

Santa Fe's 4-8-4 Steam Locomotives - Timelines - by John A. Thompson, June 2005

3751 Class (3751-64) (14 locos)

Jun 1927	3751	Delivered with 73" spoked drivers, 30x30" cyl., coal tender 15K/20T	Features: Walschaert valve gear, Elesco fwh on pilot, CF-1 recip pump above 3rd driver LHS, air compressor on LHS above 4th driver, Duplex stoker, no dry steam pipe outside rear of boiler, straight slab rods (thinner between rear drivers), whistle angled on RHS of steam dome
Jan-Feb 1928	3752-60	Delivered, same as 3751	Same features as 3751 except: Dry steam pipe above rear of boiler, centrif. fw pump (under LHS cab), lubricator box on LHS above 3rd driver
May 1929	3761-63	Delivered, same as 3751	Same features as 3752-60, but Standard stoker, capacity of tender's coal bunker raised with curved-in sideboards
Dec 1929	3764	Delivered, same as 3751, but with Caprotti poppet valve gear	Same features as 3761-63, but with Caprotti poppet valve gear
Oct 1934	3764	Rebuilt with Walschaert valve gear, standard cylinders	(remove Caprotti valve gear)
1936	3751, 53	Upgraded for speed	New pilot trucks (Batz, 37" wheels replace 33" wheels)
1936	3751, 62-64	Converted to oil, 5K oil insert in 15K tender	For Super Chief protection service or Coast Lines service (remove stoker & ash pan)
Oct 1937 - Mar 1938	(all 14)	All get 20K "square" oil tenders (7,107 gal oil)	(remove stoker & ash pan from 3752-61)
by 1938	(all 14)		All get flip-up stack extensions
Nov 1938 - Jul 1939	3752-59, 3761-62	Major rebuild of 10 of the 14 locos: 80" Boxpok drivers, keep same 30x30" cyl.	Move Elesco fwh ahead of stack, new CF-1 recip fw pump below LHS cab, two air compressors on pilot (behind shields, add cutouts in smokebox), new thin, straight I-beam side rods (thinner between rear drivers), thin tapered I-beam main rod, air tank over rear drivers (each side), move lubricator box over 2nd driver LHS, extend cab for brakeman, move whistle (now vertical, ahead of steam dome RHS), add new pilot truck (Batz, 37" wheels replace 33" wheels), 3753, 54, 56 initially had front deck pump shields connected by a solid sheet until c. 1941, c. 1948, c. 1945

mid 1940 - mid 1942	(all 14)	Paint large "SANTA FE" above tender numbers	
Mar 1941 - Dec 1941	3751, 60, 63-64	Major rebuild of last 4 locos: 80" Boxpok drivers, new 30x30" cyl with Wagner drifting valves	Features same as 1st 10, except: Worthington SA fwh ahead of stack, shielded pump on RHS of pilot, shielded air compressor on LHS, 2nd one moved under LHS cab, centrif water pump below it, Duplex boiler check valves on top, combine two sand boxes into one large sand box, move lubricator box above 2nd driver LHS
1941	3753, 59	New 30x30" cyl with Wagner drifting valves	
c. 1944 mid 1940's	3756-57	New 30x30" cyl with Wagner drifting valves	3751, 60, 63, 64 got telescoping stack extensions
Apr 1945	3759	Upgraded same as 3751, 60, 63-64 were in 1941	Same features as 3751, 60, 63-64 got in 1941 (Worthington SA fwh, one large sand box, etc.), plus telescoping stack extension
Dec 1945 2nd Q 1946	3762 3751, 59-60	Upgraded same as 3759	3751, 59-60 got curved segmented stack extensions, for Tehachapi service
Nov 1946 Jan 1947	3761 3754-55	Upgraded same as 3759 Upgraded same as 3759	
Jan 1948	3752	Upgraded same as 3759, but no Wagner drifting valves	Instead, got efficient Franklin rotary cam poppet valves, large metal shroud on pilot deck, power reverse gear in cab (kept these to the end)
Nov 1948	3758	Upgraded same as 3759	Except that front deck pump shielding was continuous across full width of deck
late 1940's	(all 14)	Change rods	Many received tapered rods from later 4-8-4's, between 2nd & 3rd drivers, and/or between 3rd & 4th
1949	(all 14)		Removed lubricator boxes on LHS
1950's	3753, 56-57		(these 3 locos kept their top-mounted Elesco fwh, two sand boxes, and telescoping stack extension to the end)
mid 1950's	(all 14)	Retired	Saved 3751, 3759 (3751 later restored to operation in 1980's)

3765 Class (3765-75) (11 locos)

Apr-Jun 1938	3766-75	Delivered with 80" Baldwin Disc drivers (with raised ribs in spokes), 28x32" cyl with Wagner drifting valves, 20K "square" oil tender (7,107 gal oil)	Features: Walschaert valve gear, straight I-beam side rods, tapered I-beam main rod, Worthington SA fwh ahead of stack, pump on RHS of pilot (no shield), air compressor on LHS (shielded), extended cab, whistle on RHS behind single large sand box, paired dry steam pipes above rear of boiler, check valves on sides of boiler
Jun 1938	3765	Delivered same as 1st 10	Same features except: Was intended for streamlining (but that would be too heavy), had solid pilot (replaced by 1949), rounded cab window, whistle on RHS behind stack, stainless steel handrails & tender brake wheel, smoothed rivet strip on tender
mid 1940 - mid 1942	(all 11)	Paint large "SANTA FE" above tender numbers	
1944-45	(all 11)	Upgraded	Got telescoping stack extensions, moved check valves higher on boiler sides
1950-52	3766-68, 71-75	Upgraded	Got new boiler with no steam dome, has pair of dry steam pipes above rear of boiler
1950's	(all 11)	Some got mix of drive wheel types	Some received some tapered rods from later 4-8-4 classes
late 1950's	(all 11)	Retired	Saved 3768

3776 Class (3776-3785) (10 locos)

July-Oct 1941	3776-83	Delivered with 80" Baldwin 1941 Disc drivers, 28x32" cyl with Wagner drifting valves, 24.5K long oil tender (7,107 gal oil), letters but no number on tender as delivered, but numbered at Topeka	Features: Tapered rods, Walschaert valve gear, Worthington SA fwh ahead of stack, pump on LHS behind cyl, whistle on RHS behind single large sand box (some whistles later move to RHS behind stack), two air compressors on pilot (behind shields), paired dry steam pipes above rear of boiler, two blow-downs on each side of firebox (all other ATSF 4-8-4's had just one per side), some have blow-down mufflers, all have counterweights below pistons
Nov 1941	3784-85	Delivered same as 3776-83	Same features except: Thin roller-bearing rods, no counterweights
by 1945	(all 10)		Add telescoping stack extensions
1947-48	3776-83	Upgraded	Replaced tapered rods with thin roller-bearing rods, removed counterweights
Nov 1949 - Mar 1952	3776, 78- 80, 82, 84	Upgraded	Got new boiler with no steam dome, has pair of dry steam pipes above rear of boiler
late 1950's	(all 10)	Retired	None saved

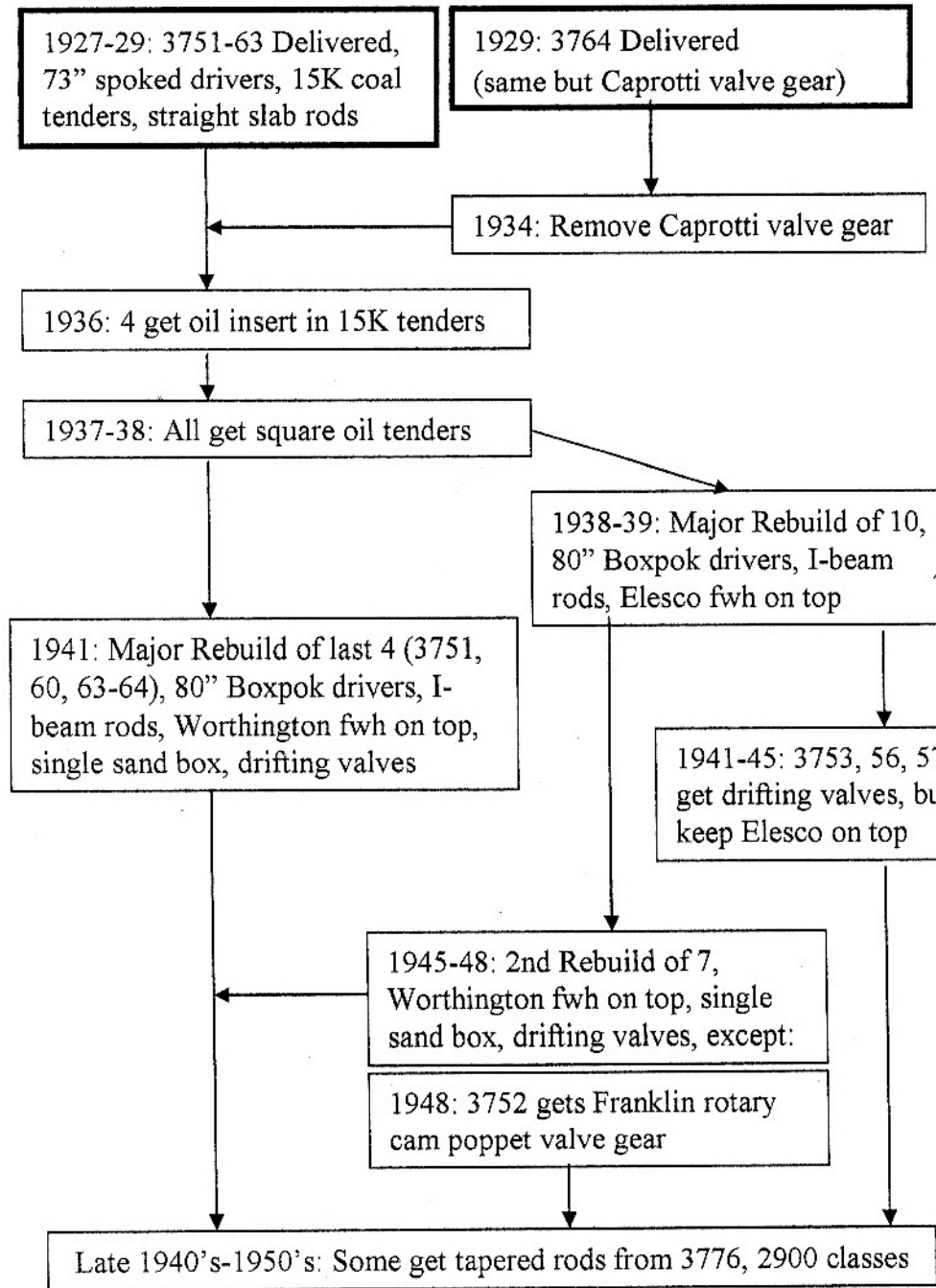
2900 Class (2900-2929) (30 locos)

Oct 1943 - Jun 1944	2900-2929	Delivered with 80" Boxpok drivers, 28x32 cyl with Wagner drifting valves, 24.5K long oil tender (7,107 gal oil), tender is lettered and numbered	Features same as 3776 class, except: made of heavier steel (heaviest 4-8-4's ever), all have tapered rods, whistle on RHS behind stack, domed-end air tanks, just one blow-down mechanism on each side of firebox, some have blow-down mufflers, crossheads are different and don't have counterweights hanging down below pistons
Apr 1946 - Nov 1947	(all 30)		Add telescoping stack extensions
1947-48	(all 30)	Upgraded, rear drive wheel is now Baldwin 1941 Disc type	Replaced tapered rods with thin roller-bearing rods
by 1950	2905,19, 20		Add twin sealed-beam headlights (to just 3 locos)
late 1950's	(all 30)	Retired	(none got new boilers) Saved 2903, 2912, 2913, 2921, 2925, 2926

Santa Fe's 4-8-4's - Flowchart of Major Changes

by John A. Thompson
June 2005

3751 Class



3765 Class

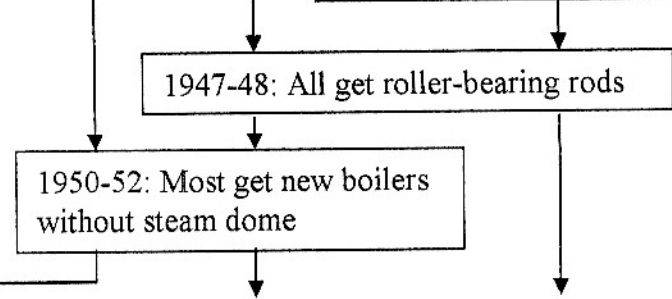
1938: 3765-75 Delivered, 80" Disc drivers (ribs), square oil tenders, I-beam rods

3776 Class

1941: 3776-85 Delivered, 80" Disc drivers, long oil tenders, tapered rods, except 3784-85 have roller-bearing rods

2900 Class

1943-44: 2900-29 Delivered, 80" Boxpok drivers, long oil tenders, tapered rods



Late 1940's-1950's: Some get tapered rods from 3776, 2900 classes

Bibliography – Santa Fe's 4-8-4's

by John A. Thompson, June 2005

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**Notes on the Broadway Limited (BLI) HO 3751-class 4-8-4 Model
John A. Thompson – June, 2005**

1st Run, 2004: painted dark gray, numbered 3751, 3755, 3762, & unlettered, reviewed in Sep. 2004 Model Railroader, has some wrong parts on the pilot deck.

2nd Run, 2005: painted jet black, numbered 3751, 3753, 3756, & 3757, has corrected the parts on the pilot deck, except the curved handrail; but 3753, 3756, and 3757 are invalid numbers for this model.

Problems noted by Andy Sperandio in his Sep. 2004 MR review (p. 98-100) of 1st Run:

- pilot wheels should be 37" not 34.5", drivers should be 80" not 77", trailing wheels should be 40" not 42.5"
- behind RHS pilot deck shield, should have a hot water pump with a large suction pipe from smokebox (not an extra air compressor with undersize water pump beside it); this appears to be corrected on the 2nd Run models
- air compressor under LHS of cab is missing its piping connections
- curved handrail above the pilot deck is the wrong shape, should have two more right angles and curve horizontally to attach to stanchion on smokebox
- body is dark gray but frame and drivers are black (not consistent, but 2nd Run body is black)
- pilot wheels and the ends of driver axles should be black, not shiny metal
- smokebox front is silver but should be tarpon gray, so should smokestack (all types), front-end throttle cover behind stack, and exposed bottom edge of firebox below the jacket
- tender capacity numbers are wrong on rear of tender (and still wrong on 2nd run)

Other issues:

- models come with correct configuration of the dry steam pipe above the rear of boiler: 3751 had no visible pipe (model of 3751 is correct), 3752-64 had one pipe (and other model numbers have one, as they should, and the unlettered model also has one)
- model has all tapered drivers, as 3751 had in the 1950s (maybe sooner); other 3751-class engines only got one or two tapered drivers per side, starting in 1947-48 (check dated photos)
- model includes lubricator box above 2nd driver on LHS; removed from all 14 engines in 1949
- engines 3753, 3756, and 3757 were never rebuilt to look like this, so these numbers should not have been offered in the 2nd Run (or any run)!
- model comes with plain stack (replaceable), telescoping stack (extended), and curved stack (extended), but curved stack only extended in tunnels, we really need it in its folded position

Engine by engine analysis:

(Note: all 14 engines got some tapered rods beginning 1947-48, but the model has all tapered rods)

- 3751 rebuilt like model in 1941, got telescoping stack c. 1944, curved stack in 1946, got all tapered rods in 1950s, retired in 1957, revived with plain stack in 1991
- 3752 rebuilt like model in Jan 1948, with telescoping stack, but with Franklin rotary cam valves, large pilot deck shroud, not a suitable match for this model
- 3753 was never rebuilt like this model, don't use this number!
- 3754 rebuilt like model in Jan 1947, with telescoping stack
- 3755 rebuilt like model in Jan 1947, with telescoping stack
- 3756 was never rebuilt like this model, don't use this number!
- 3757 was never rebuilt like this model, don't use this number!
- 3758 rebuilt like model in Nov 1948, with telescoping stack, but had continuous front deck shield
- 3759 rebuilt like model in Apr 1945, with telescoping stack, got curved stack in 1946
- 3760 rebuilt like model in 1941, got telescoping stack c. 1944, curved stack in 1946
- 3761 rebuilt like model in Nov 1946, with telescoping stack
- 3762 rebuilt like model in Dec 1945, with telescoping stack
- 3763 rebuilt like model in 1941, got telescoping stack c. 1944
- 3764 rebuilt like model in 1941, got telescoping stack c. 1944