensive evaluation.
- Shop using "OS" status code.

Wash Unit
WARNING: OIL MUST BE CLEANED UP PRIOR TO WORKING ON LOCOMOTIVE TO ELIMINATE SLIPPING HAZARDS.

Check Air Intake System
- Take manometer reading across air filters.
- Reference locomotive service manual.

Determine If Oil Out Stack
- Inspect turbo stack for sign of wet oil

Top Deck / Airbox Inspection
Check for:
- Broken valve guides
- Loose or broken crab studs
- Broken head seat rings
- Cracks in head pot area
- Cracked piston
- Oil separator

Remove Turbo Screen
- Must remove. Do not use inspection port .

WARNING: WATCH FOR PINCH POINTS.

Reapply Turbo Screen
- Secure turbo screen in place with two bolts each side.

Determine Source Of Oil (Engine orTurbo)
- If exhaust manifold is wet, check engine.
- If exhaust manifold is dry, turbo is source.

Replace Defective Turbo
- Reference EMD engine service manual.

Determine Cause Of The Turbo Failure
- Correct any conditions that might have brought about the failure.
- Reference EMD engine service manual.

Load Box Unit (Turbo)
- To determine new turbo is functioning properly.
- Reference EMD engine service manual.

Load Box Unit (To dry out stack)
CAUTION: DO NOT CHECK HORSEPOWER AT THIS TIME SINCE EXHAUST LEAKAGE WILL AFFECT PERFORMANCE.
- Load box fifteen minutes, full load, number 8 throttle.
- Idle for thirty minutes no load to allow engine to soup-up.
- Shut engine down.
- Remove turbo screen.
- Determine if oil present.
- If oil not present run in #2 notch (no load) for thirty minutes. (Repeat up to three times)

Determine Source Of Oil (P/A Position)
- Remove turbo screen
- Examine exhaust manifold
- Note positions of source of oil
- If no oil found after repeating three times, replace turbo screen and release locomotive.

Replace Defective P/A's
- Renew P/A's identified as bad order. (Reference EMD engine service manual)
- Replace turbo screen.
- Apply new turbo screen gaskets.

CSXT LOCOMOTIVE OWNERSHIP BY NUMBER SERIES AND CLASS

January 1, 2020

# SERIES	CLASS	# SERIES	CLASS	# SERIES	CLASS	# SERIES	CLASS
0001-0602	CW44AC/H	1700-1712	SD40E3	4401-4452	GP40-2 /	8000-8488	SD40-2
0700-0999	ES44AH	1776	ES44AH		GP382S	8219,8249	SD382S
1006-1018	MT6	2000-2063	GP38-3	4500-4589	SD70AC	8502-8662	SD50/2/3
1021-1068	SWMT	2200-2387	RDSLUG	4701-4830	SD70AC	8724	SD60I
1107	SW1500	2411-2442	SD40-2	5101-5122	CW44AH	8756-8768	SD60M
1130-1139	MP15AC	2443-2445	SD382S	5200-5501	ES40DC	8801-8887	SD40-2
1142-1149	MP15	2450-2454	SD38-2	6001-6499	GP40-2 /	9000-9051	CW40-9
1150-1194	MP15AC	2500-2814	GP38-2		GP382S	9969	GP40WH
1200-1241	MP15T	3000-3249	ES44AH	6500-6562	GP40-3	9992-9999	F40PH2
1501-1519	GP15T	3250-3474	ET44AH	6897-6898	GP60	TORC0996	SD40-2
1536-1556	GP15	4000-4299	SD40-3	6900-6987	GP40-2	TORC0999	SD40
1601	RP20CD**	4300-4319	GP39-2	7311-7929	CW40-8 /		
		4320-4390	SD40-3		CM40-8		

HUMP ENGINES

2411-2445

2450-2454

(EQUIPPED FOR SWMT)

2504-2519 GP38-2 (13 UNITS)

(EQUIPPED FOR RDSLUG)

2500-2503 GP38-2 (4 UNITS)

6400-6499 GP40-2 (95 UNITS)

6900-6987 GP40-2 (78 UNITS)

CSXT LOCOMOTIVE OWNERSHIP

January 1, 2020

REMOTE CONTROL

Included in Fleet -->

UNITS	CLASS
2	GP15T
38	GP38-2
63	GP38-3
16	GP40-2
60	GP40-3
5	GP382S
3	MP15
12	MP15AC
16	MP15T
5	RDSLUG
1	RP20CD
4	SD38-2
5	SD382S
1	SD40
109	SD40-2
50	SD40-3
12	SD40E3
2	SD50-2
404	Total

4-AXLE	TYPE SERVICE				
CLASS	Local	OFC	Road	Swch	TOTAL
F40PH2		4			4
GP15	7				7
GP15T	3			1	4
GP38-2	180			18	198
GP38-3	64				64
GP39-2	19				19
GP40-2	308			15	323
GP40-3	63				63
GP40WH	1				1
GP60			2		2
GP382S	26			5	31
MP15				5	5
MP15AC				47	47
MP15T				33	33
RDSLUG	149				149
SW1500				1	1
SWMT				21	21
TOTAL	820	4	2	146	972

6-AXLE	TYPE SERVICE			
CLASS	Local	Road	Swch	TOTAL
CM40-8		10		10
CM44AC		30		30
CW40-8		194		194
CW40-9		41		41
CW44AC		428		428
CW44AH		125		125
ES40DC		301		301
ES44AH		547		547
ET44AH		225		225
MT6			9	9
RP20CD			1	1
SD38-2			5	5
SD382S			5	5
SD40	1			1
SD40-2		183	76	259
SD40-3		150		150
SD40E3	13			13
SD50-2		3		3
SD50-3		14		14
SD60I		1		1
SD60M		10		10
SD70AC		201		201
TOTAL	14	2463	96	2573

FLEET SUMMARY	
4-AXLE	
GE	0
EMD	972
NRE/RP GenSet	0
Total	972
6-AXLE	
GE	1901
EMD	671
NRE/RP GenSet	1
Total	2573
PASSENGER	4
ROAD	2465
LOCAL	834
SWITCHER	242
SLUG/SWMT/MT6	179
GE	1901
EMD	1643
NRE/RP GenSet	1
Total Fleet	3545

WHAT IS THE STORY?

The photo below was among some photos of CSXT locomotives recently donated to CSXTHS. Can anyone provide information on why CSXT 6237 has a Richmond Fredericksburg & Potomac Railroad decal under its cab window?