							########		
		Usefu	I bits of in	formation					
						As of			
Livery change dates				Friends	111-123-4567	03/10			
CN Noodle	1961 +				222-234-5678	01/08			
CP Block	Up to 1963				333-345-6789	12/08			
CP Script	1963 - 1970								
CP Multimark	1970+			Drill & Tap sizes					
NYC Century (Jade green)	1958 with black	roof trucks &	ends	Size	Dia.	Cl'rance	Tap drill		
1410 Century (Jaue green)	Mid 1960s with	,		00-90	0.047	55	61		
NYC Lightning stripe	Up to late 1950s		ilus	0-80	0.060	52	55		
	Late 1950s +	•		1-72	0.000	48	53		
NYC Cigar band	Late 19305 +			2-56	0.073	43	50		
				2-30	0.000	43	30		
Decoders (also see Mfgrs www)				NMRA Bulletin "O	non Londo" (f	or obooking	docion)		
<u> </u>	DTX DH163AT				•		uesigii)		
Athearn	NCE D13SRJ				Page 35	<b>Load</b> Rebar			
Atlas /Kata	A/K circuit board	d dooodoro			40	Pipe			
Atlas DS3		uecoders				•			
Atlas RS3	DTX DH163KO				30	Newsprint			
Dt- 2000	DTX165AO					Plate steel			
Proto 2000	DTX DH163P				30	Plate steel			
	DTX DH123D				28	Military			
					30	Tractor (N)			
Articles of interest		•			35	School buse			
Subject		Author	Publ-issue-pa		31	Farm tracto	-		
Decoders in old Athearns		M Polsgrove			MR p.64	Farm tracto			
oco lights with DCC decoders			MR 0508-82	Jun-05	MR p.81	Chains, cho	cks, etc.		
Decoders in old Athearns		D Popp	MR 0607-86						
Installing decoders			MR DCC book						
Wiring 'Y's in DCC			MR-0708-74	NYC Light Gray		Modelflex 1			
Sound in a Genesis F3			MR-1008-78	NYC Dark Gray		Modelflex 1	627		
In the shadow of the giants		N Helm	ITSOTGian						
Allegheny Midland	Ops	Tony Koester		Graph Paper for d		to find it			
Dave Rickaby		D Rickaby	MR-0602-54	Adobe Reader\Hob	bies\Railroads				
Fastclock, analog		Mike Dodd	MR-0897-68						
Timetable & Train order operation		W. Tajibnapis		Whistle & Horn Si					
Car cards & Waybills	Ops	Steve King	V&O Story		a. Grade crossing: " 0 -" (last - while in the crossing)				
Tips to create authentic scenes	Scenery	P Soeberg	MR-0408-49		b. Release brakes, proceed (whistling off): ""				
Conifer trees	Scenery	Ron Morse	MR0707-44		c. Flagman to protect rear of train (whistling out the flag): "- 0 0 0				
Painting effective backdrops	Scenery	Jay Smith	MR0608-36	d. Flagman may re					
Modeling 2 distinct CV GP9s		Don Janes	RMC0705-50		e. Flagman may return from East or North: ""				
Adding sound to P2K GP7	DCC	Art Cominio	RMC0705-64		k. Second and more sections of trains "carrying green",				
Anat of a Junction, Smithville Pt 2		Trev Marshall			to an oncoming				
Scatchbuilding a country depot	Structures	Don Spiro	RMC0308-82	g. Mandatory answ	g. Mandatory answer from the oncoming train in 'k': "0 0				
		-		-					
Car Lengths & Weights - HO									
1 oz. + 1/2 oz per inch					<del></del>				
1" = scale 7' 3"	1' scale = 0.138	"							
Car Saala Lanath	Inches to	Weight in							
Car Scale Length	closest 0.5"	ounces		Actual inches to I	HO inches - no	minal			
30'	4.00	3.00		.005" = 7/16	.050" = 4-3/8				
35'	5.00	3.50		.010" = 7/8	.060" = 5-1/4				
40'	5.50	3.75		.015" = 1-1/4	.080" = 7				
50'	7.00	4.50		.020" = 1-3/4	.100" = 8-3/4				
70'	9.50	5.75		.025" = 2-1/8	.125" = 10-7/8				
80'	11.00	6.50		.030" = 2-5/8	.188" = 16-3/8				
85'	12.00	7.00	+	.040" = 3-1/2	.250" = 21-3/4				
00	12.00	1.00		.070 - 0-1/2	.200 - 21-0/4				

		Usefu	I bits of i	nformatio	n				
Gradients		Applying	Dagala		Brake pipe diame	tous 0 uselii			
<b>2%:</b> 1" in 50"; 1/2" in 25"; 0.24" i	n 12"	Applying wet Decals  1. Apply gloss cost to item			Item	Inches i.d.	Thou in HO		
		Apply gloss coat to item		- 0-4					
<b>2-1/2%</b> : 1-1/4" in 50"; 5/8" in 25"; 19/64" in 12"		2. Brush spot with e.g. Micro-Set		0-Set	AB brake pipe AB branch pipe	1-1/4 1	0.019 0.015		
<b>3%:</b> 1-1/2" in 50"; 3/4" in 25"; 23/64" in 12"		Position with toothpick     Dab dry			AB brake cyl.	3/4	0.013		
DCC Decoder Lead Colours			rial any bubb	loo	AB brake cyl.  AB aux reservoir	3/4	0.012		
Red - Right rail pick-up		5. Next day, prick any bubbles		les	AB aux reservoir AB emerg res.	3/4	0.012		
Orange - R.H. rail motor wire		6. Apply e.g. Micro-Sol 7. Next day, repeat 5/6 as ness		000	Brake wheel staff	1-1/4 o.d.	0.012		
Black - Left rail pick-up		7. Next day, I	epeal 5/0 as ii	ess.	KC brake pipe	1-1/4 0.d. 1-1/4	0.015		
Gray - L.H. rail motor wire		Piping Min. b	ond radius		KC branch pipe	1-1/4	0.019		
White - Front light		Pipe i.d.	Min. radius		KD brake pipe	3/4	0.019		
Ü			12"			3/8	0.012		
Yellow - Rear light Blue - Light common		1-1/4	12"		Retainer pipe		0.008		
Green - Funcition output		3/4	6"		Uncoupl lever Under body br rod	1 o.d. 7/8	0.012		
Purple - Funcition output		3/4	3"		Unider body or rod	1/8	0.010		
Purple - Function output		3/6	3						
		Ohm's Law							
		V = IR; I = V/	R; R = V/I						
Tips for installing decoders		Resistor colours							
Test the locomotive on DC		Bands 1 + 2 = 1st & 2nd digits		its;			cale Speed (Scale Rails 0710-8)		
Check light volts (AA bat'y = 1.5\	/)	Band 3 = # of zeros				Vfs (mph) = V			
Test the decoder		Black = 0	Brown = 1				= Vfs (mph) x 0.202		
Isolate the motor from the frame		- · · · · · · · · · · · · · · · · · · ·	Yellow = 4			Time (sec)	Vms	Vfs	
LED Anode to decoder blue		Blue =6	Violet = 7	Grey = 8		to go 36"	(in. / sec)	(mph)	
(see resistor table under)		White = 9				2	18	89.0	
Know & follow the colour code		Fourth band =				4	9	44.5	
Insulate all connections			Silver = +/- 1			8	4.5	22.2	
Test before reassembling			Red = +/- 2%			16	2.3	11.4	
			Gold = $+/-$ 5%			24	1.5	7.4	
			Brown = $\pm$ /- $^{\prime}$	1%		30	1.2	5.9	
Geometric Formulae		American Wir				Resistor to use with 1.5V bulbs		bulbs	
Circumference of a circle	pd	AWG # Dia. inches Bulb Current T		Track V	Track Voltage				
Diameter of a circle	circ. x 0.31831		10	0.1019	]	Sais Saireill	ITACK V	Jilaye	Watts
Area of a circle	pr <sup>2</sup>		12	0.0808			12.5	15	
Surface area of a Sphere	d <sup>2</sup> p		14	0.0641		15ma	680	820	1/4
			16	0.0508		30ma	330	430	1/2
			18	0.0403		40ma	240	300	1
Minimum aisle widths.			20	0.032	1	50ma	200	240	1
One person – 18"			22	0.0253		60ma	160	200	1
Two people passing – 28"			24	0.0201	1	80ma	120	160	2
One person working & one passing – 36"			28	0.0126			-		
Two people working – 48"	Ť	1	32	0.00795	1				