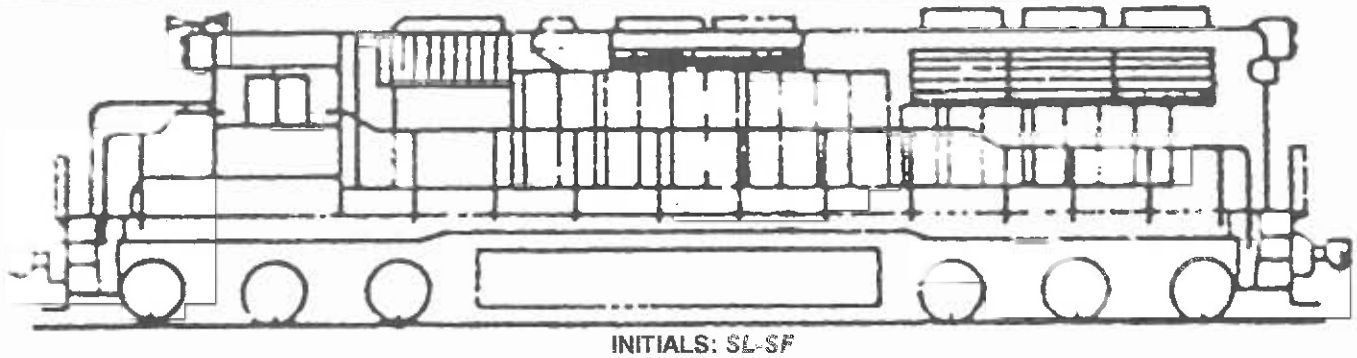
MODELING FRISCO'S SD45's

By Richard E. Napper



INITIALS: *SL-SF*
CLASS: *SD45 Road Diesel*
SERIES: *900-948*

EDITOR'S NOTE: *This is the first in a three part article in which Richard Napper provides detailed, step-by-step, procedures for modeling Frisco's SD45 series road engines.*

The Frisco did not own very many six axle diesels. It required more maintenance for the extra two traction motors. However, they did make the plunge in 1967 for EMD's model SD45 road class **Nos. 900-948.** The Frisco units had the large L shaped front windshield which was not repeated on other EMD models. Also, approximately half of the fleet came with a Gyro-light installed in the short nose. These came on units **926-948.** The Gyro-light became standard equipment on all following Frisco orders for road diesels.

When I first modeled a Frisco SD45, I did what most others probably did: I purchased the Athearn SD45 model. It is not a bad model, but it has one big drawback: Its too big! That is to say, the model's hoods are too wide. I originally followed an article in ***Railroad Model Craftsman***, September 1980 issue, by Randy Wilson to model the Frisco 900's. If you have that issue of ***RMC***, you may want to read it.

Time passed and I lived with the too fat SD45's until I ran them on my new home layout. My layout is 52" off the floor with very little scenery in place. My model split a switch and dropped to the concrete basement floor. One unit was totalled while the other one could be repaired. I decided there had to be a better way of modeling the 900's. The end result can be seen in ***Figure #1.***

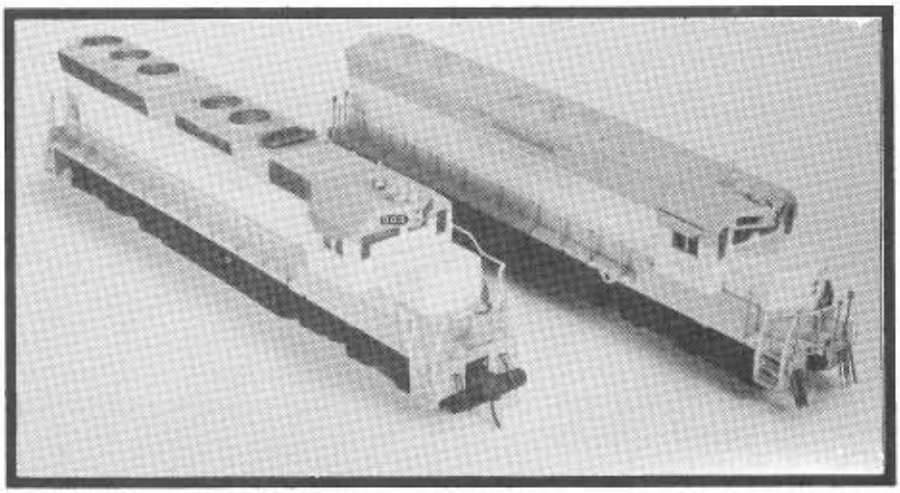
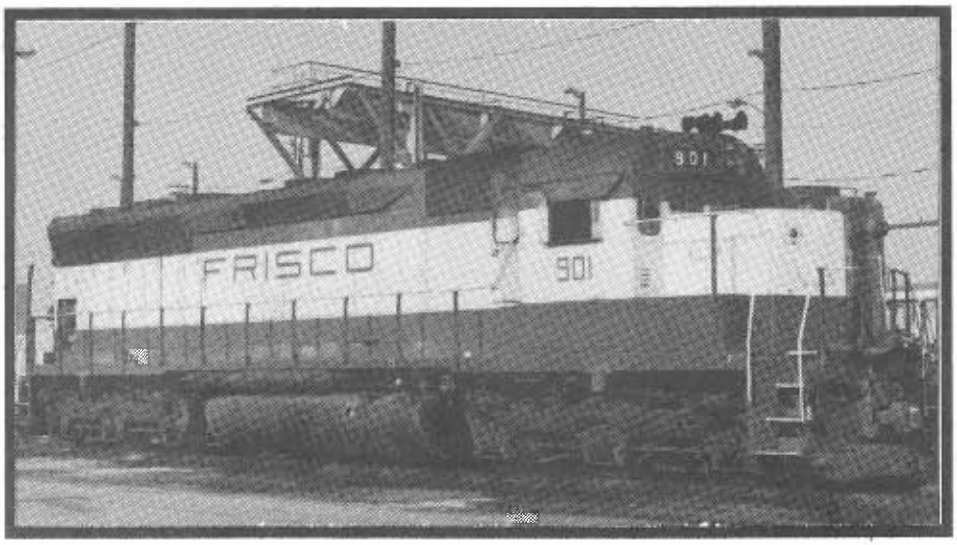


Figure #1
One can easily see the difference between the standard Athearn model on the right and the custom built unit on the left.
Richard E. Napper photo



SD45 #901 Tulsa, OK September, 1980 Troy Botts photo

PARTS & MATERIALS

MFG	PART NO.*	NAME	COLOR	PURPOSE
Athearn	140-4160	Powered SD45	Undecorated	Base Model
Athearn	140-44500	SD40 Shell	Undecorated	Base Model
Athearn	140-44029	SD40-2 Handrail Set	N/A	Handrails
Detail Associates	229-1503	MU Stand	N/A	MU Stand
Detail Associates	229-3201	Air Reservoirs	N/A	Air Tanks
Detail Associates	229-2715	Radiator Grills	N/A	Radiator Grills
Detail Associates	229-2202	Grab Irons	N/A	Grab Irons
Detail Associates	229-2205	Coupler Lift Bars	N/A	Lift Bars
Detail Associates	229-1001	Pyle Gyralite	N/A	Gyro-light
Detail Associates	229-1301	Cab Sunshade	N/A	Cab Sunshade
Detail Associates	229-1508	Air Hoses	N/A	MU Hoses
Detail Associates	229-1507	MU Stand	N/A	Sand Filler
Detail Associates	229-1402	Drop Step	N/A	Steps
Detail Associates	229-3101	Fuel Gauge	N/A	Fuel Gauge
Detail Associates	229-1709	Lens	N/A	Classification Lights
Detail Associates	229-2206	Lift Rings	N/A	Lift Rings
Details West	235-166	Fuel Tank Filler	N/A	Fuel Tank Filler
Details West	235-130	Snow Plow	N/A	Plow Pilot
Details West	235-106	Rotary Beacon	N/A	Rotary Beacon
Details West	235-143 or 144	Cooling Fans	N/A	Cooling Fans
Details West	235-161	Vent	N/A	DB Vent for Elec. Cabinet
Details West	235-157	"Firecracker Antenna"	N/A	Radio Antenna
Cal-Scale	190-316	Diesel Horn	N/A	Horns
Evergreen	269-8406	4x6 Styrene Strips	N/A	
Utah Pacific	755-68	Peacock Hand Bake	N/A	Hand Brake
Precision Scale	585-3978	Exhaust Base	N/A	Exhaust Base
Precision Scale	585-3978	Exhaust Stack	N/A	Exhaust Stack
Herald King	L-461	Decals	N/A	Lettering
Walthers		Number Board Decals	N/A	Number Boards
Campbell	200-256	Chain	N/A	
NOTE: Various thicknesses of styrene sheets are needed.				
Floquil	110006	Paint	Dust	
Floquil	110009	Paint	Primer	
Floquil	110010	Paint	Engine Black	
Floquil	110011	Paint	Reefer White	
Floquil	110013	Paint	Grimy Black	
Floquil	110065	Paint	Signal Red	
Floquil	110070	Paint	Roof Brown	
Floquil	110073	Paint	Rust	
Floquil	110100	Paint	Old Silver	
Floquil	110135	Paint	SP Daylight Red	
Floquil	110187	Paint	Socony Red	

*Part numbers listed are Walthers catalog numbers.

SD45 #905 Tulsa, OK December, 1980 Troy Botts photo

This is what happens. The SD40-2 shell provides the frame, short hood, and cab of the new unit, as well as the long hood end, and roof detail like fans. The SD45 model gives us the power chassis, the front and back porches, and the sides of the long hood.

We will start with the SD40-2 shell. Remove the dynamic brake section; it will be used later. Cut the front set of steps off the shell in a "V" section at the short nose. Using the HO scale drawing in the ***Locomotive Cyclopedia, Volume 2, page 148,*** place the SD40-2 shell on the drawing so that the back steps line up on the drawing. Place the front steps that you have cut off the shell on their place on the drawing and note the amount that you must cut off of the front porch to place the steps where they belong on the SD40-2 shell. You will notice the cab and short hood line up on the diagram for the SD45. The long hood does not line up at this time. Cut the long hood off the SD40-2 shell just behind the traction motor blower housing. The engine doors and all of the long hood must go. Cut the long hood from the walkways. The cut is made straight across the long hood leaving the air filters and the vent plate on the roof behind the cab; but all long hood doors must go. Very carefully, cut the end off the hood. Also, if you are careful, you can save and reuse the three radiator exhaust fans on the roof of the long hood. ***Figure 4*** shows the SD40-2 shell correctly cut with the long hood end that you want beside the cab.

Glue the front porch and steps back on the shell after you have cut out the "V" section to shorten the porch. Use putty to smooth the joint.

Now turn to the SD45 shell. Notice that both front and rear steps have an end with a anticlimber on them. Cut the very front off the SD45 steps so that you save the locomotive ends with the anticlimber. File the ends of the SD40-2 steps flat, and glue the ends from the SD45 shell to both ends. This will give you the correct SD45 ends on the new SD40-2 shell.

Next, cut the long hood off the SD45 shell, again so that you save all of the doors on the long hood. Cut the end off the long hood on the SD45 shell, we only want the sides with the flair. Cut the roof off of the SD45 long hood shell. You want to save the SD45 side flairs and if you cut carefully, you can save all five fans on the SD45 roof. ***Figure 4*** again shows you the two parts of the SD45 hood that you are trying to save.

There are a few things that you can do while the long hood sides are flat. On the engineers side of the long hood, scrape or sand the last hood door from the shell at the very rear of the long hood. Refer to ***Figures 2*** and ***3*** on page 14. You need to cut the hand brake cutout into the hood side where the door was located. Cut through the shell and back the inside of the hole with .020" styrene on the inside of the shell. Line the hole with the 4x6 styrene strip. Cut the base off the Utah Pacific Brake Stand and glue it, and the brake wheel, in the cavity you have made for it. Using .010" styrene, make the small door with hinges to put above the brake stand. ***Figure 6***, on page 14, shows this detail added to the shell.

Now turn both long hood pieces over and remove all the ridges inside. These pieces must be completely flat on the inside, or the motor will not clear them. Remove the Athearn rear radiator grills and glue in the correct three piece Detail Associates parts.

Now comes the hardest part of this conversion, putting the long hood back together. Just take your time and all will fit O.K.! First glue the long hood and piece from the SD40-2 shell to the two SD45 long hood pieces. Take your time, they must be square. Now glue the new long hood without roof to the SD40-2 shell. Be sure and get the sides straight up and down and be

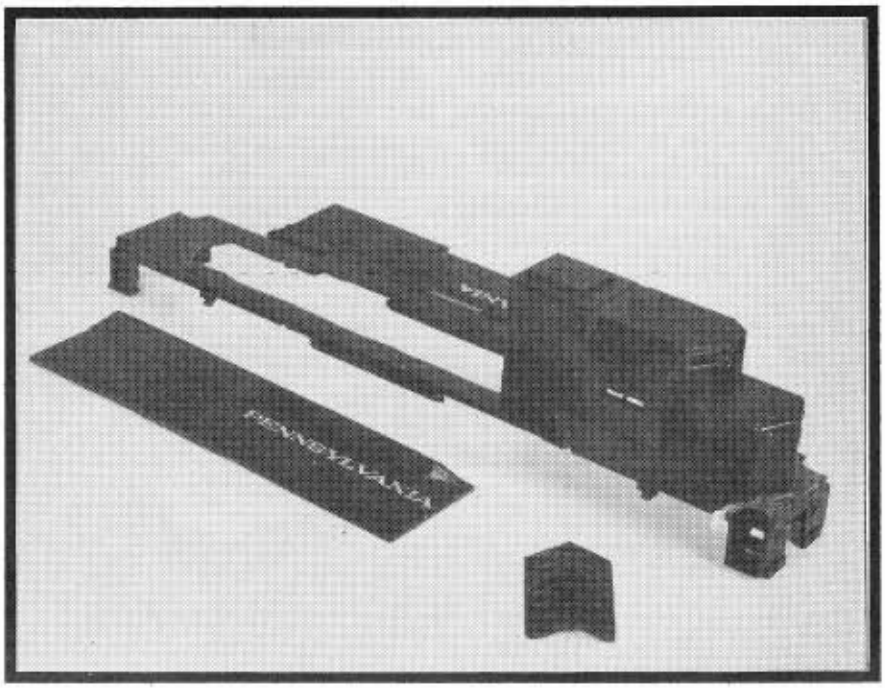


Figure #4

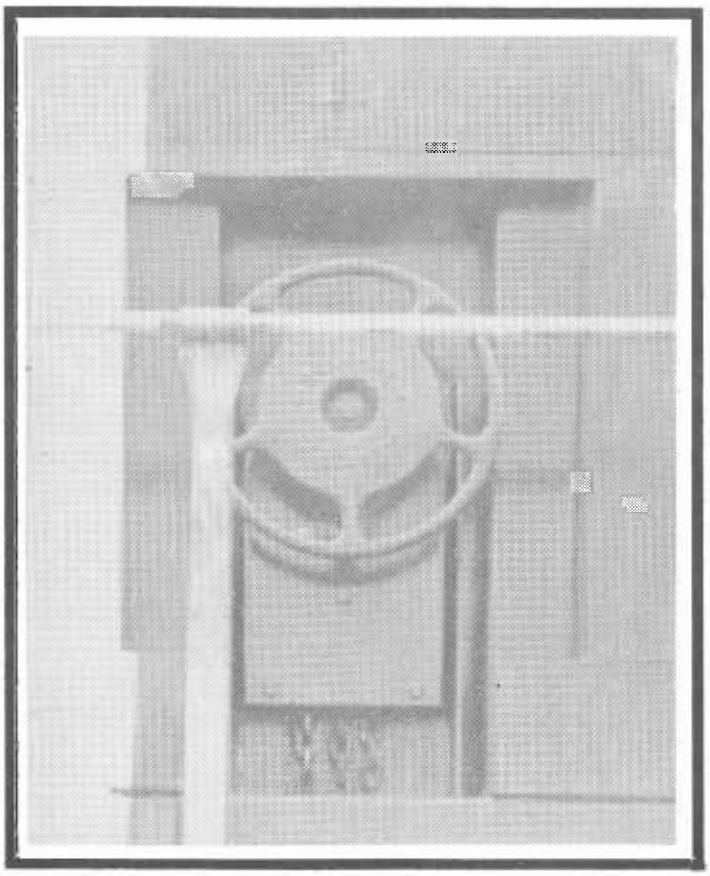


Figure #2

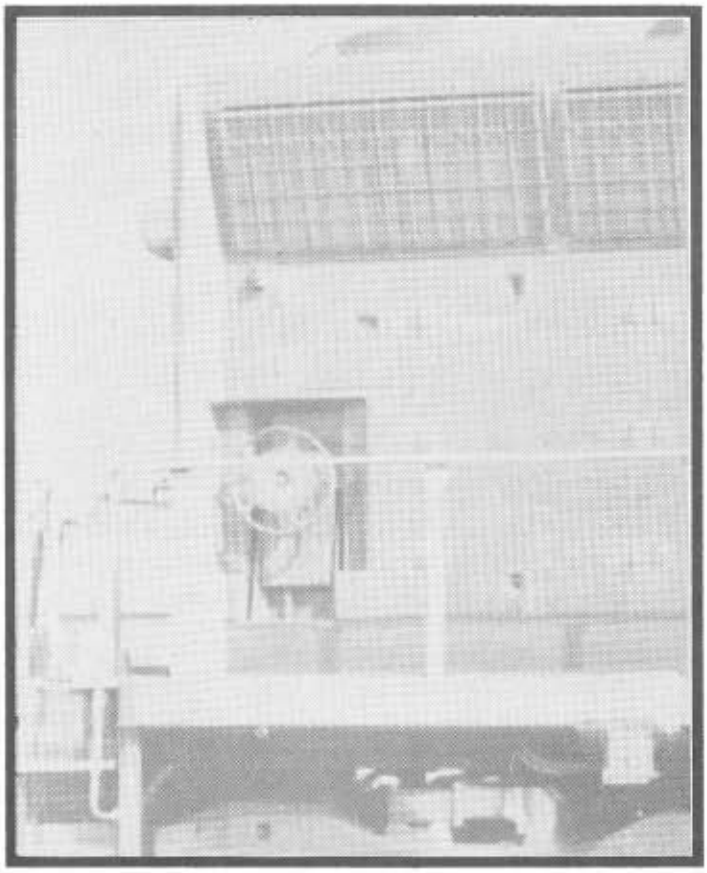


Figure #3

sure to center the long hood "V" end on the back porch. You will note the large back porch has now been shortened by the long hood, so that it is the correct length. I use super glue to glue the long hood to the shell and walkways. After the hood is dry, use a Dremel Motor Tool to cut the plastic floor from inside the long hood, otherwise the chassis and motor will not fit inside the long hood.

You will notice that the new long hood end and the sides have a space between where the flair stops behind the radiator grills. Putty this area and sand it until the flair blends into the rear. You will also get rid of the top set of rear classification lights which you do not want anyway. Remove the two ridges from the traction motor blower housing on the fireman's side of the long hood.

Now would be a very good time to add styrene sheets between the long hood sides to make a new roof. Now paint the new modified shell with Gray Primer. Now its time to add the body putty to the areas which need it. Cut off the brake wheel on the short hood, fireman's side, and putty the area until it is smooth.

To be continued.....

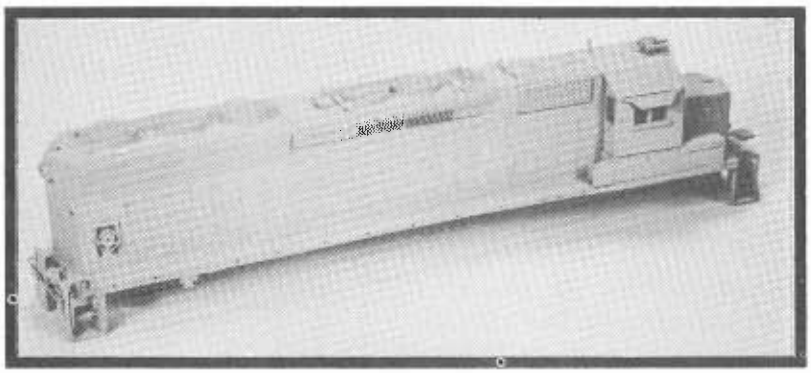
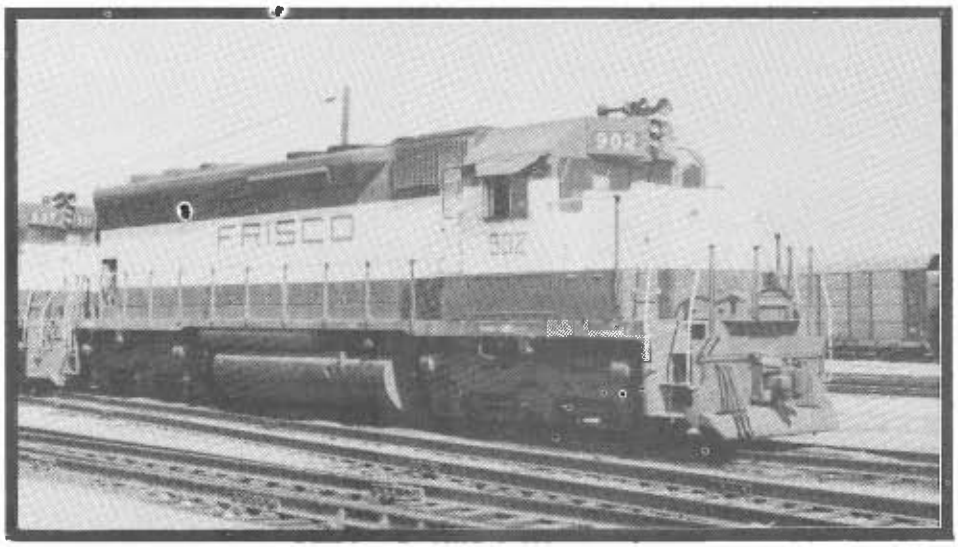


Figure #6



SD45 #902 Tulsa, OK October, 1980 Troy Botts photo

BUILDING THE FT. WOOD BRANCH

On December 5, 1940, grading began on what R.F. Bundy called, "*One of the most spectacular engineering feats in the United States... It will probably be rated the greatest engineering project ever completed in Missouri.*" Bundy was the civil engineer who designed and supervised the construction of the 19.85 mile line known as the **Ft. Wood Branch.** The junction *(M.P. 121.5)* where the new line joined the Frisco main 2.4 miles west of Newburg, MO, was named in honor of Mr. Bundy's accomplishments. While on the surface, one might tend to think Mr. Bundy's description of the project was somewhat self-serving and exaggerated, a few construction facts might suggest otherwise.

1. Total cost of the project was $2,500,000.00.

2. The twenty mile line had seventy curves, an average of one every quarter mile.

3. Over 1,600,000 yards of dirt and rock had to be removed in sixty-eight cuts.

4. Two-hundred carloads of heavy machinery were required for grading and excavation.

5. Over 2,800 employees worked twenty-four hours a day, seven days a week, building the line.

6. Two steel bridges were built. One adjacent to Bundy Junction crossing the *Little Piney River*. The other bridge, with steel spans of 304 feet and trestle approaches of 1,458 feet, crossed the *Big Piney River* near Devil's Elbow. In addition to these bridges, fifteen timber trestles were built where fills were impracticable.

7. The deepest cut was 46 feet, the longest cut 3,150 feet; the highest fill was 60 feet, the longest fill, 6,500 feet. The steepest grade was 2.26 per cent, the longest grade, 6.17 miles. The longest straight stretch of track was 2,700 feet.

8. The rail used was 110 pound type *(rail is rated at pounds per three foot section)*, the same size used on the Frisco mainline at the time.

When placed in operation, the line was operated by the United States Government and traffic was limited to the handling of U.S. troops and government property. Other traffic to the Fort was by truck and bus service of the **Frisco Transportation Company** from the depot at Newburg.

St. Louis-San Francisco Railway Company

(Operating for United States Government)

FT. WOOD BRANCH

TIME TABLE No. 3

EFFECTIVE

Sunday, January 8, 1956

at 12:01 A. M.
Central Standard Time

FOR EMPLOYES ONLY

R. J. STONE
Vice President—Operation

L. B. CLARY
Asst. Vice President—Operation

L. W. MENK
General Manager

R. C. GRAYSON
Asst. General Manager

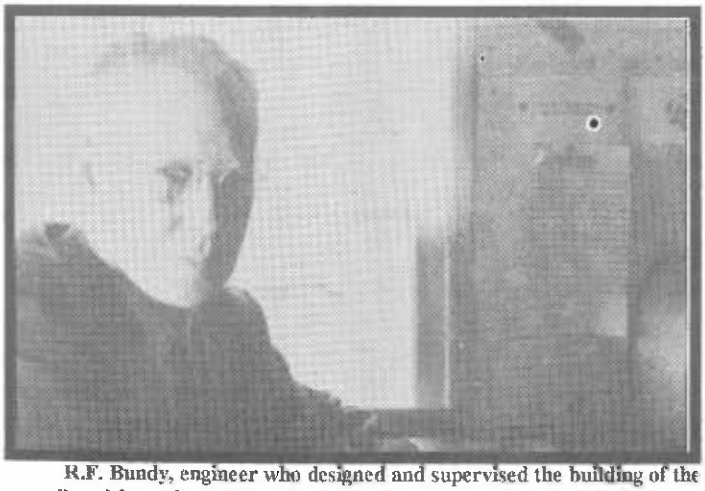
FRISCO TRANSPORTATION COMPANY

A subsidiary of the St. Louis-San Francisco Railway performs common carrier service co-ordinated with both freight and passenger service of the railway in the states of Missouri, Kansas, Oklahoma and Arkansas

ROLLA, NEWBURG AND FT. LEONARD WOOD

9 Dly	7 Dly	5 Dly	3 Dly	1 Dly	Mileage	TABLE 32	2 Dly	4 Dly	6 Dly	8 Dly	10 Dly
PM	PM	AM	AM	AM			AM	AM	PM	PM	PM
8 06			8 20		0	lv Rolla, Mo.... Ar	7 55	....	....	7 45	....
8 20			8 25		10	ar Newburg.... Lv	7 30	....	....	7 20	....
8 30	4 45	11 20	8 35	2 50	10	lv Newburg.... Ar	7 25	11 1	4 57	11 11	6 55
10 40	6 55	12 30	9 45	4 00	31	ar Ft. Leonard Wood Lv	6 15	9 50	2 36	8 00	11 45

F.T.C. Bus Schedule, March, 1942



R.F. Bundy, engineer who designed and supervised the building of the railroad from the Frisco mainline west of Newburg, to Ft. leonard Wood.

Bundy Jct., 2.4 miles west of Newburg, MO. Farther west was another switch leading on the Ft. Leonard Wood branch to complete the "wye."

FT. WOOD BRANCH

(Operating for United States Government)

WESTWARD — **EASTWARD**

Service Rendered By Extras

Distance from Bundy Jct. (Miles)	Telegraph Office	STATIONS	Fuel, Water, Turn Table, Wye, Clock, Std. Bulletin	Station Number	Track Capacity: Siding	Track Capacity: Other
0.0		BUNDY JCT.	Y			
		7.3				
7.3		HUNT		AB 7	Frt. 57 Pass. 39	
		5.5				
12.8		WERN		AB13	Frt. 32 Pass. 19	
		3.7				
16.5		LEE		AB16	Frt. 30 Pass. 18	
		2.0				
18.5		FT. WOOD WYE	Y			
		1.0				
19.5	D	FT. WOOD		AB19	YA	RO
		(19.5)				

Service Rendered By Extras

N. T. OVERBY, Assistant Superintendent, Ft. Wood, Mo.
F. J. SMITH, Road Foreman of Equipment, Springfield, Mo.

J. W. CONSTANT, Chief Dispatcher, Springfield, Mo.

3. MAXIMUM SPEED

	MPH Psgr.	MPH Frt.
	25	25

4. SPEED RESTRICTIONS:

On Wye, Bundy Jct.	15	15
Curves between MP AB 2-20 and MP AB 2-30	20	20
AB 4-10 AB 6-25	20	20
AB 8-20 AB 10-20	20	20
Over Big Piney Bridge, Mile AB 12.1	15	15
Curves between MP AB 13-19 and MP AB 13-24	20	20
AB 14 AB 15- 4	20	20
AB 15-30 AB 18-15	20	20
Over First St. Crossing Fort Wood MP AB 18-39	15	15

Time to Be Used by Trains

	Psgr. Minutes	Frt. Minutes
Westward:		
MP AB 8 to MP AB 11 plus 20 poles	12	12
Eastward:		
MP AB 19 to MP AB 16 plus 20 poles	8	8
MP AB 6 to MP AB 3	10	10

7. BLOCK SIGNALS.

APB Bundy Jct. to MP AB 19-7.

Train Meet Signal

Lee, MP AB 16-13 ..... Westward Trains

Trains on main track, waiting for or to meet opposing trains, will stop back of sign until opposing train reaches switch. If train on main track passes sign, opposing approach signal will display stop indication.

11. LOCATION OF YARD LIMITS.

Bundy Jct. (Ft. Wood Branch only).
Ft. Wood.

13. AUXILIARY LINES.

(Rule 14, W and X)
Bundy Jct. ..... Ft. Wood Branch

15. SPECIAL INSTRUCTIONS.

On Ft. Wood Branch, retainers must be used on westward freight trains from MP AB 8 to MP AB 11 plus 20 poles, and on eastward freight trains from MP AB 19 to MP AB 16 plus 20 poles and MP AB 6 to MP AB 3. To determine the number of retainers required, conductor will divide total tonnage of train by number of cars in train, which will give tons per brake. On trains with 50 tons per brake, set up 20% retainers on head end. On trains with 50 to 70 tons per brake, set up 25 to 33% retainers on head end. On trains with 70 to 90 tons per brake, set up 40 to 50% retainers on head end. On trains of empties under 40 cars, retainers should be set up as desired by engineman. On trains of empties over 40 cars, set up 3 to 5 retainers on head end. Where trains are made up with mixed empties and loads, retainers should be set up on loads where practicable.

Trains entering siding at Lee, Wern and Hunt, will not close switch until train is clear of fouling point in siding.

TRACK RESTRICTIONS

Engines will not be operated on coal tipple at Ft. Wood.

Movements in Tracks 1, 2, 3, 4, and 5, Warehouse District, Ft. Wood, will not exceed 10 MPH in congested area.

20. PERMISSIBLE LOAD LIMITS.

	Maximum Gross Weight of Cars	Bridge Class of Engines and Derricks
Ft. Wood Branch	**251,000	70.4

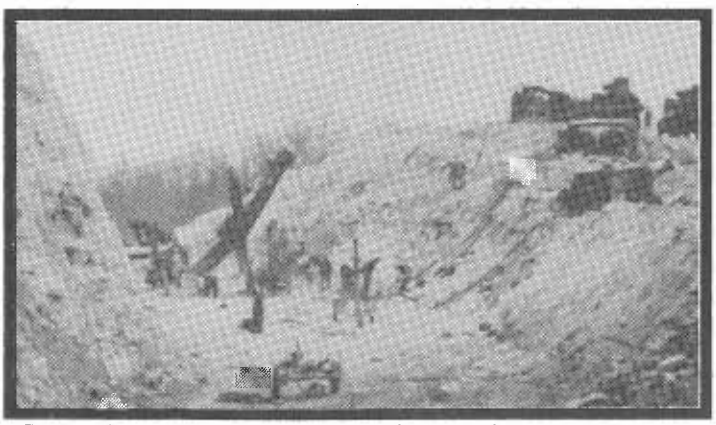
Double asterisk (**)—except cars shorter than 35 feet to be limited to 210,000 pounds.

17. TONNAGE RATING OF ENGINES BY CLASSES.

WESTWARD

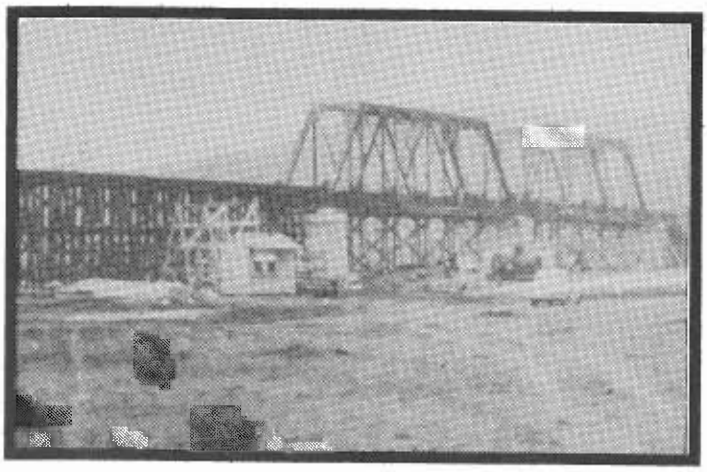
TONNAGE CLASS	21	27	32	34	42	50
Bundy Jct. to Ft. Wood	675	590	760	615	750	855

Ft. Wood Branch Employees Timetable, January 8, 1956

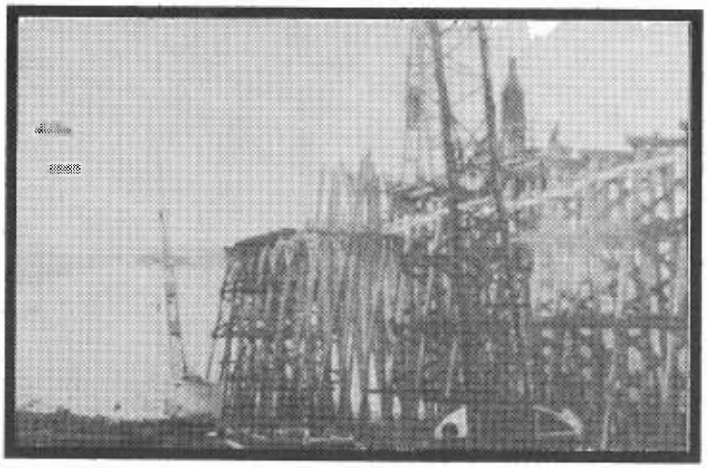


Cutting through the Ozarks! **Preparing one of the many deep cuts required along the line.**

This photo of the advanced railhead gives some indication of the vast amount of machines and materials that were required.

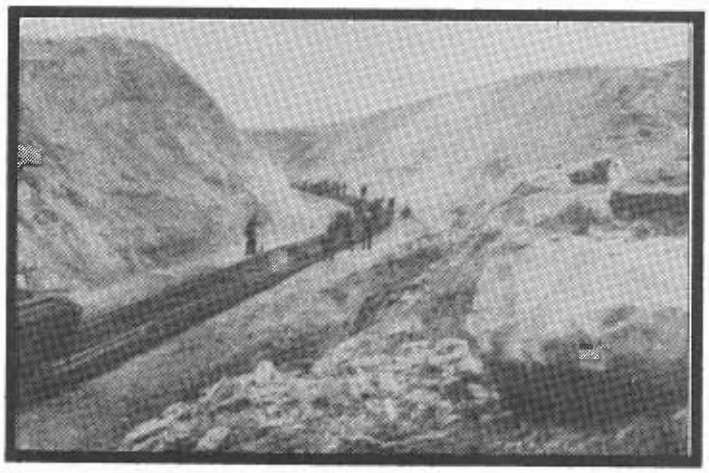


Big Piney Bridge, near Devil's Elbow... the steel spans are 304 feet long, while timber trestles approaching the bridge are 1,485 feet long.



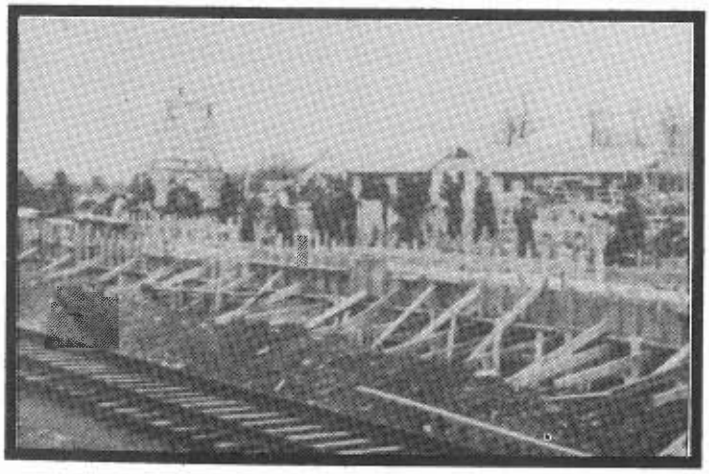
"*Bunk House Bridge*," one of the fifteen timber trestles on the 19.85 mile line.. after the piling was driven into the ground, the tops were sawed off and the cross bars bolted into position.

A section of the 110-pound rail being swung into position... 39 feet long, that rail weighs more than 1,400 pounds... in the foreground ties are being placed in position.

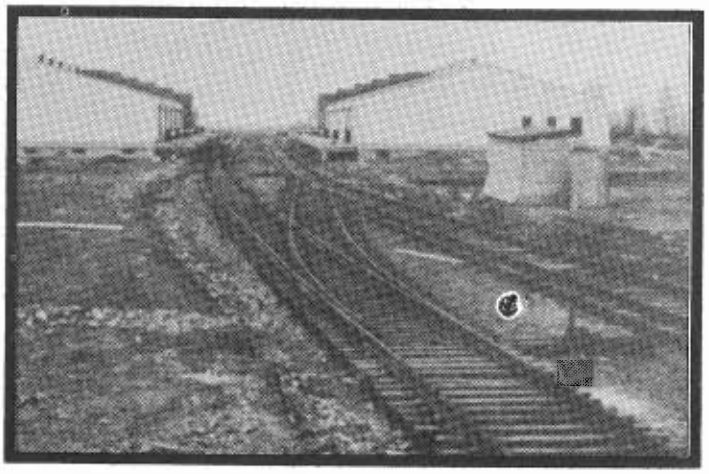


Some idea of the depth of this cut can be gained by comparing the men to the walls... that "little" boulder to the right was typical of the size of the rock removed to build the line.

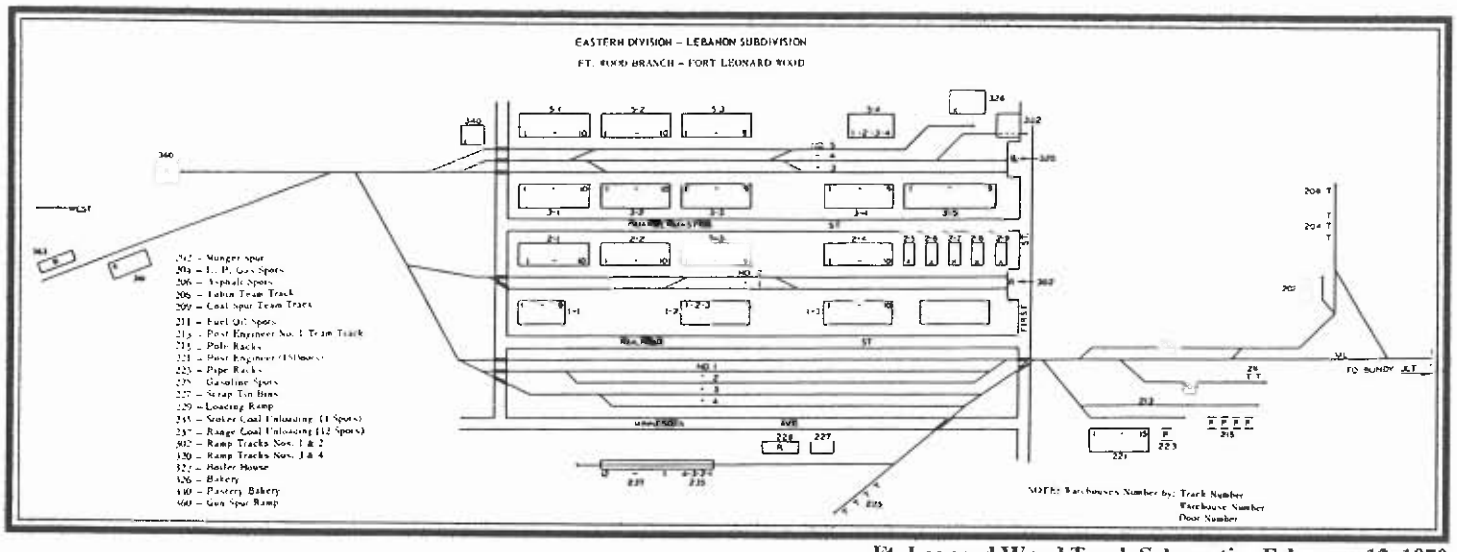
EDITOR'S NOTE: All photos featured in this article are Frisco company photos



Building a warehouse at the Fort... the rails in the foreground were built as sidings to bring cars within 10 feet of the warehouse doors.



A section of the "yard" in the warehouse area... the railroad grew up with this section, track being laid as the warehouses were being built.

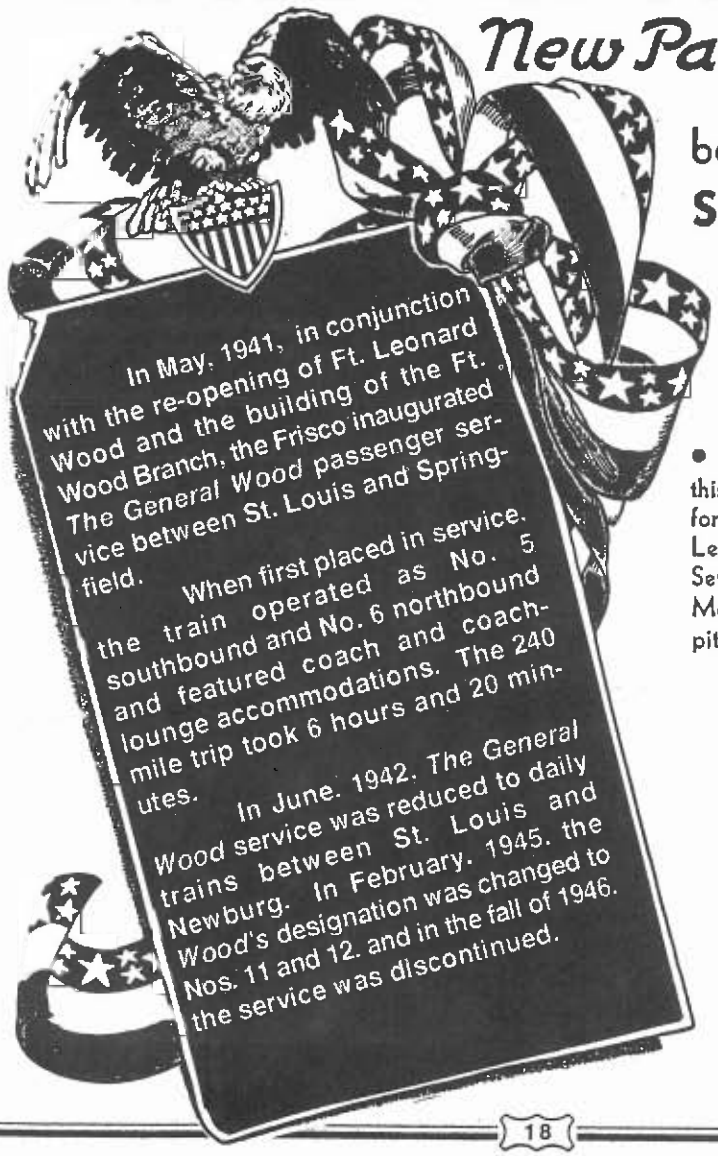


Ft. Leonard Wood Track Schematic. February 12, 1970

THE General Wood

New Passenger Train

between **ST. LOUIS** and **SPRINGFIELD, MO.**



In May, 1941, in conjunction with the re-opening of Ft. Leonard Wood and the building of the Ft. Wood Branch, the Frisco inaugurated The General Wood passenger service between St. Louis and Springfield.

When first placed in service, the train operated as No. 5 southbound and No. 6 northbound and featured coach and coach-lounge accommodations. The 240 mile trip took 6 hours and 20 minutes.

In June, 1942, The General Wood service was reduced to daily trains between St. Louis and Newburg. In February, 1945, the Wood's designation was changed to Nos. 11 and 12, and in the fall of 1946, the service was discontinued.

Delightful daylight service free from the annoyances and hazards of congested highways.

- In addition to serving the local territory, this train provides convenient daylight service for passengers destined to and from Fort Leonard Wood, new training center of the Seventh Corps Area adjacent to Newburg, Mo., and the proposed O'Reilly Army Hospital at Springfield, Mo.

- The new train has modern air-conditioned coaches, and a comfortable coach-lounge, also air-conditioned . . . Meals are served in this car at the popular Snack Car prices.

- Service between Rolla, Newburg and Fort Leonard Wood is provided by busses of the Frisco Transportation Company; for schedules, see Table 1, Page 7.

FRISCO LINES
ST. LOUIS-SAN FRANCISCO RY.

Public Timetable advertisement. May, 1941

DOWN AT THE DEPOT

Chaffee, MO

Station T144
Chaffee Sub-Division
River Division

The *St. Louis, Memphis & Southeastern Railroad Co.* was incorporated on January 8, 1902. Corporate control of the company was assumed by the Frisco on November 1, 1902, and by 1904, the company had constructed 124 miles of main line track between Southeastern Junction and Cape Girardeau, forty-six miles from Nash to Lilbourn, and sixteen miles between Hayti and Grassy Bayou, MO. Four miles south of Nash and 144 miles south of St. Louis was established Station **T144** at Chaffee, MO. While first simply a point on the old Memphis Division, in 1906 Chaffee became Division point for the new Chaffee District *(became Chaffee Sub-Division* **in 1910)** and was the location of headquarters for the entire River Division.

While probably not the first structure to be used as a depot, in 1907 a new all brick passenger station was built. It was one of a series of four brick depots constructed between 1905 and 1907, that featured a distinctive *"gun turret"* roof design over the ticket office. The other locations included **Vinita, OK** *(1905)*, **Aurora, MO** *(1906)*, and **Parsons, KS** *(1906)*.

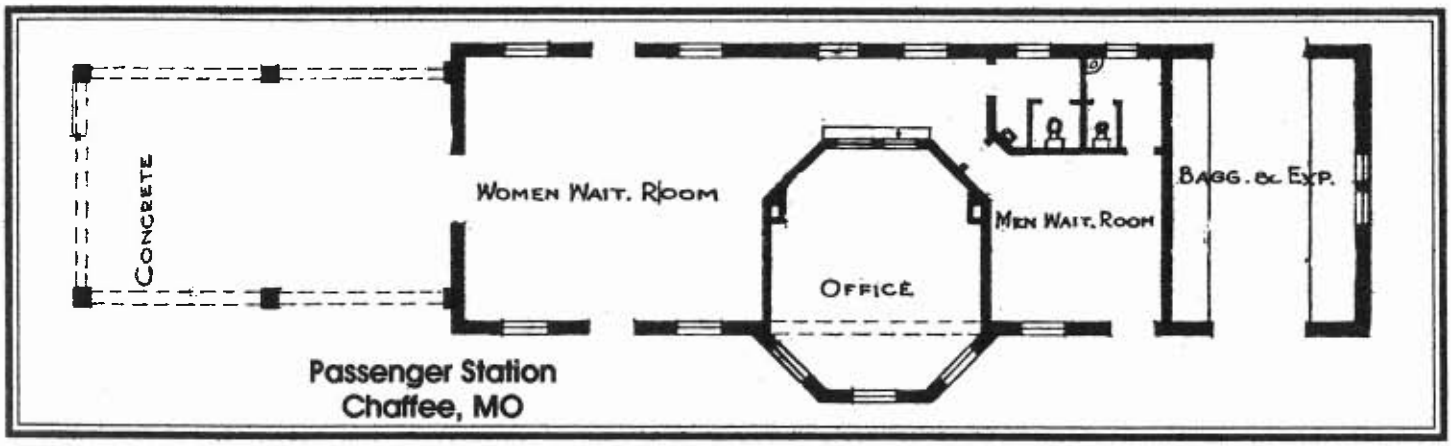
The all brick depot at Chaffee had 13' walls set on a concrete foundation, with a 1/4 pitch hip roof covered with French Pattern clay tiles. The station was divided into a 27' x 25' women's waiting room on the south end, a 13' 11" x 14' men's waiting room, restrooms, and 16' baggage/express room on the north. The ticket office in the middle was a 17' octagon design.

The building was surrounded by a 132' x 48' concrete platform. When originally built, the station featured a 31' 9" covered platform *(as seen in the photo below)* that was later removed *(as seen in the photo on page 20)*.

Because of its designation as a division point, Chaffee was the location of a large shop and classification yard facility including a roundhouse, 70' Phoenix-built turntable, four fuel oil tanks, complete car repair and painting shop, 80 ton 40 ft. Fairbanks built track scale, water tank, motor car shed and repair facilities, concrete coaling station, icing facilities, and twelve stock pens. It was also home base for the River Division Wrecking Crane and related equipment.

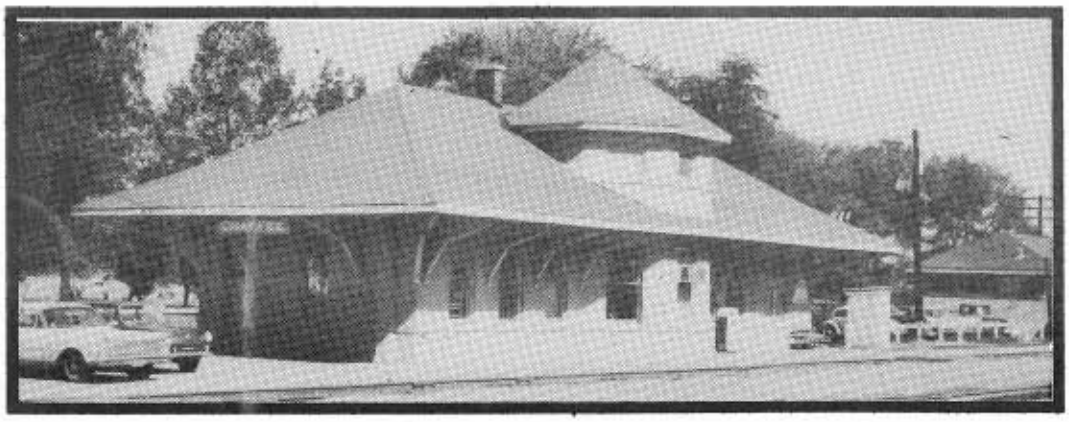
The Chaffee station was served by a wide variety of named trains, daily locals, and motor car service. The last passenger train to depart the Chaffee depot was the ***Sunnyland***, trains 807-808, which made their final runs on September 17, 1965.

Sunnyland Drumhead, circa. 1927

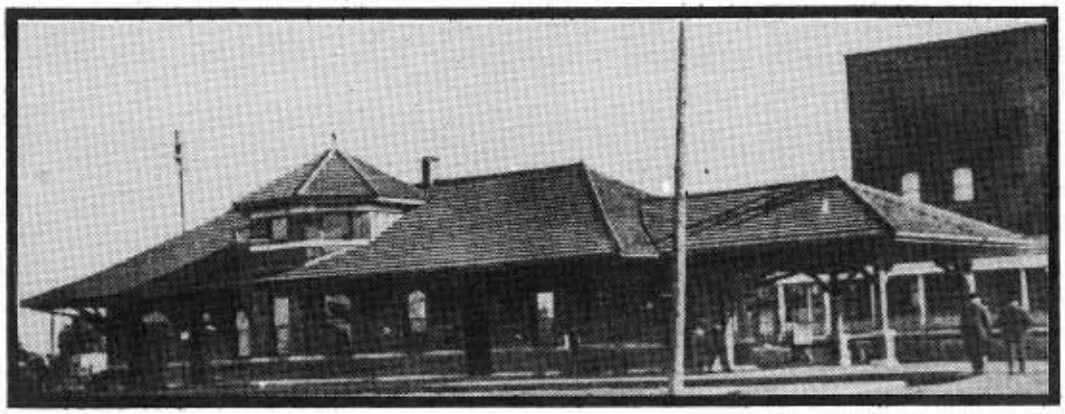


Passenger Station
Chaffee, MO

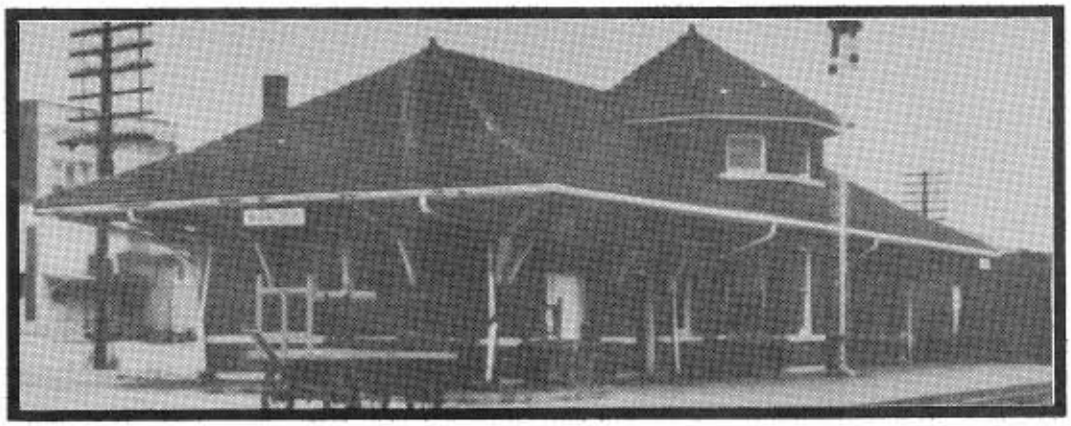
Chaffee, MO circa. 1915 Kevin Johnson collection



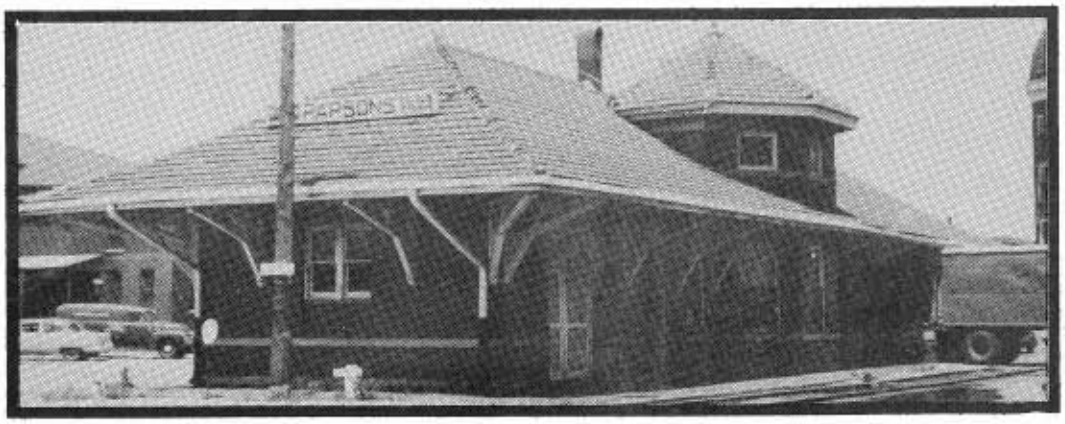
Chaffee, MO 1967 H.D. Conner collection



Vinita, OK 1905 H.D Conner collection



Aurora, MO 1959 Howard Killam collection



Parsons, KS 1955 H.D. Conner collection