
British Railways Board

Mechanical & Electrical Engineering Department

VEHICLE DIAGRAM BOOK No 110

FOR

Electric Locomotives

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PREFACE

A complete list of Vehicle Diagram Books is shown below, together with new or revised book reference numbers & the colours of the respective book covers. The existing Diagram books covering Locomotives and Rail Crane vehicles which were previously shown with MT/reference numbers, have now received new covers in accordance with this revised numbering system.

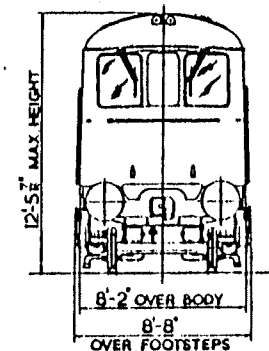
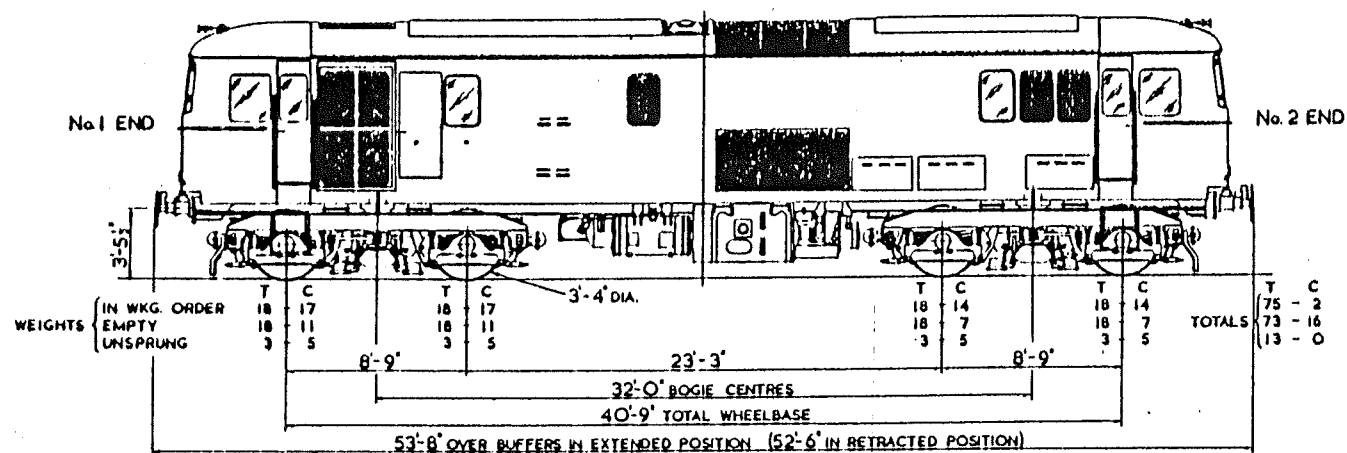
REVISED VEHICLE DIAGRAM BOOK NUMBERS

Vehicle Type	Diagram Book No	Colour of Cover	Vehicle Type	Diagram Book No	Colour of Cover
<u>Locomotives:- Diagram Book Series 100</u>			<u>Freight Vehicles:- Diagram Book Series 300</u>		
Diesel Electric Main Line Locos	100 (Previously No MT/25)	Red	Privately Owned Freight Vehicles	300	White
Electric Main Line Locos	110 (Previously No MT/26)	Green	Privately Owned International Ferry Vehicle	310	White
Diesel Shunting Locos	120 (Previously No MT/27)	Yellow	BR Revenue Freight Vehicle	320	Buff
<u>Coaching & Multiple Unit Stock:- Diagram Book Series 200</u>			BR International Ferry Vehicles	330	Buff
Loco Hauled Coaches	200	Orange	Foreign Administration Freight Vehicles	340	White
Electric Multiple Units	210	Blue	BR Service Department Vehicles	350	Buff.
Diesel Multiple Units (Railcar)	220	Pink			
Diesel Electric Multiple Units (HST)	230	Pink			
			<u>ON Track Plant:- Diagram Book Series 400</u>		
			Rail Cranes & Tracklaying Vehicles	400 (Previously No MT/212)	Red

JULY 1982

Issued by:-

Director of Mechanical & Electrical Engineering
Railway Technical Centre
DERBY

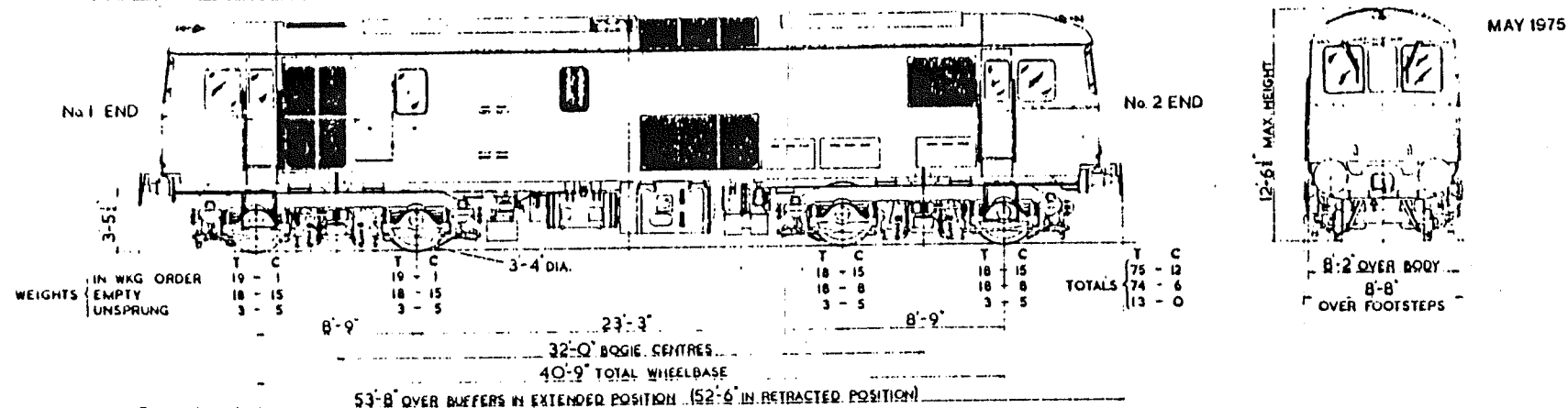


APRIL 1974

ELECTRIC			DIESEL		
SUPPLY SYSTEM	TYPE	THIRD RAIL	ENGINE	MAKE & TYPE	
	NOMINAL VOLTAGE	660-750 VOLTS D.C.		ENGLISH ELECTRIC 4 SRKT	
PERFORMANCE AT 675 VOLTS	MAX. TRACTIVE EFFORT (337.5 VOLTS PER MOTOR)	42,000 LB. AT 25% ADHESION	MAIN GENERATOR	4 CYLS. 4 STROKE	
	CONT. RATING ON	55.5 M.P.H.		600 H.P. AT 850 R.P.M.	
	WEAKEST FIELD (675 VOLTS PER MOTOR)	1,700 AMPS. TOTAL TRACTION CURRENT	PERFORMANCE	MAKE & TYPE	
	MAX. RAIL H.P. ON	1,420 RAIL H.P.		ENGLISH ELECTRIC E.E. 824/3D	
	WEAKEST MOTOR FIELD (675 VOLTS PER MOTOR)	2,450 H.P. AT 37 M.P.H.		MAX. TRACTIVE EFFORT	
TRAIN HTG. EQUIP	675 VOLTS D.C. SUPPLY	400 AMPS. MAXIMUM	TANK CAPACITY	34,100 LB. AT 20-3% ADHESION	
				AT 1,500 AMPS. MAIN GENERATOR	
TRACTION MOTORS	MAKE & TYPE	ENGLISH ELECTRIC E.E. 542 A	SPEED	CONT. TRACTIVE EFFORT	
	No.	FOUR		16,100 LB. AT 10 M.P.H.	
	TYPE OF SUSPENSION	AXLE	BRAKING	AT 850 AMPS. MAIN GENERATOR	
	TYPE OF GEAR DRIVE	STRAIGHT SPUR SINGLE REDUCTION		430 H.P.	
MINIMUM RADIUS CURVES	HORIZONTAL WITHOUT GAUGE WIDENING	4 CHAINS		FULL ENGINE OUTPUT	
	HORIZONTAL WITH 1/4 GAUGE WIDENING	3 1/2 CHAINS		AVAILABLE BETWEEN 3 & 80 M.P.H.	
	VERTICAL CONVEX	11 CHAINS		ENGINE FUEL	
	VERTICAL CONCAVE	11 CHAINS		340 GALLS.	
				PREHEATING	
				ELECTRICAL FROM MAIN GENERATOR	

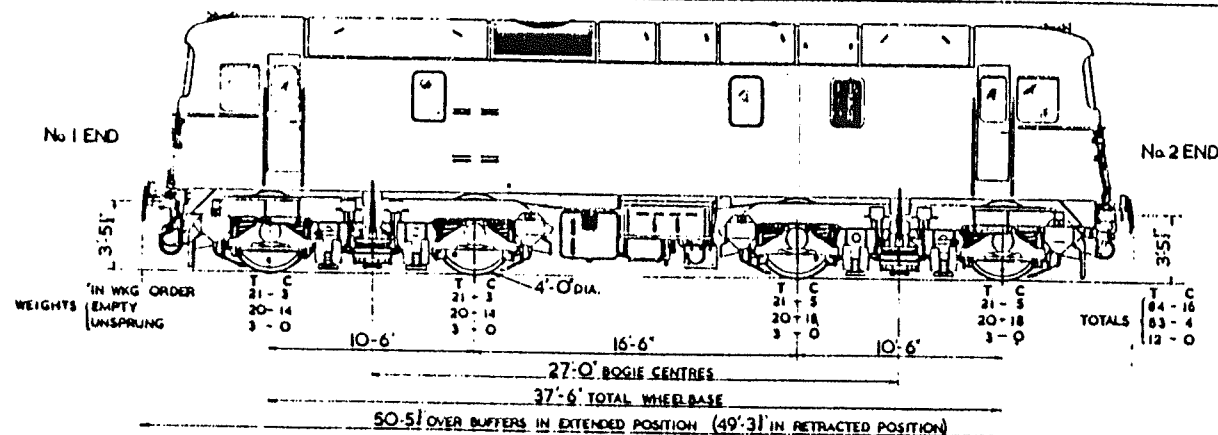
B.R. B-B 1600/600 H.P. ELECTRO-DIESEL LOCOMOTIVE
CLASS 73/O

73-a X



ELECTRIC			DIESEL		
SUPPLY SYSTEM	TYPE	THIRD RAIL	ENGINE	MAKE & TYPE	ENGLISH ELECTRIC 4 SRKT
	NOMINAL VOLTAGE	660-750 VOLTS D.C.		No. OF CYLS. & CYCLE	4 CYLS 4 STROKE
			MAIN GENERATOR	MAX. 1 HOUR RATED OUTPUT	600 H.P. AT 850 R.P.M.
				MAKE & TYPE	ENGLISH ELECTRIC E.E. 824/50
	MAX TRACTIVE EFFORT	40,000 LB AT 24% ADHESION		MAX. TRACTIVE EFFORT	36,000 LB. AT 21-4% ADHESION
	(3375 VOLTS PER MOTOR)	7800 LB. TRACTIVE EFFORT			AT 1800 AMPS MAIN GENERATOR
	CONT RATING ON	68 M.P.H.	PERFORMANCE	CONT. TRACTIVE EFFORT	13,600 LB AT 11.5 M.P.H.
PERFORMANCE	WEAKEST FIELD	1700 AMPS TOTAL TRACTION CURRENT			AT 850 AMPS. MAIN GENERATOR
AT 675 VOLTS	(675 VOLTS PER MOTOR)	1420 RAIL H.P.		RAIL H.P. AT CONT. RATING	420 H.P.
	MAX. RAIL H.P. ON			FULL ENGINE OUTPUT	AVAILABLE BETWEEN 3 & 90 M.P.H.
	WEAKEST MOTOR FIELD	3150 H.P. AT 42 M.P.H.	TANK CAPACITY	ENGINE FUEL	310 GALLS
	(675 VOLTS PER MOTOR)		TRAIN HTG. EQUIP.	NONE	
TRAIN HTG EQUIP	675 VOLTS D.C. SUPPLY	400 AMPS MAXIMUM			
	MAKE & TYPE	ENGLISH ELECTRIC E.E. 546/1B			
TRACTION MOTORS	No	FOUR	SPEED	MAX. PERMITTED SERVICE SPEED	90 M.P.H.
	TYPE OF SUSPENSION	AXLE		TYPE { FOR LOCO.	AIR
	TYPE OF GEAR DRIVE	STRAIGHT SPUR SINGLE REDUCTION		{ FOR TRAIN	AIR, VACUUM & EP
	HORIZONTAL WITHOUT GAUGE WIDENING	4 CHAINS	BRAKING	BRAKE FORCE { % OF LOCO. WEIGHT	85.9%
MINIMUM	HORIZONTAL WITH 1/4 GAUGE WIDENING	3 1/2 CHAINS		{ IN WORKING ORDER	
RADIUS	VERTICAL CONVEX	11 CHAINS			
CURVES	VERTICAL CONCAVE	11 CHAINS			

73-1a	X
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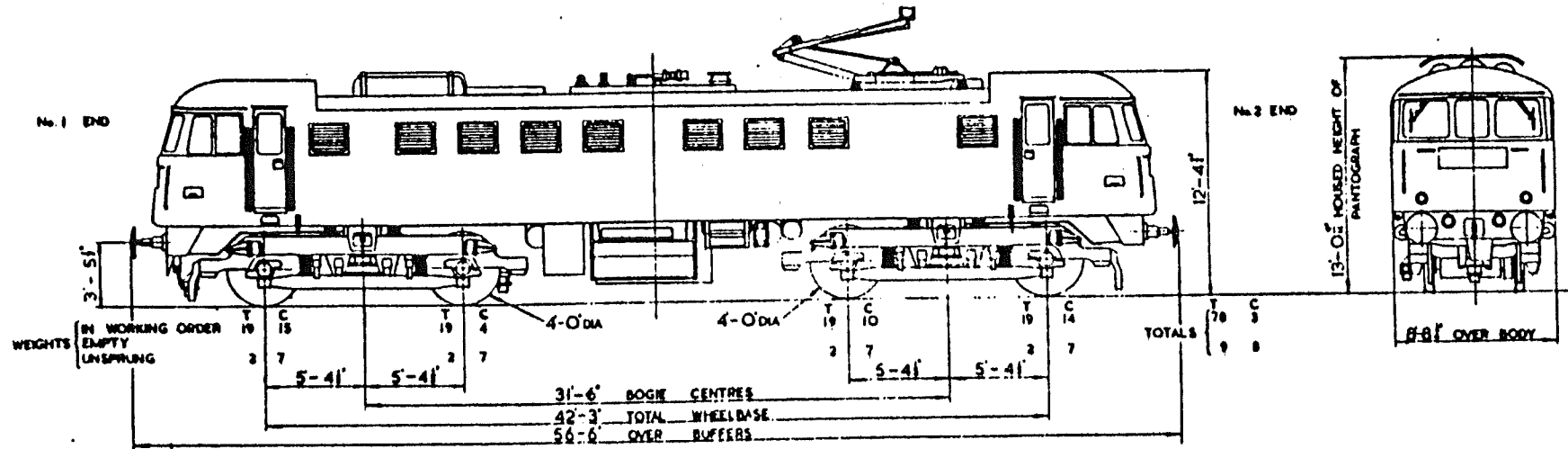


ELECTRIC			DIESEL		
SUPPLY SYSTEM	TYPE	THIRD RAIL	ENGINE	MAKE AND TYPE	DAVEY PAXMAN 6YJXL
	NOMINAL VOLTAGE	675 VOLTS D.C.		No OF CYLS. AND CYCLE	6 CYLS. 4 STROKE
				MAX. 1 HR. RATED OUTPUT	650 H.P. AT 1500 R.P.M.
PERFORMANCE AT 675 VOLTS	MAX TRACTIVE EFFORT	47500 LB. AT 25% ADHESION	MAIN GENERATOR	MAKE AND TYPE	ENGLISH ELECTRIC EE 843
		12400 LB. TRACTIVE EFFORT		MAX. TRACTIVE EFFORT	40000 LB. AT 21% ADHESION
	CONT. RATING ON WEAK FIELD	69.6 M.P.H.	PERFORMANCE	CONT. TRACTIVE EFFORT	18000 LB. AT 6.5 M.P.H.
	MAX RAIL H.P. ON WEAK FIELD	3000 AMPS. TOTAL TRACTION CURRENT		RAIL H.P. AT CONT. RATING	315 H.P.
		2300 RAIL H.P.		FULL ENGINE OUTPUT	AVAILABLE BETWEEN 2 & 90 M.P.H.
TRAIN HTG. EQUIPT.	675 VOLTS D.C. SUPPLY	4600 H.P. AT 43 M.P.H.	TANK CAPACITY	ENGINE FUEL	280 GALLONS
		400 AMPS. MAXIMUM	TRAIN HEATING EQUIPT.	675 VOLTS D.C.	400 AMPS. MAXIMUM
TRACTION MOTORS	MAKE AND TYPE	ENGLISH ELECTRIC EE532A	SPEED	MAX. PERMITTED SERVICE SPEED	90 M.P.H.
	NUMBER	FOUR		TYPE	FOR LOCO
	TYPE OF SUSPENSION	FULLY SUSPENDED			AIR
	TYPE OF GEAR DRIVE	SINGLE REDUCTION			FOR TRAIN
					AIR AND VACUUM
MINIMUM RADIUS CURVES	HORIZONTAL WITHOUT GAUGE WIDENING	4 CHAINS	BRAKING	BRAKE FORCE	% OF LOCO WEIGHT
	HORIZONTAL WITH 1' GAUGE WIDENING	3 CHAINS			IN WORKING ORDER
	VERTICAL CONVEX	11 CHAINS			80.3%
	VERTICAL CONCAVE	11 CHAINS			

B.R. B-B 2500/650 H.P. ELECTRO-DIESEL LOCOMOTIVE
CLASS 74

74-a X

APRIL 1974



SUPPLY SYSTEM.

TYPE.
NOMINAL VOLTAGE.

OVERHEAD.

25KV AC

MAKE & TYPE.

AE1 TYPE 189 RAILWAY MOTOR.

No.

FOUR.

TRACTION MOTORS.

TYPE OF SUSPENSION.

FULL SUSPENSION IN BOGE.

TYPE OF GEAR DRIVE.

ALSTHOM FLEXIBLE, SINGLE REDUCTION

CONTROL SYSTEM.

TYPE.

L.T. TAP CHANGING.

MAX. TRACTIVE EFFORT.

50000 LB. AT 28.6% ADHESION.

CONT. RATING ON

17000 LB TRACTIVE EFFORT.

WEAKEST FIELD.

71 MPH.

MAX RAIL HP ON

700 AMPS. PERL MOTOR

WEAKEST MOTOR FIELD

3200 RAIL HP

4800 HP AT 44 MPH

**PERFORMANCE
AT 22.5KV**

BRAKING.

TYPE. { FOR LOCO.
FOR TRAIN.

BRAKE FORCE. { % OF LOCO WEIGHT
IN WORKING ORDER.

SPEED.

MAX PERMITTED SERVICE SPEED.

**MINIMUM RADIUS
CURVES.**

HORIZONTAL WITHOUT GAUGE WIDENING.

HORIZONTAL WITH 1/2 IN GAUGE WIDENING.

VERTICAL CONVEX.

VERTICAL CONCAVE.

**TRAIN HEATING
EQUIPMENT.**

ELECTRICAL.

STRAIGHT AIR & AUTO AIR.
AUTO AIR & AIR CONT VAE

87.0%

100 MPH.

4 CHAINS.

3.65 CHAINS.

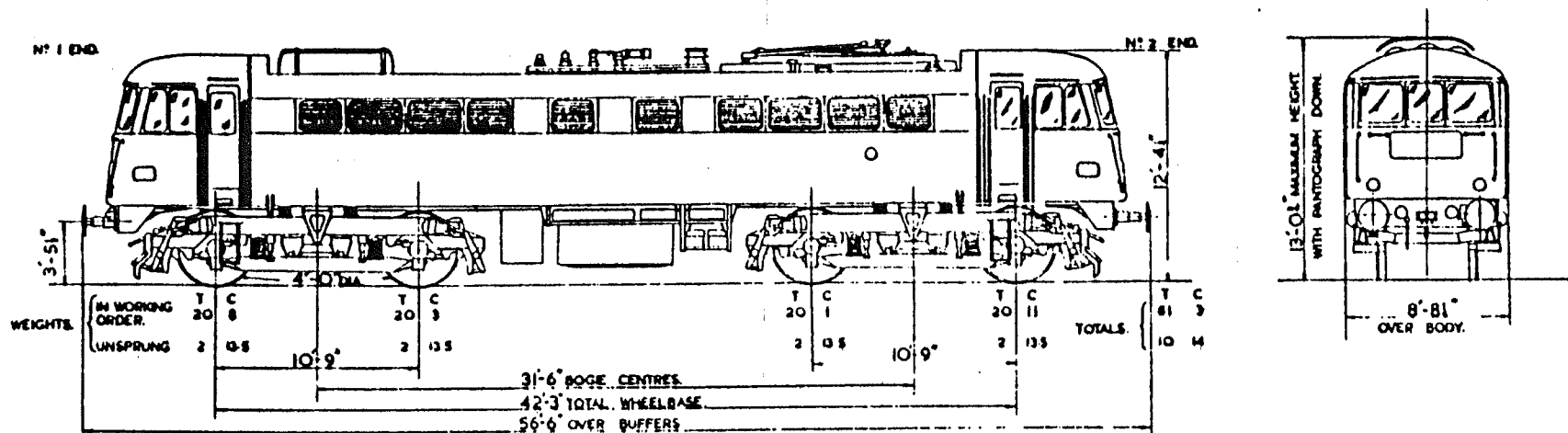
11 CHAINS.

10 CHAINS.

320 KW AT 800 VOLTS A.C.

AL1 AE1 (B.T.H./B.R.C.W) B-B AC ELECTRIC LOCOMOTIVE.
CLASS 81

81-bX



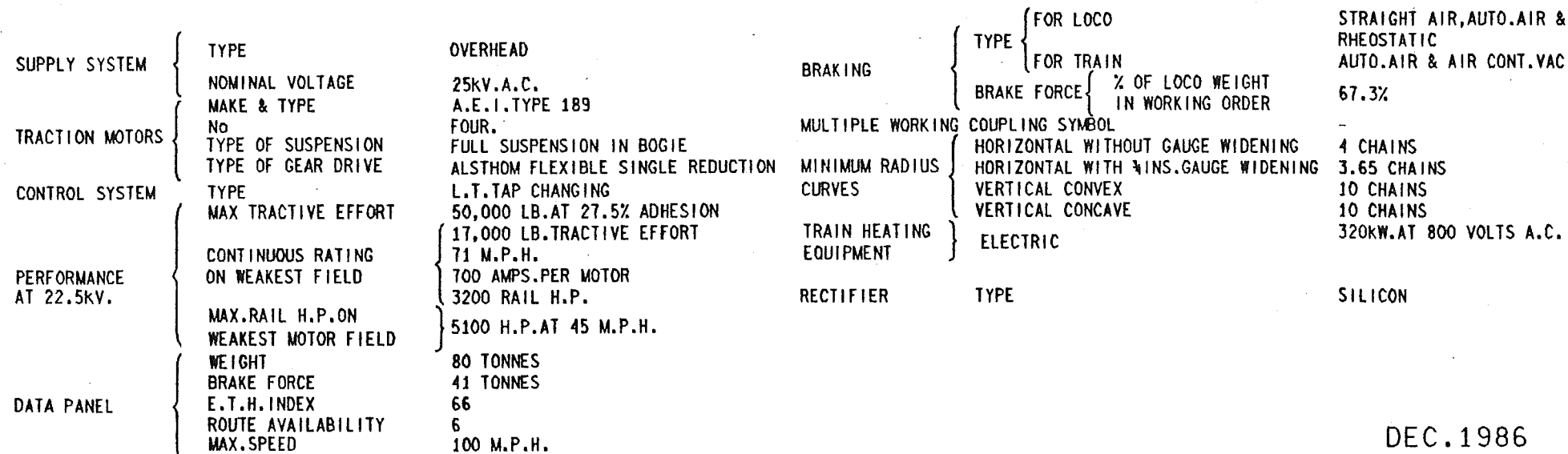
SUPPLY SYSTEM	TYPE. NOMINAL VOLTAGE.	OVERHEAD 25KV. A.C.	BRAKING.	TYPE. BRAKE FORCE	FOR LOCO FOR TRAIN % OF LOCO WEIGHT IN WORKING ORDER	STRAIGHT AIR, AUTO. AIR & RHEOSTATIC AUTO. AIR & AIR CONT. VAC. 85.6 %
TRACTION MOTORS.	MAKE & TYPE. Nº TYPE OF SUSPENSION TYPE OF GEAR DRIVE	AEI TYPE 189 FOUR. FULL SUSPENSION IN BOGIE. ALSTHOM FLEXIBLE SINGLE REDUCTION LT TAP CHANGING.	SPEED	MAX PERMITTED SERVICE SPEED	100 M.P.H.	
CONTROL SYSTEM	TYPE. MAX. TRACTIVE EFFORT	50,000LB AT 27.5% ADHESION. 17,000LB. TRACTIVE EFFORT	MINIMUM RADIUS CURVES.	HORIZONTAL WITHOUT GAUGE WIDENING. HORIZONTAL WITH 3/4" GAUGE WIDENING VERTICAL CONVEX. VERTICAL CONCAVE.	4 CHAINS. 3.65 CHAINS. 10 CHAINS. 10 CHAINS	
PERFORMANCE AT 22.5 KV.	CONTINUOUS RATING. ON WEAKEST FIELD MAX. RAIL HP ON WEAKEST MOTOR FIELD	71 M.P.H. 700 AMPS PER MOTOR 3200 RAIL HP 5100 HP AT 45 M.P.H.	TRAIN HEATING EQUIPMENT. RECTIFIER.	ELECTRICAL. TYPE.	320 KW. AT 800 VOLTS A.C. SILICON.	

AL 5 B.R. B-B. A.C. ELECTRIC LOCOMOTIVE.
CLASS 85

85-a X

CLASS 85/0

85-0a | X

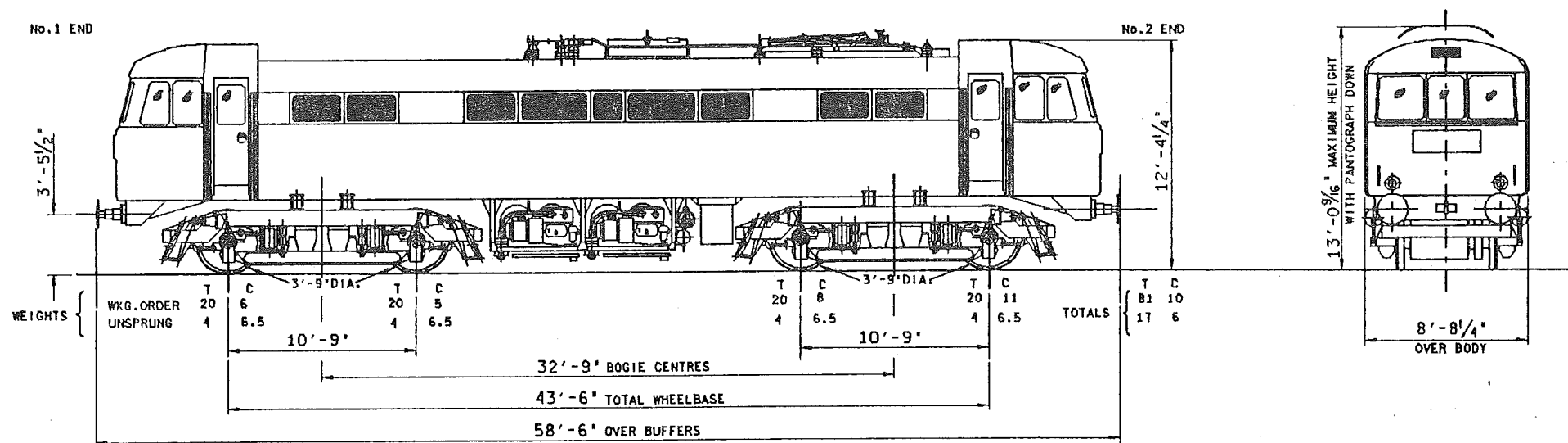


DEC. 1986

AL6 B.R.B-B AC ELECTRIC LOCOMOTIVE

CLASS 86/0

86-0b X



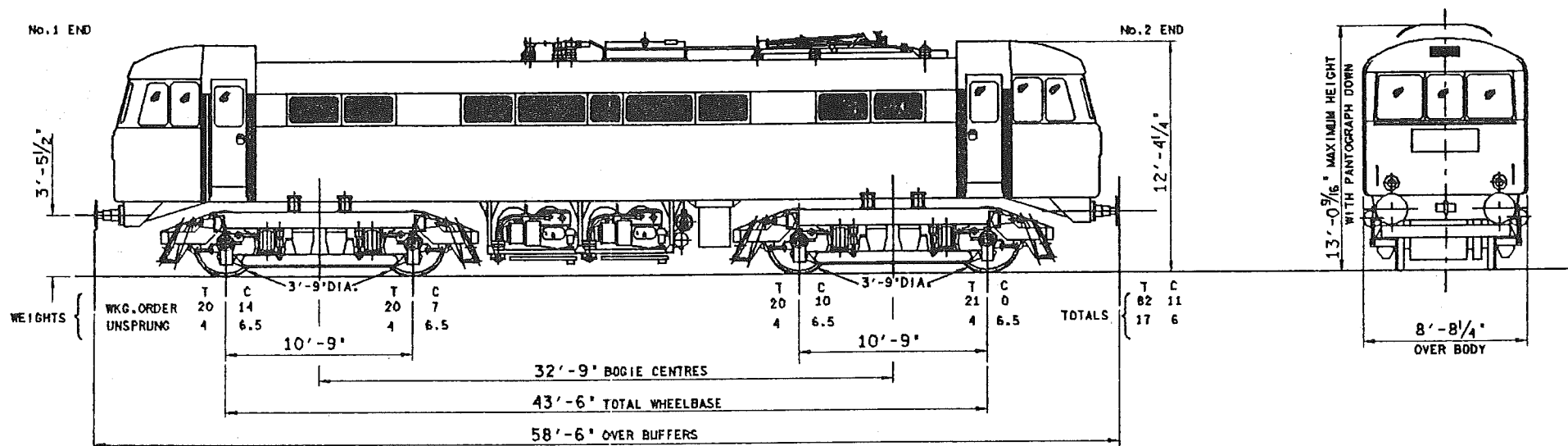
SUPPLY SYSTEM	TYPE	OVERHEAD	BRAKING	TYPE	FOR LOCO	STRAIGHT AIR, AUTO. AIR & RHEOSTATIC
	NOMINAL VOLTAGE	25KV. A.C.		FOR TRAIN		AUTO. AIR & AIR CONT. VAC
	MAKE & TYPE	A.E.I. TYPE 282AZ		BRAKE FORCE	% OF LOCO WEIGHT IN WORKING ORDER	73%
TRACTION MOTORS	No	FOUR.	MULTIPLE WORKING	COUPLING SYMBOL		-
	TYPE OF SUSPENSION	NOSE		HORIZONTAL WITHOUT GAUGE WIDENING		6 CHAINS
	TYPE OF GEAR DRIVE	SINGLE REDUCTION	MINIMUM RADIUS	HORIZONTAL WITH 1/4" INS. GAUGE WIDENING		5.27 CHAINS
CONTROL SYSTEM	TYPE	H.T. TAP CHANGING	CURVES	VERTICAL CONVEX		10 CHAINS
	MAX TRACTIVE EFFORT	58,000LB. AT 31.8% ADHESION		VERTICAL CONCAVE		10 CHAINS
		20000 LB. T.E.	TRAIN HEATING EQUIPMENT	ELECTRIC		320KW. AT 800 VOLTS A.C.
PERFORMANCE AT 22.5KV.	CONTINUOUS RATING ON WEAKEST FIELD	67 M.P.H.	RECTIFIER	TYPE		SILICON
		700 AMPS. PER MOTOR				
		3600 RAIL H.P.				
	MAX. RAIL H.P. ON WEAKEST MOTOR FIELD	5900 H.P. AT 38 M.P.H.				
DATA PANEL	WEIGHT	80 TONNES				
	BRAKE FORCE	40 TONNES				
	E.T.H. INDEX	66				
	ROUTE AVAILABILITY	6				
	MAX. SPEED	80 M.P.H.				

DEC. 1986

AL6 B.R.B-B AC ELECTRIC LOCOMOTIVE

CLASS 86/0

86-0c X



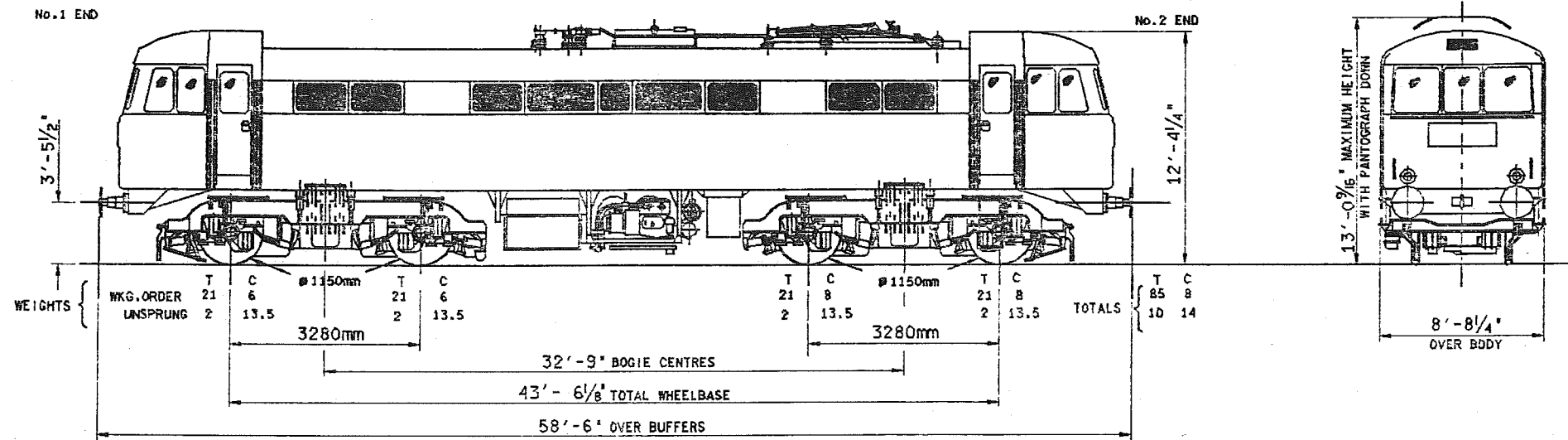
SUPPLY SYSTEM	TYPE	OVERHEAD	BRAKING	TYPE	FOR LOCO	STRAIGHT AIR, AUTO. AIR & RHEOSTATIC
	NOMINAL VOLTAGE	25KV. A.C.		FOR TRAIN		
TRACTION MOTORS	MAKE & TYPE	A.E.I. TYPE 282AZ	MULTIPLE WORKING	BRAKE FORCE	% OF LOCO WEIGHT IN WORKING ORDER	72%
	NO. OF SUSPENSION	FOUR.				
CONTROL SYSTEM	TYPE OF GEAR DRIVE	NOSE	MINIMUM RADIUS CURVES	COUPLING SYMBOL	HORIZONTAL WITHOUT GAUGE WIDENING	6 CHAINS
	TYPE	SINGLE REDUCTION				
PERFORMANCE AT 22.5KV.	MAX TRACTIVE EFFORT	H.T. TAP CHANGING	TRAIN HEATING EQUIPMENT	HORIZONTAL WITH INS. GAUGE WIDENING	VERTICAL CONVEX	10 CHAINS
	CONTINUOUS RATING ON WEAKEST FIELD	58,000LB. AT 31.4% ADHESION		VERTICAL CONCAVE	ELECTRIC	10 CHAINS
DATA PANEL	MAX. RAIL H.P. ON WEAKEST MOTOR FIELD	20000 LB. T.E.	RECTIFIER	TYPE	SILICON	320KW. AT 800 VOLTS A.C.
	WEIGHT	67 M.P.H.				
	BRAKE FORCE	700 AMPS. PER MOTOR				
	E.T.H. INDEX	3600 RAIL H.P.				
	ROUTE AVAILABILITY	5900 H.P. AT 38 M.P.H.				
	MAX. SPEED	80 TONNES				
		40 TONNES				
		66				
		6				
		80 M.P.H.				

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B.R.B-B A.C.ELECTRIC LOCOMOTIVE

CLASS 86/1

86-1a X



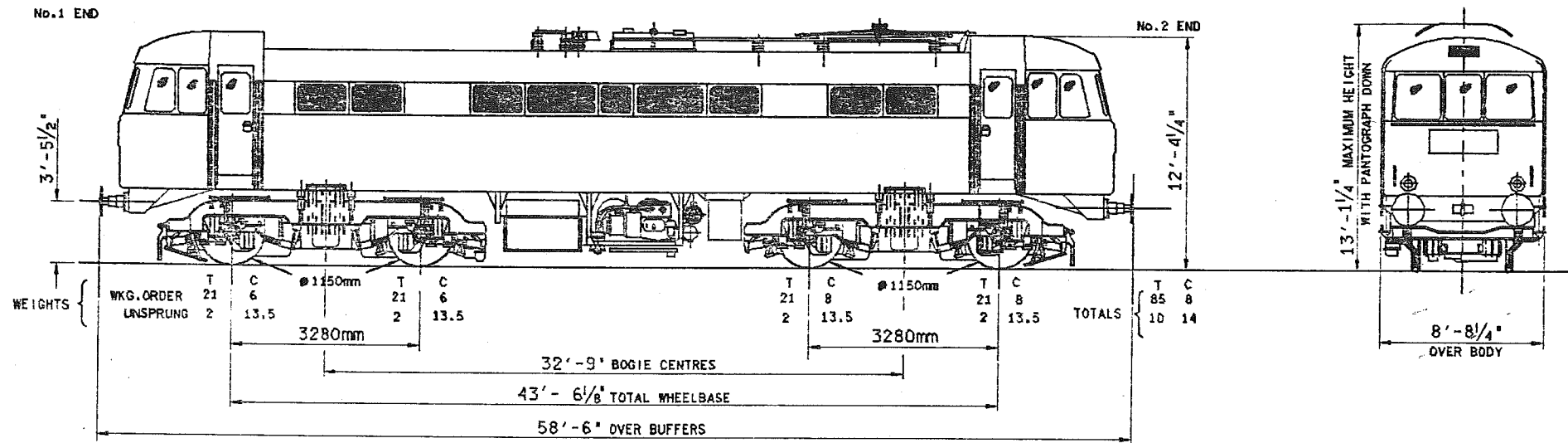
SUPPLY SYSTEM	{	TYPE	OVERHEAD	{	TYPE	{	FOR LOCO	STRAIGHT AIR,AUTO.AIR & RHEOSTATIC AUTO.AIR & AIR CONT.VAC	
		NOMINAL VOLTAGE	25KV.A.C.		FOR TRAIN				
TRACTION MOTORS	{	MAKE & TYPE	G.E.C.TYPE G.412 AZ	{	BRAKE FORCE	{	% OF LOCO WEIGHT IN WORKING ORDER	69.6%	
		No	FOUR.						
		TYPE OF SUSPENSION	FULLY SUSPENDED						
CONTROL SYSTEM	{	TYPE OF GEAR DRIVE	SINGLE REDUCTION	{	MULTIPLE WORKING	COUPLING SYMBOL	HORIZONTAL WITHOUT GAUGE WIDENING	4 CHAINS	
		TYPE	H.T.TAP CHANGING				HORIZONTAL WITH 1/4INS.GAUGE WIDENING	3.7 CHAINS	
PERFORMANCE AT 25KV.	{	MAX TRACTIVE EFFORT	43000LB AT 22% ADHESION	{	MINIMUM RADIUS CURVES	{	VERTICAL CONVEX	10 CHAINS	
		CONTINUOUS RATING	21300LB.T.E.				TRAIN HEATING EQUIPMENT	ELECTRIC	460KVA AT 800 VOLTS A.C.
			ON WEAKEST FIELD						
DATA PANEL	{		885 AMPS PER MOTOR	{	RECTIFIER	TYPE	SILICON		
			5000 RAIL H.P.						
		WEIGHT	80 TONNES						
		BRAKE FORCE	40 TONNES						
		E.T.H.INDEX	66						
	ROUTE AVAILABILITY	6							
	MAX.SPEED	100 M.P.H.							

MAY 1987

B.R.B-B A.C.ELECTRIC LOCOMOTIVE

CLASS 86/1

86-1b X

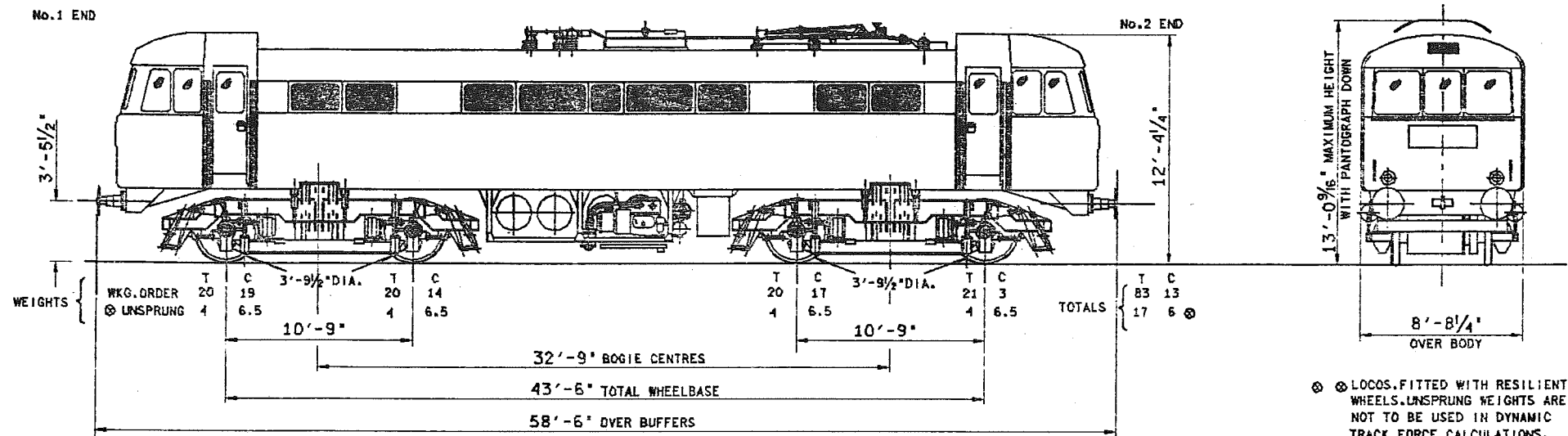


SUPPLY SYSTEM	TYPE	OVERHEAD	BRAKING	TYPE	FOR LOCO	STRAIGHT AIR,AUTO.AIR & RHEOSTATIC
	NOMINAL VOLTAGE	25KV.A.C.		FOR TRAIN		AUTO.AIR & AIR CONT.VAC
TRACTION MOTORS	MAKE & TYPE	G.E.C.TYPE G.412 AZ		BRAKE FORCE	% OF LOCO WEIGHT	69.6%
	No	FOUR.	MULTIPLE WORKING		IN WORKING ORDER	
CONTROL SYSTEM	TYPE OF SUSPENSION	FULLY SUSPENDED		COUPLING SYMBOL		
	TYPE OF GEAR DRIVE	SINGLE REDUCTION	MINIMUM RADIUS		HORIZONTAL WITHOUT GAUGE WIDENING	4 CHAINS
PERFORMANCE	TYPE	H.T.TAP CHANGING	CURVES		HORIZONTAL WITH 3/4INS.GAUGE WIDENING	3.7 CHAINS
AT 25KV.	MAX TRACTIVE EFFORT	43000LB AT 22% ADHESION	TRAIN HEATING EQUIPMENT		VERTICAL CONVEX	10 CHAINS
	CONTINUOUS RATING	21300LB.T.E.			VERTICAL CONCAVE	10 CHAINS
	ON WEAKEST FIELD	87 M.P.H.	RECTIFIER	TYPE	ELECTRIC	460KVA AT 800 VOLTS A.C.
		885 AMPS PER MOTOR				
		5000 RAIL H.P.				
DATA PANEL	WEIGHT	80 TONNES				
	BRAKE FORCE	40 TONNES				
	E.T.H.INDEX	66				
	ROUTE AVAILABILITY	6				
	MAX.SPEED	110 M.P.H.				

B.R.B-B A.C.ELECTRIC LOCOMOTIVE

CLASS 86/2

86-2b X



⊗ ⊗ LOCOS. FITTED WITH RESILIENT WHEELS. UNSPRUNG WEIGHTS ARE NOT TO BE USED IN DYNAMIC TRACK FORCE CALCULATIONS.

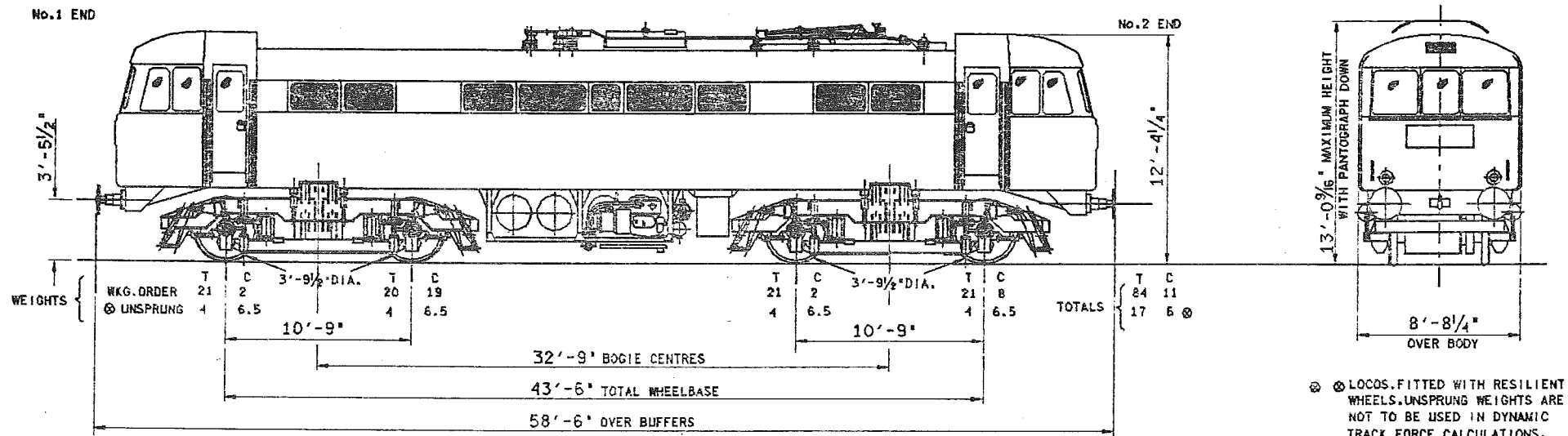
SUPPLY SYSTEM	TYPE	OVERHEAD	BRAKING	TYPE	FOR LOCO	STRAIGHT AIR, AUTO. AIR & RHEOSTATIC
	NOMINAL VOLTAGE	25KV. A.C.		FOR TRAIN		AUTO. AIR & AIR CONT. VAC
TRACTION MOTORS	MAKE & TYPE	A.E.I. TYPE 282BZ		BRAKE FORCE	% OF LOCO WEIGHT IN WORKING ORDER	71.6%
	NO	FOUR.	MULTIPLE WORKING	COUPLING SYMBOL		-
CONTROL SYSTEM	TYPE OF SUSPENSION	NOSE		HORIZONTAL WITHOUT GAUGE WIDENING		4 CHAINS
	TYPE OF GEAR DRIVE	SINGLE REDUCTION	MINIMUM RADIUS	HORIZONTAL WITH 1/4 INS. GAUGE WIDENING		3.7 CHAINS
	TYPE	H.T. TAP CHANGING	CURVES	VERTICAL CONVEX		10 CHAINS
	MAX TRACTIVE EFFORT	41500LB AT 22% ADHESION		VERTICAL CONCAVE		10 CHAINS
PERFORMANCE AT 22.5KV.	CONTINUOUS RATING ON WEAKEST FIELD	19200 LB.T.E.	TRAIN HEATING EQUIPMENT	ELECTRIC		320KW. AT 800 VOLTS A.C.
	MAX. RAIL H.P. ON WEAKEST MOTOR FIELD	77.5 M.P.H.	RECTIFIER	TYPE		SILICON
		800 AMPS PER MOTOR				
		4040 RAIL H.P.				
DATA PANEL	WEIGHT	6100 H.P. AT 49.5 M.P.H.				
	BRAKE FORCE	80 TONNES				
	E.T.H. INDEX	40 TONNES				
	ROUTE AVAILABILITY	66				
	MAX. SPEED	6				
		100 M.P.H.				

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B.R.B-B A.C.ELECTRIC LOCOMOTIVE

CLASS 86/2

86-2c X



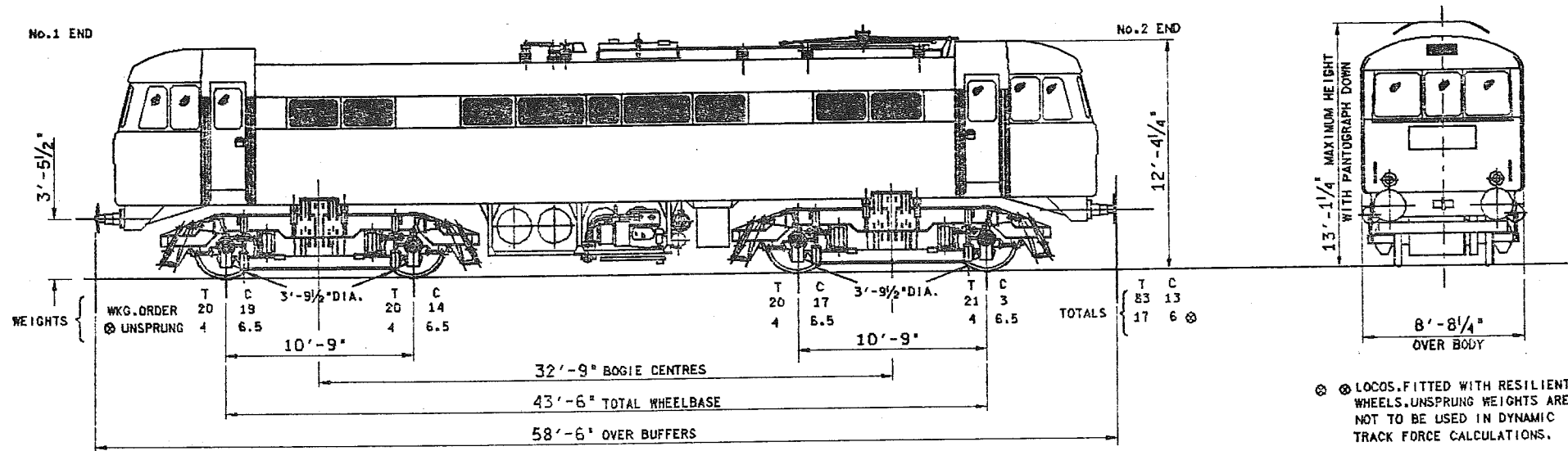
SUPPLY SYSTEM	TYPE	OVERHEAD	BRAKING	TYPE	FOR LOCO	STRAIGHT AIR, AUTO. AIR & RHEOSTATIC
	NOMINAL VOLTAGE	25KV. A.C.		FOR TRAIN		AUTO. AIR & AIR CONT. VAC
TRACTION MOTORS	MAKE & TYPE	A.E.I. TYPE 282BZ		BRAKE FORCE	% OF LOCO WEIGHT IN WORKING ORDER	70.3%
	No	FOUR.	MULTIPLE WORKING	COUPLING SYMBOL		-
CONTROL SYSTEM	TYPE OF SUSPENSION	NOSE		HORIZONTAL WITHOUT GAUGE WIDENING		4 CHAINS
	TYPE OF GEAR DRIVE	SINGLE REDUCTION	MINIMUM RADIUS	HORIZONTAL WITH 1/4" INS. GAUGE WIDENING		3.7 CHAINS
	TYPE	H.T. TAP CHANGING	CURVES	VERTICAL CONVEX		10 CHAINS
	MAX TRACTIVE EFFORT	41500LB AT 22% ADHESION		VERTICAL CONCAVE		10 CHAINS
PERFORMANCE	CONTINUOUS RATING	19200 LB.T.E.	TRAIN HEATING EQUIPMENT	ELECTRIC		320KW. AT 800 VOLTS A.C.
AT 22.5KV.	ON WEAKEST FIELD	77.5 M.P.H.	RECTIFIER	TYPE		SILICON
	MAX. RAIL H.P. ON WEAKEST MOTOR FIELD	800 AMPS PER MOTOR				
	WEIGHT	4040 RAIL H.P.				
	WEIGHT	6100 H.P. AT 49.5 M.P.H.				
DATA PANEL	WEIGHT	80 TONS				
	BRAKE FORCE	40 TONS				
	E.T.H. INDEX	66				
	ROUTE AVAILABILITY	6				
	MAX. SPEED	100 M.P.H.				

MAY 1987

B.R.B-B A.C.ELECTRIC LOCOMOTIVE

CLASS 86/2

86-2d X



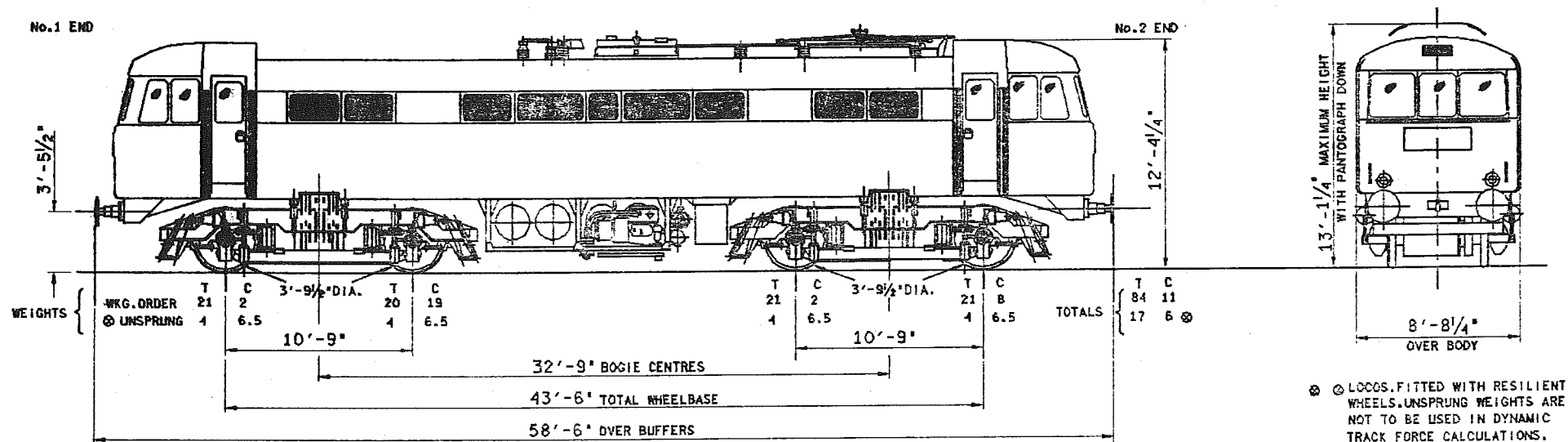
SUPPLY SYSTEM	TYPE	OVERHEAD	BRAKING	TYPE	FOR LOCO	STRAIGHT A/R, AUTO. AIR & RHEOSTATIC
		NOMINAL VOLTAGE			FOR TRAIN	
TRACTION MOTORS	MAKE & TYPE	25KV. A.C.	BRAKE FORCE	% OF LOCO WEIGHT IN WORKING ORDER		71.1%
		A.E.I. TYPE 282BZ				
CONTROL SYSTEM	TYPE	FOUR.	MULTIPLE WORKING	COUPLING SYMBOL		-
		NOSE				
PERFORMANCE AT 22.5kv.	TYPE	SINGLE REDUCTION	MINIMUM RADIUS	HORIZONTAL WITHOUT GAUGE WIDENING		4 CHAINS
		H.T. TAP CHANGING		HORIZONTAL WITH 1/4 INS. GAUGE WIDENING		
DATA PANEL	MAX TRACTIVE EFFORT	41500LB AT 22% ADHESION	CURVES	VERTICAL CONVEX		10 CHAINS
		19200 LB.T.E.		VERTICAL CONCAVE		
	CONTINUOUS RATING ON WEAKEST FIELD	77.5 M.P.H.	TRAIN HEATING EQUIPMENT	ELECTRIC		320KW. AT 800 VOLTS A.C.
		800 AMPS PER MOTOR				
	MAX. RAIL H.P. ON WEAKEST MOTOR FIELD	4040 RAIL H.P.	RECTIFIER	TYPE		SILICON
		6100 H.P. AT 49.5 M.P.H.				
	WEIGHT	80 TONNES				
		40 TONNES				
	BRAKE FORCE	66				
		6				
	E.T.H. INDEX	6				
		6				
	ROUTE AVAILABILITY	6				
		6				
	MAX. SPEED	110 M.P.H.				
		110 M.P.H.				

MAY 1987

B.R.B-B A.C.ELECTRIC LOCOMOTIVE

CLASS 86/2

86-2e X



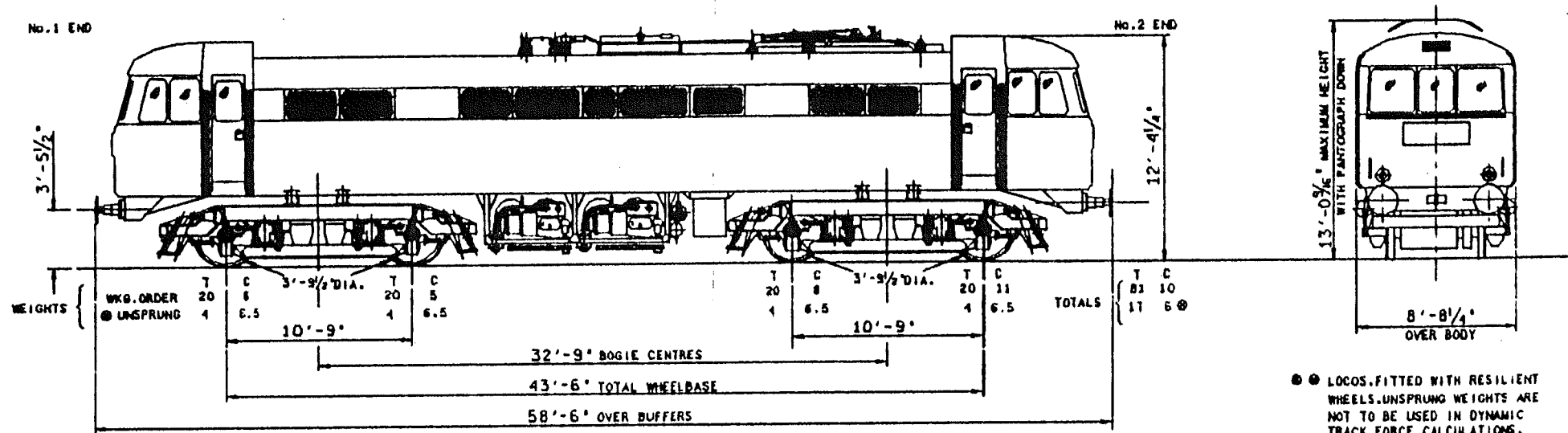
SUPPLY SYSTEM	TYPE	OVERHEAD	TYPE	FOR LOCO	STRAIGHT AIR, AUTO. AIR & RHEOSTATIC
	NOMINAL VOLTAGE	25KV. A.C.	FOR TRAIN		
	MAKE & TYPE	A.E.I. TYPE 282BZ	BRAKE FORCE	% OF LOCO WEIGHT	AUTO. AIR & AIR CONT. VAC
TRACTION MOTORS	No	FOUR.		IN WORKING ORDER	70.3%
	TYPE OF SUSPENSION	NOSE	MULTIPLE WORKING	COUPLING SYMBOL	-
	TYPE OF GEAR DRIVE	SINGLE REDUCTION	MINIMUM RADIUS	HORIZONTAL WITHOUT GAUGE WIDENING	4 CHAINS
CONTROL SYSTEM	TYPE	H.T. TAP CHANGING	CURVES	HORIZONTAL WITH 1/4 INS. GAUGE WIDENING	3.7 CHAINS
	MAX TRACTIVE EFFORT	41500LB AT 22% ADHESION		VERTICAL CONVEX	10 CHAINS
				VERTICAL CONCAVE	10 CHAINS
PERFORMANCE AT 22.5KV.	CONTINUOUS RATING	19200 LB.T.E.	TRAIN HEATING EQUIPMENT	ELECTRIC	320KW. AT 800 VOLTS A.C.
	ON WEAKEST FIELD	77.5 M.P.H.	RECTIFIER	TYPE	SILICON
	MAX. RAIL H.P. ON WEAKEST MOTOR FIELD	800 AMPS PER MOTOR			
		4040 RAIL H.P.			
DATA PANEL	WEIGHT	80 TONS			
	BRAKE FORCE	40 TONS			
	E.T.H. INDEX	66			
	ROUTE AVAILABILITY	6			
	MAX. SPEED	110 M.P.H.			

MAY 1987

AL6 B.R.B-B AC ELECTRIC LOCOMOTIVE

CLASS 86/3

86-3a



● ● LOCOS. FITTED WITH RESILIENT WHEELS. UNSPRUNG WEIGHTS ARE NOT TO BE USED IN DYNAMIC TRACK FORCE CALCULATIONS.

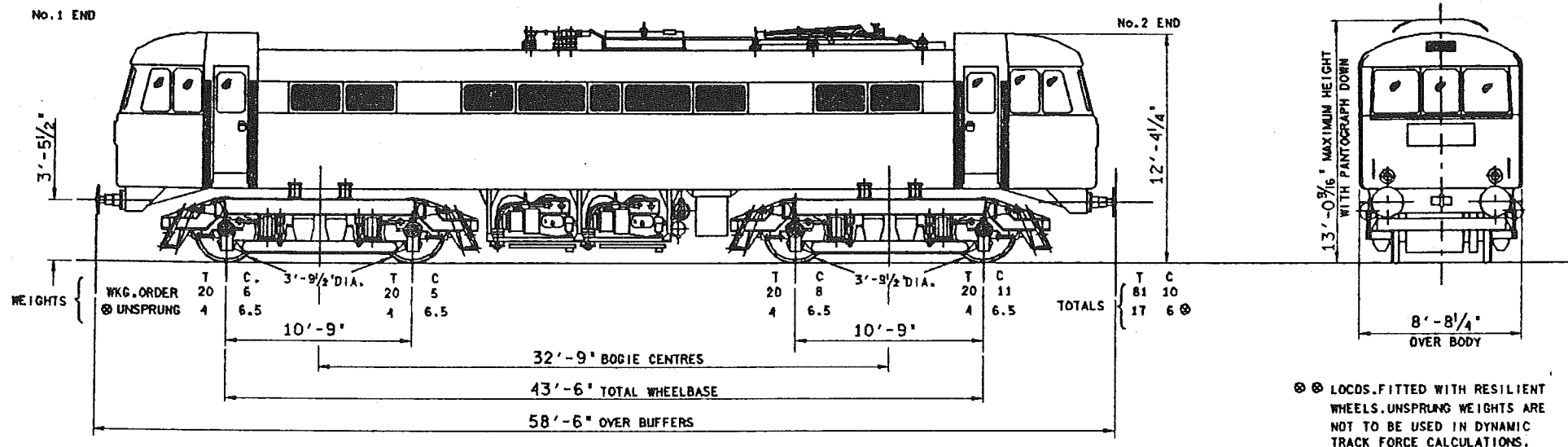
SUPPLY SYSTEM	TYPE	OVERHEAD	TYPE	FOR LOCO	STRAIGHT AIR, AUTO. AIR :
	NOMINAL VOLTAGE	25KV. A.C.	FOR TRAIN	RHEOSTATIC	
	MAKE & TYPE	A.E.I. TYPE 252AZ	BRAKE FORCE	% OF LOCO WEIGHT	AUTO. AIR & AIR CONT. VA
	NO	FOUR.	IN WORKING ORDER	81.7%	
TRACTION MOTORS	TYPE OF SUSPENSION	NOSE	MULTIPLE WORKING	COUPLING SYMBOL	-
	TYPE OF GEAR DRIVE	SINGLE REDUCTION	MINIMUM RADIUS	HORIZONTAL WITHOUT GAUGE WIDENING	6 CHAINS
CONTROL SYSTEM	TYPE	H.T. TAP CHANGING	CURVES	HORIZONTAL WITH 1/4 INS. GAUGE WIDENING	5.27 CHAINS
	MAX TRACTIVE EFFORT	58,000LB. AT 31.8% ADHESION		VERTICAL CONVEX	10 CHAINS
				VERTICAL CONCAVE	10 CHAINS
PERFORMANCE	CONTINUOUS RATING	20000 LB.T.E.	TRAIN HEATING	ELECTRIC	320KW. AT 800 VOLTS A.C
AT 22.5KV.	ON WEAKEST FIELD	67 M.P.H.	EQUIPMENT		
	MAX. RAIL H.P. ON	700 AMPS. PER MOTOR	RECTIFIER	TYPE	SILICON
	WEAKEST MOTOR FIELD	3600 RAIL H.P.			
DATA PANEL	WEIGHT	5900 H.P. AT 38 M.P.H.			
	BRAKE FORCE	80 TONNES			
	E.T.H. INDEX	40 TONNES			
	ROUTE AVAILABILITY	66			
	MAX. SPEED	6			
		100 M.P.H.			

DEC 1984

AL6 B.R.B-B AC ELECTRIC LOCOMOTIVE

CLASS 86/3

86-3a X



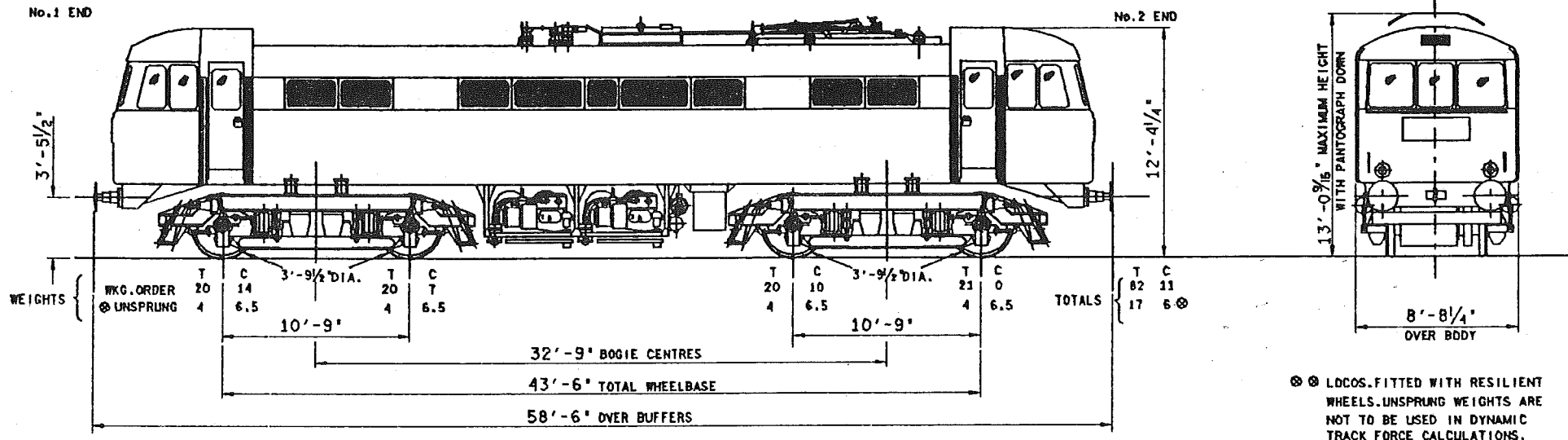
SUPPLY SYSTEM	TYPE	OVERHEAD	BRAKING	TYPE	FOR LOCO	STRAIGHT AIR, AUTO. AIR & RHEOSTATIC
	NOMINAL VOLTAGE	25KV. A.C.		FOR TRAIN		
TRACTION MOTORS	MAKE & TYPE	A.E.I. TYPE 282AZ	MULTIPLE WORKING	BRAKE FORCE	% OF LOCO WEIGHT IN WORKING ORDER	73%
	No	FOUR.				
CONTROL SYSTEM	TYPE OF SUSPENSION	NOSE	MINIMUM RADIUS CURVES	COUPLING SYMBOL	HORIZONTAL WITHOUT GAUGE WIDENING	6 CHAINS
	TYPE OF GEAR DRIVE	SINGLE REDUCTION				
PERFORMANCE AT 22.5KV.	TYPE	H.T. TAP CHANGING	TRAIN HEATING EQUIPMENT	HORIZONTAL WITH 3/4 INS. GAUGE WIDENING	VERTICAL CONVEX	10 CHAINS
	MAX TRACTIVE EFFORT	58,000LB. AT 31.8% ADHESION		ELECTRIC	VERTICAL CONCAVE	10 CHAINS
DATA PANEL	CONTINUOUS RATING ON WEAKEST FIELD	20000 LB.T.E.	RECTIFIER	TYPE	SILICON	320KW. AT 800 VOLTS A.C.
	MAX. RAIL H.P. ON WEAKEST MOTOR FIELD	67 M.P.H.				
	WEIGHT	700 AMPS. PER MOTOR				
	BRAKE FORCE	3600 RAIL H.P.				
	E.T.H. INDEX	5900 H.P. AT 38 M.P.H.				
	ROUTE AVAILABILITY	80 TONNES				
	MAX. SPEED	40 TONNES				
		66				
		6				
		100 M.P.H.				

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AL6 B.R.B-B AC ELECTRIC LOCOMOTIVE

CLASS 86/3

86-3b X



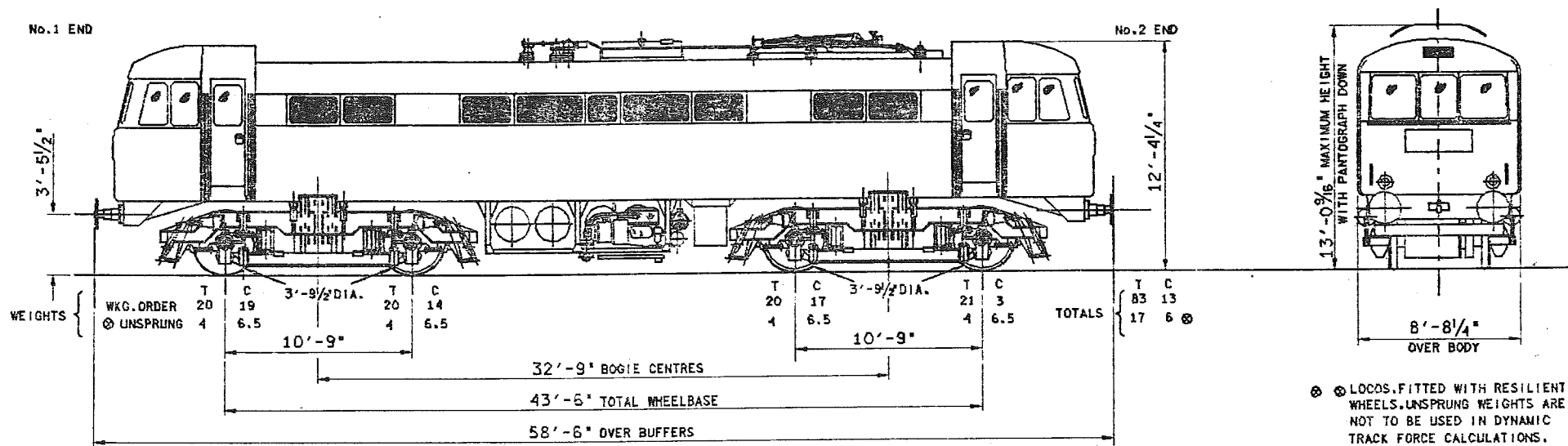
SUPPLY SYSTEM	TYPE	OVERHEAD	BRAKING	TYPE	FOR LOCO	STRAIGHT AIR, AUTO. AIR & RHEOSTATIC
	NOMINAL VOLTAGE	25KV. A.C.		FOR TRAIN		
TRACTION MOTORS	MAKE & TYPE	A.E.I. TYPE 282AZ	MULTIPLE WORKING	COUPLING SYMBOL	% OF LOCO WEIGHT IN WORKING ORDER	AUTO. AIR & AIR CONT. VAC
	TYPE OF SUSPENSION	FOUR, NOSE				
CONTROL SYSTEM	TYPE OF GEAR DRIVE	SINGLE REDUCTION	MINIMUM RADIUS CURVES	HORIZONTAL WITHOUT GAUGE WIDENING	HORIZONTAL WITH 1/4" INS. GAUGE WIDENING	6 CHAINS
	TYPE	H.T. TAP CHANGING		VERTICAL CONVEX	VERTICAL CONCAVE	5.27 CHAINS
PERFORMANCE AT 22.5KV.	MAX TRACTIVE EFFORT	58,000LB. AT 31.4% ADHESION	TRAIN HEATING EQUIPMENT	ELECTRIC		10 CHAINS
	CONTINUOUS RATING ON WEAKEST FIELD	20000 LB. T.E. 67 M.P.H. 700 AMPS. PER MOTOR 3600 RAIL H.P.				
DATA PANEL	MAX. RAIL H.P. ON WEAKEST MOTOR FIELD	5900 H.P. AT 38 M.P.H.	RECTIFIER	TYPE		320KW. AT 800 VOLTS A.C.
	WEIGHT	80 TONNES				
	BRAKE FORCE	40 TONNES				
	E.T.H. INDEX	66				
	ROUTE AVAILABILITY	6				
	MAX. SPEED	100 M.P.H.				

DEC 1986

B.R.B-B A.C.ELECTRIC LOCOMOTIVE

CLASS 86/4

86-4a X



⊗ ⊗ LOCOS. FITTED WITH RESILIENT WHEELS. UNSPRUNG WEIGHTS ARE NOT TO BE USED IN DYNAMIC TRACK FORCE CALCULATIONS.

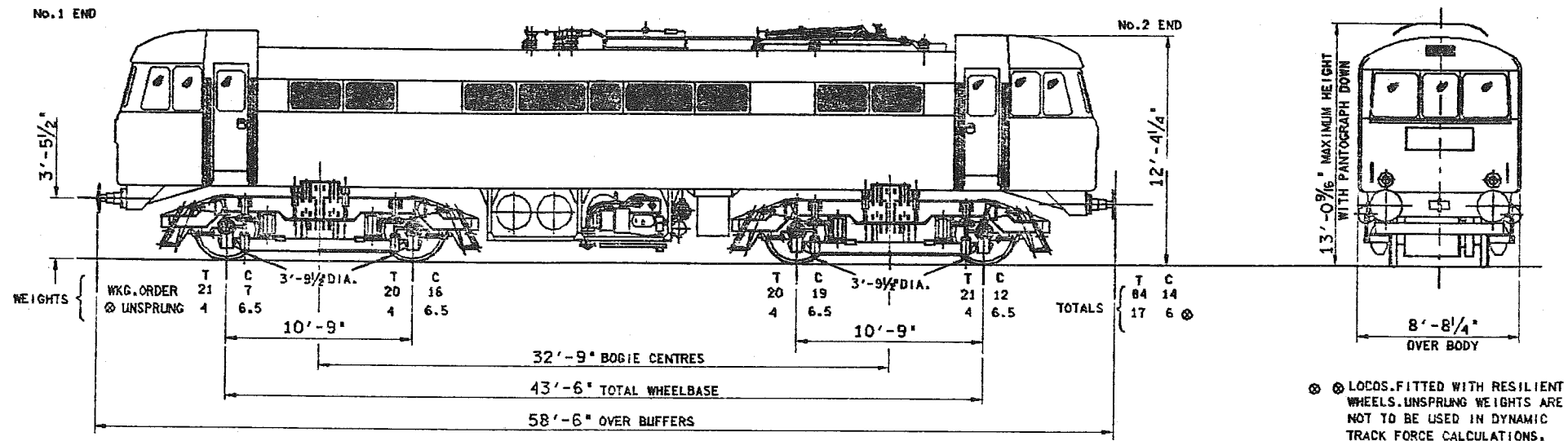
SUPPLY SYSTEM	TYPE	OVERHEAD	TYPE	FOR LOCO	STRAIGHT AIR, AUTO. AIR & RHEOSTATIC
TRACTION MOTORS	MAKE & TYPE	25KV. A.C.	A.E.I. TYPE 282AZ	FOR TRAIN	AUTO. AIR & AIR CONT. VAC
CONTROL SYSTEM	TYPE	H.T. TAP CHANGING	SINGLE REDUCTION	BRAKE FORCE	71.1%
PERFORMANCE AT 22.5KV.	MAX TRACTIVE EFFORT	43000LB AT 23% ADHESION	20000LB. T.E.	MULTIPLE WORKING COUPLING SYMBOL	-
DATA PANEL	CONTINUOUS RATING ON WEAKEST FIELD	67 M.P.H.	700 AMPS. PER MOTOR	MINIMUM RADIUS CURVES	6 CHAINS
	MAX. RAIL H.P. ON WEAKEST MOTOR FIELD	3600 RAIL H.P.	5900 H.P. AT 39 M.P.H.	TRAIN HEATING EQUIPMENT	5.27 CHAINS
	WEIGHT	80 TONNES	40 TONNES	RECTIFIER	SILICON
	BRAKE FORCE	66	6	TYPE	ELECTRIC
	E.T.H. INDEX	100 M.P.H.			
	ROUTE AVAILABILITY				
	MAX. SPEED				

MAY 1987

B.R.B-B A.C.ELECTRIC LOCOMOTIVE

CLASS 86/4

86-4b X



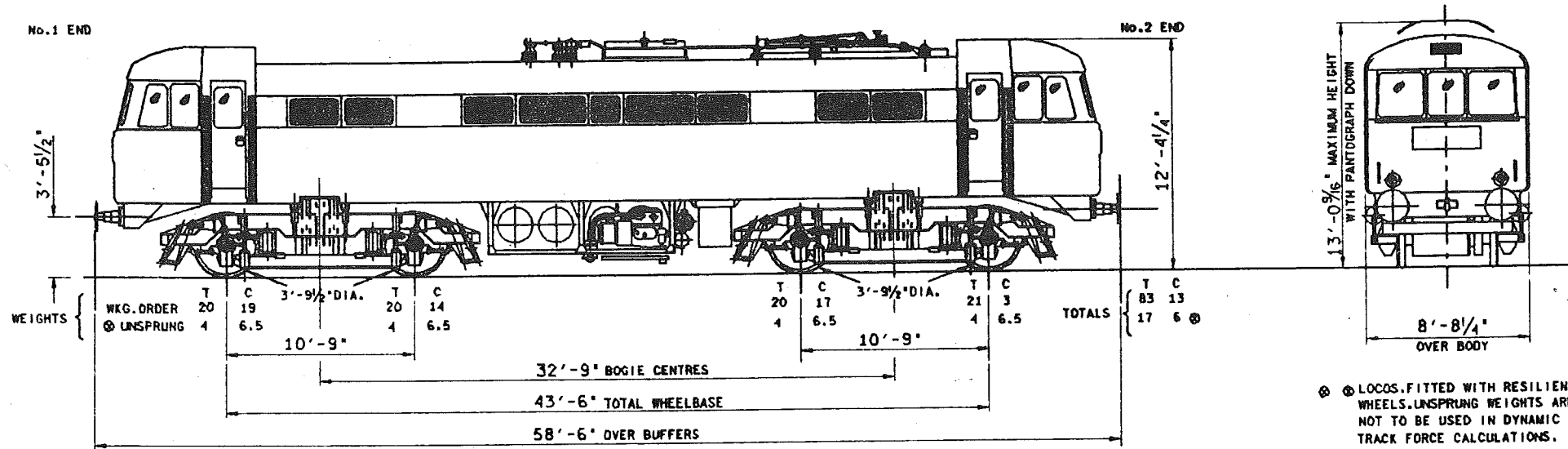
SUPPLY SYSTEM	TYPE	OVERHEAD	TYPE	FOR LOCO	STRAIGHT AIR, AUTO. AIR & RHEOSTATIC
	NOMINAL VOLTAGE	25KV. A.C.		FOR TRAIN	AUTO. AIR & AIR CONT. VAC
TRACTION MOTORS	MAKE & TYPE	A.E.I. TYPE 2B2AZ	BRAKE FORCE	% OF LOCO WEIGHT IN WORKING ORDER	70.2%
	NO	FOUR.			
CONTROL SYSTEM	TYPE OF SUSPENSION	NOSE	MULTIPLE WORKING	COUPLING SYMBOL	-
	TYPE OF GEAR DRIVE	SINGLE REDUCTION		HORIZONTAL WITHOUT GAUGE WIDENING	6 CHAINS
	TYPE	H.T. TAP CHANGING	MINIMUM RADIUS	HORIZONTAL WITH 3/4 INS. GAUGE WIDENING	5.27 CHAINS
	MAX TRACTIVE EFFORT	43000LB AT 23% ADHESION	CURVES	VERTICAL CONVEX	10 CHAINS
PERFORMANCE AT 22.5KV.	CONTINUOUS RATING	20000LB. T.E.	TRAIN HEATING EQUIPMENT	VERTICAL CONCAVE	10 CHAINS
	ON WEAKEST FIELD	67 M.P.H.		ELECTRIC	
	MAX. RAIL H.P. ON WEAKEST MOTOR FIELD	700 AMPS. PER MOTOR	RECTIFIER	TYPE	320KW. AT 800 VOLTS. A.C.
		3600 RAIL H.P.			SILICON
DATA PANEL	WEIGHT	5900H.P. AT 38 M.P.H.			
	BRAKE FORCE	80 TONNES			
	E.T.H. INDEX	40 TONNES			
	ROUTE AVAILABILITY	66			
	MAX. SPEED	6			
		100 M.P.H.			

MAY 1987

B.R.B-B A.C.ELECTRIC LOCOMOTIVE

CLASS 86/5

86-5a X



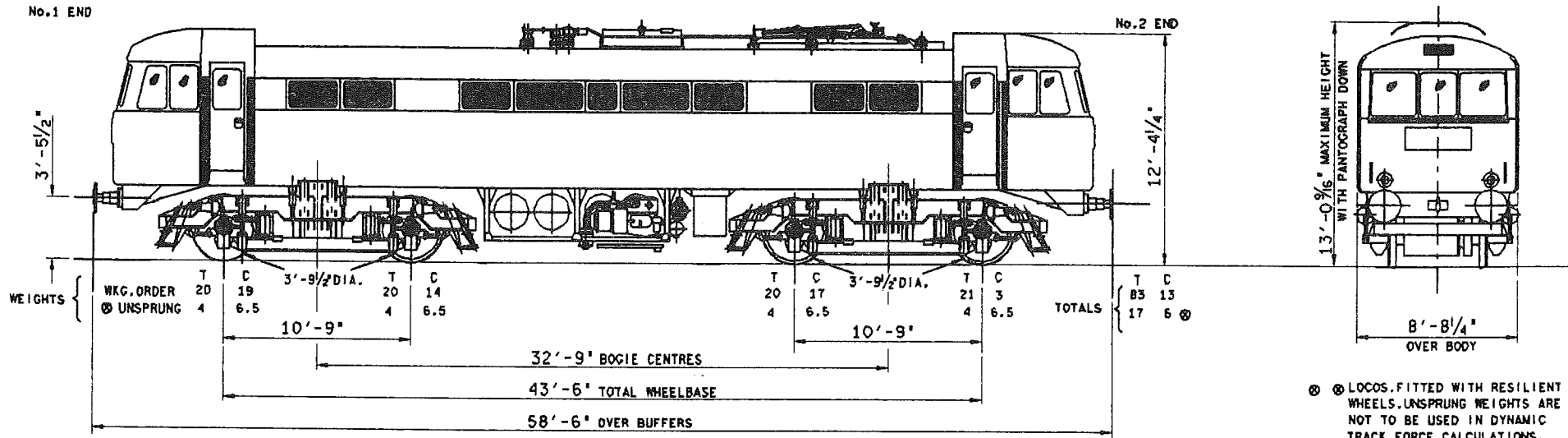
SUPPLY SYSTEM	TYPE	OVERHEAD	BRAKING	TYPE	FOR LOCO	STRAIGHT AIR, AUTO. AIR & RHEOSTATIC
	NOMINAL VOLTAGE	25KV. A.C.		FOR TRAIN		AUTO. AIR & AIR CONT. VAC
	MAKE & TYPE	A.E.I. TYPE 282BZ		BRAKE FORCE	% OF LOCO WEIGHT	71.6%
TRACTION MOTORS	NO	FOUR.			IN WORKING ORDER	
	TYPE OF SUSPENSION	NOSE	MULTIPLE WORKING	COUPLING SYMBOL		
	TYPE OF GEAR DRIVE	SINGLE REDUCTION		HORIZONTAL WITHOUT GAUGE WIDENING		4 CHAINS
CONTROL SYSTEM	TYPE	H.T. TAP CHANGING	MINIMUM RADIUS	HORIZONTAL WITH 1/4 INS. GAUGE WIDENING		3.7 CHAINS
	MAX TRACTIVE EFFORT	41500LB AT 22% ADHESION	CURVES	VERTICAL CONVEX		10 CHAINS
		24180LB. T.E.		VERTICAL CONCAVE		10 CHAINS
PERFORMANCE	CONTINUOUS RATING	61.5 M.P.H.	TRAIN HEATING	ELECTRIC		320KW. AT 800 VOLTS A.C.
AT 22.5KV.	ON WEAKEST FIELD	800 AMPS PER MOTOR	EQUIPMENT			
	MAX. RAIL H.P. ON	4040 RAIL H.P.	RECTIFIER	TYPE		SILICON
	WEAKEST MOTOR FIELD	6100 H.P. AT 39.3 M.P.H.				
DATA PANEL	WEIGHT	80 TONNES				
	BRAKE FORCE	40 TONNES				
	E.T.H. INDEX	66				
	ROUTE AVAILABILITY	6				
	MAX. SPEED	75 M.P.H.				

MARCH 1988

B.R.B-B A.C.ELECTRIC LOCOMOTIVE

CLASS 86/6

86-6a X



⊗ ⊗ LOCOS. FITTED WITH RESILIENT WHEELS. UNSPRUNG WEIGHTS ARE NOT TO BE USED IN DYNAMIC TRACK FORCE CALCULATIONS.

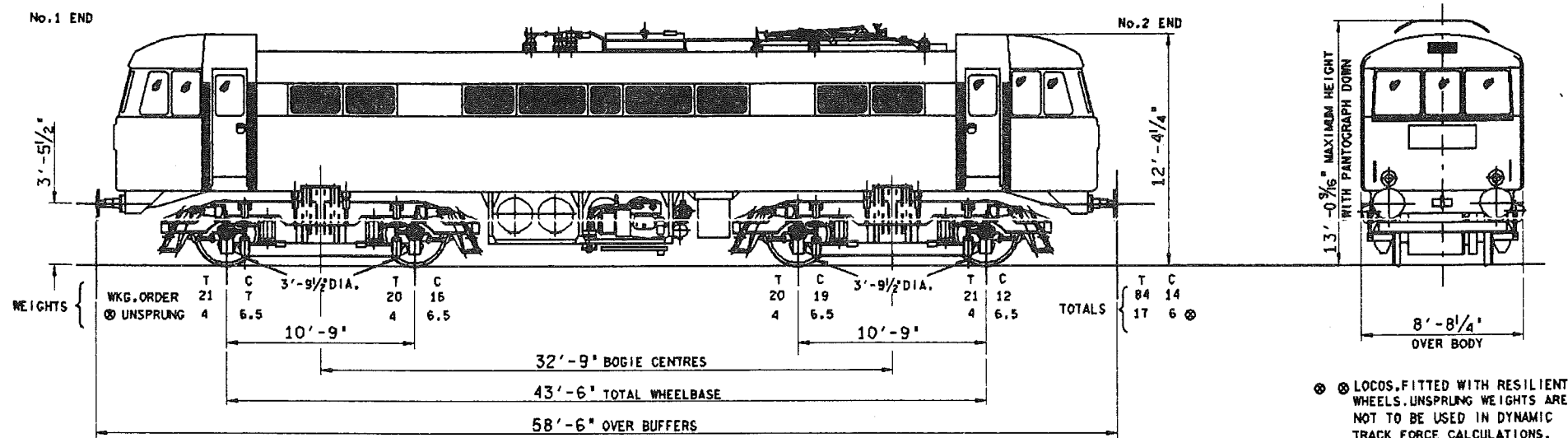
SUPPLY SYSTEM	TYPE	OVERHEAD	TYPE	FOR LOCO	STRAIGHT AIR, AUTO. AIR & RHEOSTATIC
	NOMINAL VOLTAGE	25KV. A.C.		FOR TRAIN	AUTO. AIR & AIR CONT. VAC
TRACTION MOTORS	MAKE & TYPE	A.E.I. TYPE 282AZ		BRAKE FORCE	% OF LOCO WEIGHT IN WORKING ORDER
	No	FOUR.			71.1%
CONTROL SYSTEM	TYPE OF SUSPENSION	NOSE		MULTIPLE WORKING	COUPLING SYMBOL
	TYPE OF GEAR DRIVE	SINGLE REDUCTION			HORIZONTAL WITHOUT GAUGE WIDENING
	TYPE	H.T. TAP CHANGING		MINIMUM RADIUS	HORIZONTAL WITH 1/4 INS. GAUGE WIDENING
	MAX TRACTIVE EFFORT	43000LB AT 23% ADHESION		CURVES	VERTICAL CONVEX
		20000LB. T.E.			VERTICAL CONCAVE
PERFORMANCE	CONTINUOUS RATING	67 M.P.H.		TRAIN HEATING	ELECTRIC
AT 22.5KV.	ON WEAKEST FIELD	700 AMPS. PER MOTOR		EQUIPMENT	
	MAX. RAIL H.P. ON	3600 RAIL H.P.		RECTIFIER	TYPE
	WEAKEST MOTOR FIELD	5900 H.P. AT 38 M.P.H.			SILICON
DA. PANEL	WEIGHT	80 TONNES			
	BRAKE FORCE	40 TONNES			
	E.T.H. INDEX	66			
	ROUTE AVAILABILITY	6			
	MAX. SPEED	75 M.P.H.			

JULY 1989

B.R.B-B A.C.ELECTRIC LOCOMOTIVE

CLASS 86/6

86-6b X



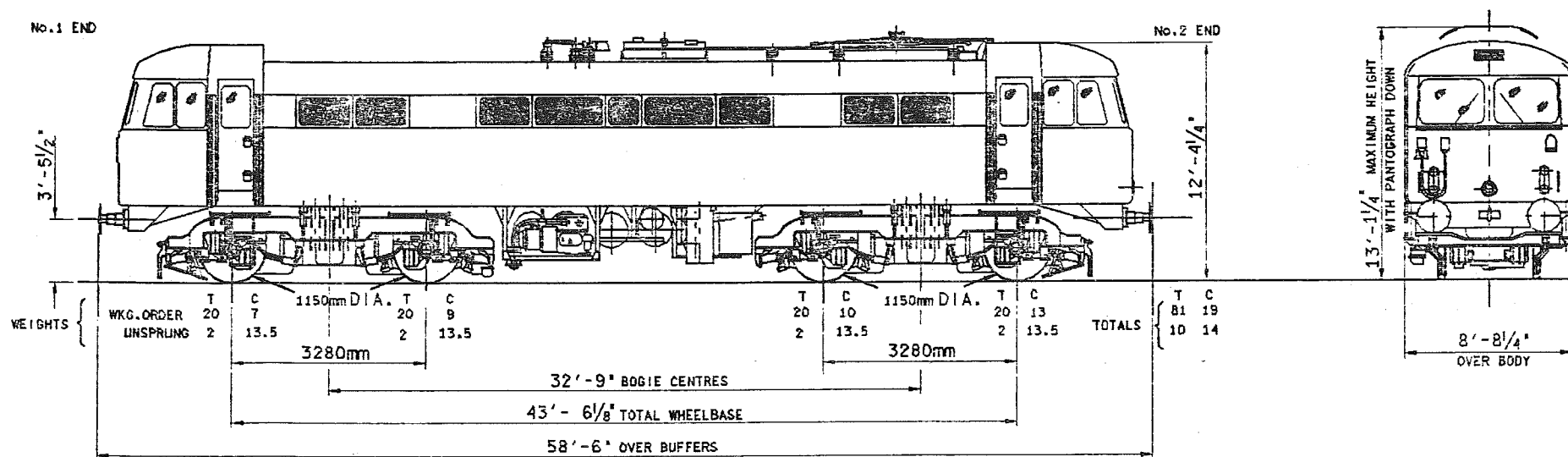
SUPPLY SYSTEM	TYPE	OVERHEAD	BRAKING	TYPE	FOR LOCO	STRAIGHT AIR, AUTO. AIR & RHEOSTATIC
	NOMINAL VOLTAGE	25KV. A.C.		FOR TRAIN		AUTO. AIR & AIR CONT. VAC
	MAKE & TYPE	A.E.I. TYPE 282AZ		BRAKE FORCE	% OF LOCO WEIGHT IN WORKING ORDER	70.2%
TRACTION MOTORS	No	FOUR.	MULTIPLE WORKING	COUPLING SYMBOL		-
	TYPE OF SUSPENSION	NOSE		HORIZONTAL WITHOUT GAUGE WIDENING		6 CHAINS
	TYPE OF GEAR DRIVE	SINGLE REDUCTION	MINIMUM RADIUS	HORIZONTAL WITH 1/4" INS. GAUGE WIDENING		5.27 CHAINS
CONTROL SYSTEM	TYPE	H.T. TAP CHANGING	CURVES	VERTICAL CONVEX		10 CHAINS
	MAX TRACTIVE EFFORT	43000LB AT 23% ADHESION		VERTICAL CONCAVE		10 CHAINS
		20000LB. T.E.	TRAIN HEATING EQUIPMENT	ELECTRIC		320kW. AT 800 VOLTS. A.C.
PERFORMANCE AT 22.5KV.	CONTINUOUS RATING ON WEAKEST FIELD	67 M.P.H.	RECTIFIER	TYPE		SILICON
	MAX. RAIL H.P. ON WEAKEST MOTOR FIELD	700 AMPS. PER MOTOR				
		3600 RAIL H.P.				
		5900H.P. AT 38 M.P.H.				
DATA PANEL	WEIGHT	80 TONNES				
	BRAKE FORCE	40 TONNES				
	E.T.H. INDEX	66				
	ROUTE AVAILABILITY	6				
	MAX. SPEED	75 M.P.H.				

JULY 1989

B.R.B-B A.C.ELECTRIC LOCOMOTIVE

CLASS 87/0

87-0a A



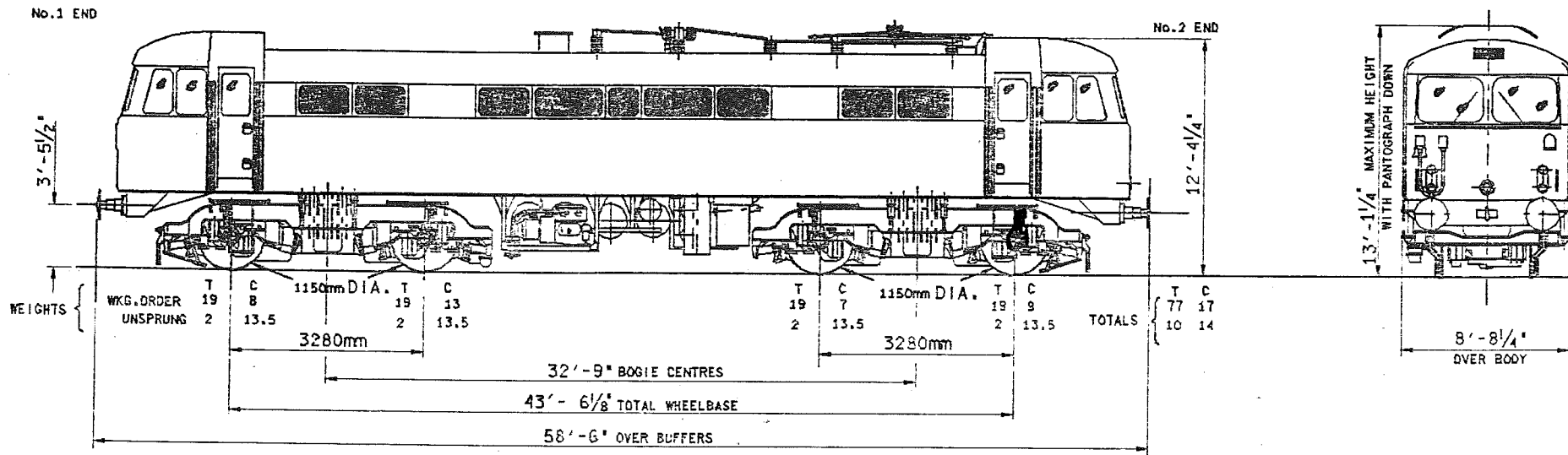
SUPPLY SYSTEM	TYPE	OVERHEAD	TYPE	FOR LOCO	AIR & RHEOSTATIC
	NOMINAL VOLTAGE	25KV.A.C.		FOR TRAIN	AIR
TRACTION MOTORS	MAKE & TYPE	G.E.C. TYPE G.412 AZ	BRAKE FORCE	% OF LOCO WEIGHT	71.4%
	No	FOUR.		IN WORKING ORDER	
CONTROL SYSTEM	TYPE OF SUSPENSION	FULLY SUSPENDED	MULTIPLE WORKING	COUPLING SYMBOL	
	TYPE OF GEAR DRIVE	SINGLE REDUCTION		HORIZONTAL WITHOUT GAUGE WIDENING	4 CHAINS
	TYPE	H.T.TAP CHANGING	MINIMUM RADIUS	HORIZONTAL WITH INS.GAUGE WIDENING	3.7 CHAINS
PERFORMANCE	MAX TRACTIVE EFFORT	43000LB AT 23% ADHESION	CURVES	VERTICAL CONVEX	10 CHAINS
AT 25KV.		21300LB.T.E.	TRAIN HEATING	VERTICAL CONCAVE	10 CHAINS
	CONTINUOUS RATING	87 M.P.H.	EQUIPMENT	ELECTRIC	450KVA AT 800 VOLTS A.C.
	ON WEAKEST FIELD	885 AMPS PER MOTOR	RECTIFIER	TYPE	SILICON
		5000 RAIL H.P.			
DATA PANEL	WEIGHT	80 TONNES			
	BRAKE FORCE	40 TONNES			
	E.T.H. INDEX	66			
	ROUTE AVAILABILITY	6			
	MAX.SPEED	110 M.P.H.			

MAY 1987

B.R.B-B A.C.ELECTRIC LOCOMOTIVE

CLASS 87/1

87-1a A



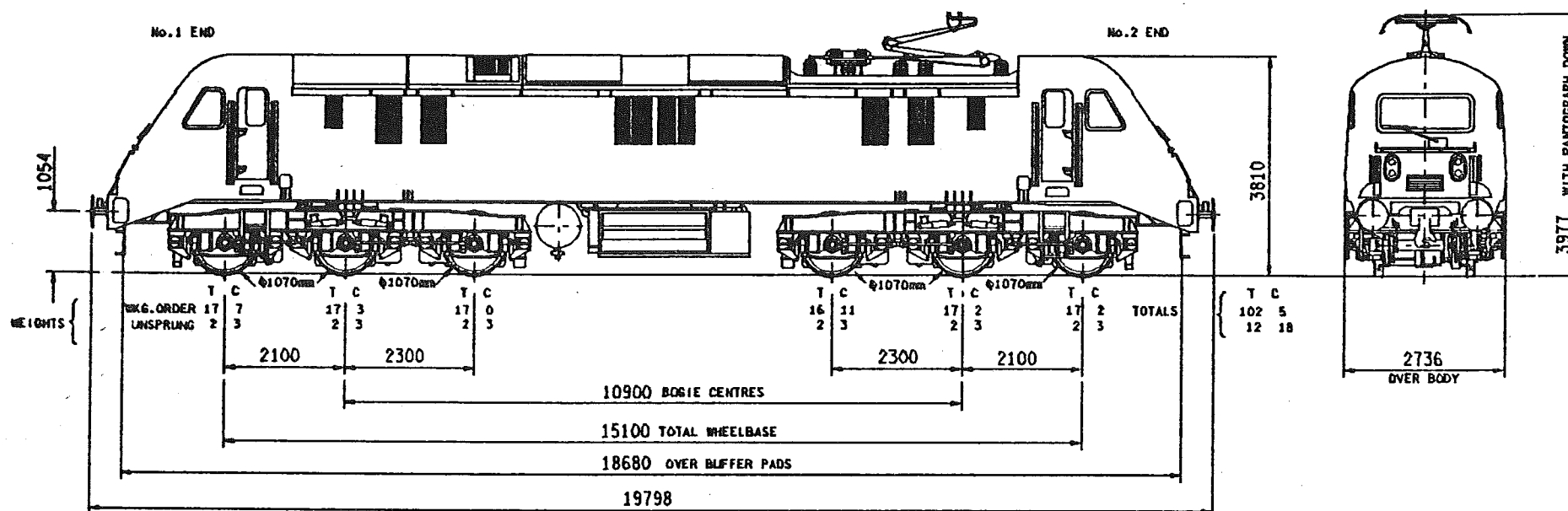
SUPPLY SYSTEM	TYPE	OVERHEAD	TYPE	FOR LOCO	AIR & RHEOSTATIC
	NOMINAL VOLTAGE	25KV.A.C.	TYPE	FOR TRAIN	AIR
	MAKE & TYPE	G.E.C. TYPE G.412BZ	BRAKE FORCE	% OF LOCO WEIGHT IN WORKING ORDER	75.17%
TRACTION MOTORS	No	FOUR.	MULTIPLE WORKING	COUPLING SYMBOL	
	TYPE OF SUSPENSION	FULLY SUSPENDED	MINIMUM RADIUS	HORIZONTAL WITHOUT GAUGE WIDENING	4 CHAINS
	TYPE OF GEAR DRIVE	SINGLE REDUCTION	CURVES	HORIZONTAL WITH 3/4 INS. GAUGE WIDENING	3.7 CHAINS
CONTROL SYSTEM	TYPE	THYRISTOR		VERTICAL CONVEX	10 CHAINS
	MAX TRACTIVE EFFORT	43000LB AT 25% ADHESION		VERTICAL CONCAVE	10 CHAINS
PERFORMANCE AT 25KV.	CONTINUOUS RATING ON WEAKEST FIELD	21600LB.T.E.	TRAIN HEATING EQUIPMENT	ELECTRIC	510KVA AT 890 VOLTS A.C.
		84 M.P.H.	RECTIFIER	TYPE	THYRISTOR
		875 AMPS PER MOTOR			
		4850 RAIL H.P.			
DATA PANEL	WEIGHT	80 TONS			
	BRAKE FORCE	40 TONS			
	E.T.H. INDEX	66			
	ROUTE AVAILABILITY	6			
	MAX. SPEED	110 M.P.H.			

MAY 1987

BRUSH C-C A.C.ELECTRIC LOCOMOTIVE

CLASS 89

89-0a A



SUPPLY SYSTEM	TYPE	OVERHEAD
	NOMINAL VOLTAGE	25kV.A.C.
	MAKE & TYPE	BRUSH TYPE TM.2201A
TRACTION MOTORS	No	SIX
	TYPE OF SUSPENSION	FULLY SUSPENDED
	TYPE OF GEAR DRIVE	SINGLE REDUCTION
CONTROL SYSTEM	TYPE	THYRISTOR
	MAX TRACTIVE EFFORT	205kN.AT 21% ADHESION
PERFORMANCE	CONTINUOUS RATING	105kN.
AT 25kV.	ON WEAKEST FIELD	147k.p.h.
		808 AMPS PER MOTOR
		4286kW.AT RAIL

DATA PANEL	WEIGHT	105 TONNES
	BRAKE FORCE	50 TONNES
	E.T.H.INDEX	95
	ROUTE AVAILABILITY	6
	MAX.SPEED	125 M.P.H.

BRAKING	TYPE	FOR LOCO	AIR & RHEOSTATIC
		FOR TRAIN	AIR
	BRAKE FORCE	% OF LOCO WEIGHT	53%
		IN WORKING ORDER	
MULTIPLE WORKING	COUPLING SYMBOL		
	HORIZONTAL WITHOUT GAUGE WIDENING	80m.	
MINIMUM RADIUS	HORIZONTAL WITH 1/4 INS.GAUGE WIDENING	75m.	
CURVES	VERTICAL CONVEX	200m.	
	VERTICAL CONCAVE	200m.	
TRAIN HEATING	ELECTRIC		510kVA.AT 893 VOLTS A.C.
EQUIPMENT			
RECTIFIER	TYPE		THYRISTOR

DEC 1986

VEHICLE DIAGRAM BOOK

NO 110

ELECTRIC LOCOMOTIVES

REVISION LETTER NO 15

<u>Location</u>	<u>Action</u>	<u>Reason for Change</u>
Following diagram 86-5aX	Insert new diagrams 86-6aX and 86-6bX	First issue

INSERTED 16/10/89 In. Blane TECH-CLEAR.

After incorporating the above, endorse the "Revision Record" at the front of the manual accordingly.

When this Revision letter has been actioned, it is to be stored at the back of the publication (capacity permitting), for easy future reference.

DATE: September 1989

REF : 171-125-2

Issued by:-

D of M & EE, BRB
Railway Technical Centre
Derby

2309/5596g/2

ELECTRIC LOCOMOTIVE DIAGRAM BOOK

VEHICLE DIAGRAM BOOK NO. 110

REVISION LETTER NO. 14

<u>LOCATION</u>	<u>ACTION</u>	<u>REASON FOR CHANGE</u>
Diagrams 85-0aX, 86-0bX, 86-0cX, 86-3aX and 86-3bX	Replace with latest issue	Brake force modified
Diagrams 86-1aX, 86-1bX, 86-2bX, 86-2cX, 86-2dX, 86-2eX, 86-4aX, 86-4bX, 87-0aA, and 87-1aA	Replace with latest issue	Brake force and tractive effort modified.
Following diagram 86-4bX	Insert new diagram 86-5aX	Locomotive 86-2bX regeared. Maximum speed modified.
Following diagram 87-1aA	Insert new diagram 89-0aA	

After incorporating the above, endorse the "Revision Record" at the front of the manual accordingly.

When this Revision letter has been actioned, it is to be stored at the back of the publication (capacity permitting), for easy future reference.

Date : NOVEMBER 1988

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Issued by:-

D of M & EE, BRB
Railway Technical Centre
Derby

2301/3940g/2

NO.1 END

NO.2 END

RAIL LEVEL

PANTOGRAPH WORKING HEIGHT 4700 ARL
AND 6070 ARL (REF.OM.V)

TRANSFORMER AND CONVERTER
COOLER GROUP AIR INLET

BRAKE RESISTOR VENT

AIR CONDITIONING UNIT

TRACTION MOTOR COOLING
AIR INLET

PANTOGRAPH (LOWERED)

3918 4

2233

2055

6375

21340

SIDE ELEVATION

A SIDE

B SIDE

PLAN VIEW

2686 INCLUDING BILLS ETC.

2630

STATIC GAUGE
L-AI-1606

BRAKE PIPE
(SIGNAL RED)

WATER RESERVOIR
PIPE (YELLOW)

E'S SOCKET

SHOEGEAR
(OPERATING POSITION)

62 WAY SOCKET

ETS DUMMY
SOCKET

ETS PLUG

62 WAY PLUG & DUMMY SOCKET

RAIL LEVEL

FRONT ELEVATION

CLASS 92 LOCOMOTIVE DATA :

POWER	5 MW (AC) / 4 MW (DC)
DUAL VOLTAGE	25 KV AC / 750 V D.C.
WEIGHT	126 TONNES
MAXIMUM TRACTIVE EFFORT	400 kN
NOMINAL LOAD/WHEEL	10.5 TONNES
NOMINAL LOAD/AXLE	21.0 TONNES - 500 BELOW
MINIMUM CURVE RADIUS	80.700 METRE 20
WHEEL DIAMETER	1070 MM
TRACK GAUGE	1435 MM

ROUTE AVAILABILITY 7 #
MAXIMUM AXLE LOAD (STATIC) 21.844 TONNES 16 (FOR RAG)

ALTERATIONS MADE BY CLASS 92 PROJECT ENGINEER 21/1/92
MODIFICATIONS MADE BY ETS PROJECT MANAGER ON BASIS OF INFORMATION SUPPLIED BY CLASS 92 PROJECT ENGINEER 21/1/92
SCRUTINY NO. 92/20/01/103/B