

Bedienungsanleitung Instruction Instructions de Service



Für drinnen und draussen - For indoors and outdoors

Achtung!
Verpackung und Betriebsanleitung aufbewahren!
Nicht für Kinder unter 8 Jahren geeignet, modellbedingt besteht Quetsch- und Klemmgefahr durch Antriebsgestänge der Lok.
Nicht für Kinder unter 8 Jahren geeignet, wegen funktions- und modellbedingter scharfer Kanten und Spitzen.

Attention!
Save the supplied instructions and packaging!
This product is not for children under 8 years of age. It has moving parts that can pinch and bind.
This product is not for children under 8 years of age. This product has small parts, sharp parts and moving parts.

Attention!
Veillez conserver l'emballage et le mode d'emploi
Ne convient pas aux enfants de moins de 8 ans. L'emballage de la locomotive peut pincer les doigts de jeunes enfants.
Ne convient pas aux enfants de moins de 8 ans. Presence de petits éléments susceptibles d'être avalés.

Attenzione!
Conservare l'imballo e le istruzioni per l'uso!
Non adatto a bambini di età inferiore agli 8 anni poiché vi è possibilità a pericolo di schiacciamento delle dita quando il treno è in funzione.
Non adatto a bambini di età inferiore agli 8 anni in quanto le strutture presentano spigoli vivi e punte acuminate.

Atención!
Guardar el carton de embalaje y las Instrucciones para el uso!
No adecuado para niños menores de 8 años. Según el modelo, existe el peligro de sufrir contusiones o de cojerse los dedos a causa del varillaje de accionamiento de la locomotora.
No adecuado para niños menores de 8 años, debido a cantos y puntas peligrosas condicionadas por la función o el modelo.

Attentie!
Verpakking en gebruiksaanwijzing bewaren!
Niet geschikt voor kinderen onder de 8 jaar omdat deze loc aandrijfstangen bezit waaraan kinderen zich kunnen bezeren.
Niet geschikt voor kinderen onder de 8 jaar omdat dit model functionele scherpe kanten en punten bezit.

Anderungen der technischen Ausführungen vorbehalten.
We reserve the right to make technical alterations without prior notice.
Modifications de constructions réservées.

20520/42

1.50302 PF



20520

DC =
0-24 V

CE

OBB-Diesellok 2091-03

DASVORBILD

Bei den 6sterreichischen Schmalspurbahnen wurden bereits ab 1927 Dieselloks verwendet, um einen wirtschaftlicheren Betrieb zu ermöglichen. 1936/37 wurden sieben Serienloks der damaligen Baureihe 2041 (heute 2091) für verschiedene Schmalspurbahnen der Österreichischen Bundesbahnen gebaut.

Um den normalerweise im Zug mitlaufenden Gepäckwagen einsparen zu können, erhielten die Lokomotiven ein großes Gepäckabteil. Ein V8-Dieselmotor treibt über einen Generator und zwei Elektromotoren die beiden Triebachsen an. Die Baureihe 2041/2091 wurde auf fast allen 6sterreichischen Schmalspurbahnen eingesetzt. Dabei konnte die

GARANTIE

Unsere Produkte sind Präzisionswertarbeit in Design und Technik. Wie bei einer wertvollen Uhr werden feinstmechanische Präzisionsteile von Hand gefertigt. Permanente Materialkontrollen, Fertigungskontrollen und die Endkontrolle vor Auslieferung garantieren unser gleichbleibend hohes Qualitätsniveau. Um wirklich ungetrübten Spaß zu haben, lesen Sie bitte diese Garantie- und Bedienungsanleitung.
Wir (ERNST PAUL LEHMANN PATENTWERK) auf dieses Produkt weltweit eine Garantie von 2 Jahren ab dem Erstkauf für Fehlerfreiheit von Material und Funktion, sofern dieses Produkt mit Kaufbeleg bei einem von uns autorisierten Fachhändler erworben wurde.

Bei berechtigten Reklamationen innerhalb von 2 Jahren nach Kaufdatum werden wir gegen Vorlage des entsprechenden Kaufbelegs nach unserem Ermessen kostenlos nachbessern, bzw. kostenlosen Ersatz liefern. Sollen Nachbesserung oder Ersatzlieferung unmöglich sein, so räumen wir Ihnen nach unserem Ermessen eine angemessene Minderung ein oder erstatten Ihnen statt dessen den Kaufpreis zurück. Unabhängig von diesen Garantieleistungen bleiben Ihnen selbstverständlich Ihre gesetzlichen Ansprüche insbesondere wegen Sachmangel erhalten.

Um einen Anspruch auf Garantieleistung geltend zu machen, übergeben Sie bitte das beanstandete Produkt, zusammen mit dem Kaufbeleg, Ihrem von uns autorisierten Händler. Um einen autorisierten Händler zu finden, wenden Sie sich bitte an eine der unten aufgeführten Service-Abteilungen. Sie kennen das Produkt auch, zusammen mit dem Kaufbeleg, an eine der beiden unten aufgeführten Serviceabteilungen einschicken. Die Einsendung erfolgt zu Ihren Lasten.

ERNST PAUL LEHMANN PATENTWERK
Service-Abteilung Garantie
Saganer Str. 1-5
90475 Nürnberg
Deutschland
Telefon: (09 11) 83 707-0
LGB OF AMERICA
Warranty Service Department
6444 Nancy Ridge Drive
San Diego, CA 92 121
USA
Tel.: (858) 535-9387

Bitte beachten Sie:
- Für Schäden durch unsachgemäße Behandlung oder Fremdeingriff sowie für Verschleißteile besteht kein Garantieanspruch.
- Transformatoren und Regler unterliegen strengen CE-UL-Vorschriften und dürfen nur vom Hersteller geöffnet und repariert werden. Zuwiderhandlungen bewirken zwingend Garantieverlust und generelle Reparaturverweigerung.
- Nur für USA: Diese Garantie gibt Ihnen genau definierte Rechte. Weiterhin verbleiben Ihnen unter Umständen je nach Bundesstaat weitere Rechte.
Wir sind sehr stolz auf unsere Produkte. Wir alle hoffen, daß Sie Ihnen viele Jahre lang Freude bereiten.

WARRANTY

This precision product is made using quality designs and technology. Like a fine timepiece, it has been crafted by hand. Constant monitoring of materials and assembly, together with final testing, ensure a consistent level of high quality. To get the most enjoyment from this product, we encourage you to read the instructions and this warranty.
We (Ernst Paul Lehmann Patentwerk) warrant this product worldwide for two years from the date of original consumer purchase against defects in materials and workmanship, if purchased from an authorized retailer.

If you have a valid warranty claim, including proof of purchase from an authorized retailer, we will repair or replace the product at our discretion. If it is impossible to repair or replace the product, we will refund all or a reasonable portion of the purchase price at our discretion. Of course, you may have other legal rights independent of this warranty, particularly in the case of material defects.

To make a claim under this warranty, please bring the product, with the proof of purchase, to your authorized retailer. To find an authorized retailer, please contact one of the service departments listed below. You may also send the product, with the proof of purchase, directly to one of the service departments listed below. You are responsible for any shipping costs, insurance and customs fees.

ERNST PAUL LEHMANN PATENTWERK
Service-Abteilung Garantie
Saganer Str. 1-5
90475 Nürnberg
Deutschland
Telephone: (09 11) 83 707 0
LGB OF AMERICA
Warranty Service Department
6444 Nancy Ridge Drive
San Diego, CA 92121
USA
Telephone: (858) 535-93 87

Please note:
- This warranty does not cover damage caused by improper use or unauthorized modifications/repairs. This warranty does not cover normal wear and tear.
- Transformers and controls are subject to strict CE and UL regulations and may only be opened and repaired by the manufacturer. Any violations automatically void this warranty and prevent any repair by us.
- U.S. only: This warranty gives you specific legal rights, and you may also have other rights which vary from State to State.
We are very proud of our products, and all of us sincerely hope they give you many years of enjoyment!

Wolfgang, Rolf, Johannes
Richter

GARANTIE

Nos produits de qualité supérieure sont le résultat du mariage de l'innovation et de la technologie. A l'instar d'une montre précise, tous les composants sont fabriqués à la main par nos artisans méticuleux. Un programme rigoureux d'assurance de la qualité, de la sélection des matériaux à l'assemblage et aux vérifications avant sortie des ateliers, garantissent un haut niveau de qualité constante. Afin d'obtenir la plus grande satisfaction de ce produit, veuillez lire la fiche d'instructions ainsi que cette garantie.

Nous (Ernst Paul Lehmann Patentwerk) garantissons ce produit, à l'échelle mondiale, contre tout vice de matière et de fabrication, pendant deux ans à partir de la date d'achat par l'acheteur original. Si le produit a été acheté chez un détaillant autorisé, Si vous demandez un recours en garantie pour un motif jugé recevable, joignez la preuve de l'achat chez un détaillant autorisé et nous réparerons ou remplacerons le produit à notre discrétion. Si s'avère impossible de réparer ou de remplacer le produit, nous rembourserons, à notre discrétion, tout ou partie du prix d'achat.

Vous pouvez disposer d'autres droits légaux en plus de ceux garantis, en particulier en cas de vice de matière. Pour initier une demande de règlement au titre de cette garantie, veuillez ramener le produit, avec la preuve d'achat, à votre revendeur autorisé. Pour trouver l'adresse d'un revendeur autorisé, veuillez entrer en rapport avec l'un des Centres de service après-vente ci-dessous. Vous pouvez également renvoyer le produit, avec la preuve d'achat, directement à l'un des Centres de service après-vente ci-dessous. L'expéditeur est responsable des frais d'expédition, de l'assurance et des frais de douane.

ERNST PAUL LEHMANN PATENTWERK
Service-Abteilung Garantie
Saganer Str. 1-5
90475 Nürnberg
ALLEMAGNE
Tel.: (09 11) 83 707 0
LGB OF AMERICA
Warranty Service Department
6444 Nancy Ridge Drive
San Diego, CA 92121
ETATS-UNIS
Tel.: (858) 535-93 87

Veillez bien noter que:
- Cette garantie ne couvre pas les dommages résultant d'une utilisation inadéquate, ni de modification/réparation non autorisée. Cette garantie ne couvre pas l'usure normale.
- Les transformateurs et commandes sont conformes aux normes rigoureuses CE et UL et ne peuvent être ouverts et réparés que par le fabricant. Toute violation à cet égard entraîne la perte impérative de tous les droits de garantie et un refus de toutes réparations, quelles qu'elles soient.
- États-Unis uniquement: Cette garantie vous donne des droits légaux spécifiques, et vous pouvez également avoir d'autres droits qui varient d'un Etat à l'autre.
Nous sommes très fiers de nos produits et nous vous souhaitons des années d'amusement inoubliables avec votre hobby qui est également le nôtre.

ERNST PAUL LEHMANN PATENTWERK

Saganer Str. 1-5 · D-90475 Nürnberg

made in Germany



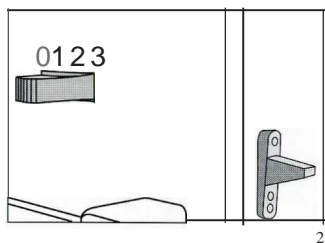
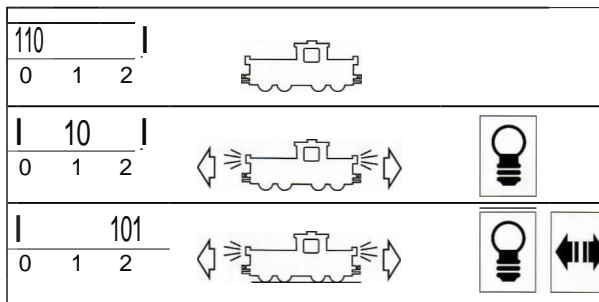
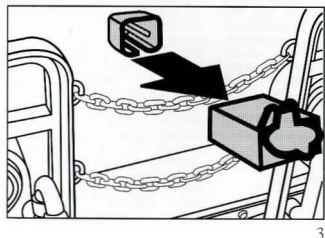


Abb. 1, 2: Betriebsartenschalter
Abb. 3: Mehrzweck-Steckdose



Fig. 1, 2: Power control switch
Fig. 3: Multi-purpose socket



Illustr. 1, 2: Selecteur d'alimentation
Illustr. 3: Outils à usages multiples



20520 ÖBB Diesel Loco, 2091-03

THE PROTOTYPE

The Austrian narrow gauge railways used diesel locomotives as early as 1927 in their quest for more economical operations. In 1936 and 1937, seven standardized "2041" locos (later re-numbered 2091) were built for various narrow gauge lines of the Austrian Federal Railways.

For further cost savings, the locomotives were equipped with a large baggage compartment, eliminating additional baggage cars. The transmission is diesel-electric, which is unusual for European locomotives. A V8 diesel engine turns a generator, which feeds power to the two electric motors that drive the wheels. The 2041/2091 locos were used on many Austrian narrow gauge lines, where its top speed of 50 kph (31 mph) rarely could be achieved.

Designed with economy in mind, the locos were not very powerful. As a result, they were used mainly on level tracks, hauling light passenger trains consisting of two four-axle or four two-axle coaches. For hilly lines or heavy trains, steam locomotives were used until the big 2095 diesel locos became available in the 1960s. Loco 2091-03 today is owned by the preservation group Club 760, where it has been restored in its original shape. You can enjoy a ride behind this charming loco on the scenic Taurachbahn (www.club760.at).

THE MODEL

This detailed replica features:

- weather-resistant construction
- factory-installed onboard decoder for MTS and analog operation
- opening doors to cab and baggage compartment
- four-way power control switch

- protected gearboxes with two seven-pole Böhler motors
- eight powered wheels
- one traction tire
- twelve power pickups
- voltage stabilization circuit
- automatic directional lanterns
- multi-purpose socket with circuit breaker
- length: 460 mm (18.1 in.)
- weight: 2600 g (5.7 lb.)

THE PROGRAM

With this model, we recommend the following items:

- 33620 CBB Passenger Car
- 33625 CBB Bar Car
- 38078 CBB Passenger Car
- 65002 European Diesel Sound Unit (to equip the model with sound)

For information on the complete LGB program, see the LGB catalog.

OPERATION

Operating Modes

This model has a four-way power control switch mounted inside the baggage compartment (Fig. 1, 2):

- Position 0: All power off
- Position 1: Power to lights
- Position 2: Power to lights and motors
- Position 3: same as Position 2 (factory pre-set)

Multi-Train System

The model is equipped a factory-installed onboard decoder for the LGB Multi-Train System. It can be used without modifications on analog or digital layouts. For operation with the Multi-Train System, the model is programmed to loco address 03. For information on programming the loco address, see the instructions for various MTS components.

When operating with the Multi-Train System, you can remotely control the loco's functions. Press the lighting button ("9" with remotes) to turn the loco lights on or off.

When operating with the Multi-Train System, the loco features a "Back-EMF" function. This keeps

the motor speed constant (and under normal conditions the loco speed), even when the load of the loco changes, for example, in curves or on grades. This feature does not work at top speed, because additional voltage must be available to overcome any added load.

If desired, numerous functions of the onboard decoder, such as acceleration, braking, direction of travel and many others, can be programmed using a PC and the 55045 MTS PC Decoder Programming Module (see "Instructions for advanced users"). These functions can be programmed from the 55015 Universal Remote as well.

Lighting

This model features directional lighting. The model has a "flat" multi-purpose socket, with a removable cover, on the rear of the loco (Fig. 3). This socket can be used to provide track power to LGB cars with lighting or sound electronics.

To remove the cover of the socket, pull it straight out. If the cover is tight, gently use a small straight screwdriver to pry it out. (Do not pull out the rectangular outer housing.)

Power Supply

Attention! For safety and reliability, operate this model with LGB power supplies (transformers, power packs and controls) only. The use of non-LGB power supplies will void your warranty.

Use this model with LGB power supplies with an output of more than 1 amp. For more information on LGB power supplies for indoor, outdoor and multi-train operation, see the LGB catalog.

Attention! After extended operation, this model may leave carbon dust or other debris around the track. This dust and debris can stain carpet and other materials. Consider this when setting up your layout. Ernst Paul Lehmann Patentwerk and LGB of America are not liable for any damages.

SERVICE

Do-It-Yourself Service Levels

- Level 0 - Beginner
- Level 2 - Intermediate
- Level 3 - Advanced

Attention! Improper service will void your warranty. For quality service, contact your authorized retailer or an LGB factory service station (see Authorized Service).

Hint: Additional expert instructions for many LGB products are available at www.lgb.com.

Lubrication 0

The axle bearings should be lubricated occasionally with a small amount of LGB Maintenance Oil (50019).

Cleaning 0

This model can be cleaned externally using a mild detergent and gentle stream of water. Do not immerse this model.

Replacing the light bulbs 0

Lower lights: Pull the lantern housing away from the model. Remove and replace the bulb. Reassemble.

Upper lights: Remove the ring around the lantern lens. Carefully pry the lens away from the lantern. Using tweezers, remove and replace the bulb. Reassemble.

Cab light: Using tweezers, remove and replace the bulb.

Replacing the traction tire 2

- Use a small, straight-blade screwdriver to replace the traction tire:
- Pry the old traction tire out of the wheel groove.
- Gently insert the new traction tire into the wheel groove.
- Make sure that the traction tire is seated properly in the wheel groove.

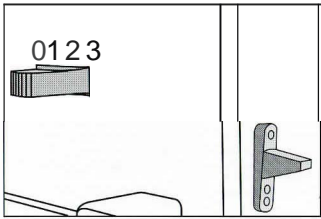
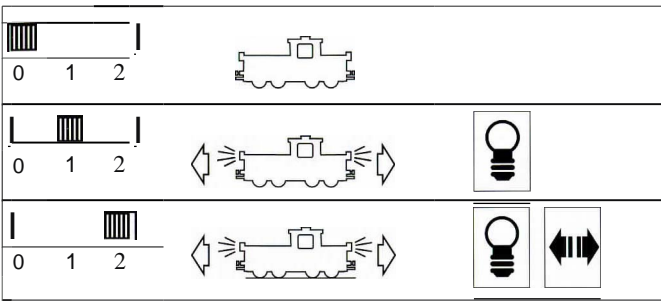
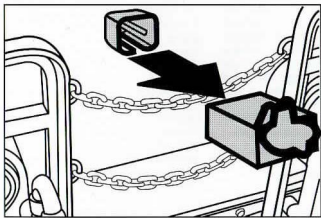


Abb. 1, 2: Betriebsartenschalter
Abb. 3: Mehrzweck-Steckdose



Fig. 1, 2: Power control switch
Fig. 3: Multi-purpose socket



Illustr. 1, 2: Selecteur d'alimentation
Illustr. 3: Douille à usages multiples



- Maintenance parts
 50019 Maintenance Oil
 51020 Gear Lubricant
 62201 Standard Motor with Short Shaft
 63120 Brushes, Assembled, 14mm and 16mm, 8 pieces (2 packages needed)
 63218 Standard Pick-Up Shoes, 2 pieces (2 packages needed)
 68511 Plug-In Bulb, Clear, 5V, 10 pieces
 69104 Traction Tire, 37.5mm, 10 pieces

INSTRUCTIONS FOR ADVANCED USERS

MTS Onboard Decoder

Programming functions

You can program numerous functions of the onboard decoder to suit your requirements. If you want to do this, program the "function values" in "registers" (CVs) using a PC and the 55045 MTS PC Decoder Programming Module. You can also program the function values using a 55015 Universal Remote.

Hints:

- For normal operation, it is not necessary to change the function values.
- If programming results in unsatisfactory operation, you can reprogram the factory pre-set values of most important CVs: Program register CV55 to function value 55. This also reprograms the loco address to the factory pre-set value. To reprogram the factory pre-set function values with the 55015 (display shows "P _") input 6, 5, and 5 and press the right arrow button. The display shows "P --" again: Input 5, 5, and 5 and press the right arrow button again.

You can program the following registers:

Register	Function	Available values	Factory pre-set
CV1	Loco address	1(00..22)	[3]
CV2	Starting voltage for speed setting 1 - if loco starts only at a higher speed setting, increase value. With "Back-EMF" function active, the factory pre-set value should not be changed.	(0..255)	[0]
CV3	Acceleration 1 - fast, 255 - slow)	1(1..255)	[3]
CV4	Braking (1 - fast, 255 - slow)	(1..255)	[3]
CV5	Max. voltage Voltage for highest speed step - if a lower top speed is desired, decrease value. With "Back-EMF" function active, the factory pre-set value should not be changed.	(1..255)	[255]
CV5	after input of CV6 function value for CV to be programmed		
CV6	CV to be programmed		
CV29	Configuration Normal direction: 4 = Analog and digital, factory-programmed speed steps 0 = Digital only, factory-programmed speed steps 20 = Analog and digital, user-programmed speed steps 16 = Digital only, user-programmed speed steps Reversed direction: 5 = Analog and digital, factory-programmed speed steps 1 = Digital only, factory-programmed speed steps 21 = Analog and digital, user-programmed speed steps 17 = Digital only, user-programmed speed steps With "Analog and digital:" - Loco can operate on analog and digital layouts With "Digital Only:" - Normal operation on digital layouts. - Operation on analog layouts not possible.		[4]
CV52	Command for front light terminal 0 = control via lighting button 1 = control via button 1 (buttons F2-F8 not used) 9 = control via button 1 (buttons F2-F8 used) 10 = control via button 2 11 = control via button 3 12 = control via button 4 13 = control via button 5 14 = control via button 6 15 = control via button 7 16 = control via button 8 64 = control via lighting button (On only when reversing) 65 = control via button 1 (On only when reversing) 128 = control via lighting button (On only when moving forward) 129 = control via button 1 (On only when moving forward)		[128J]
CV53	command for rear light terminal (see CV52)		[64]
CV54	Hand-off function and "Back-EMF" 0 = hand-off function off, Back-EMF off 1 = hand-off function on, Back-EMF off 2 = hand-off function off, Back-EMF on	(0..3)	[2]

Hint: When programming with the 55015 Universal Remote, the following CVs are programmed by input of the number of the desired CV in CV6 and then input of the desired function value in CV5 (see example below).

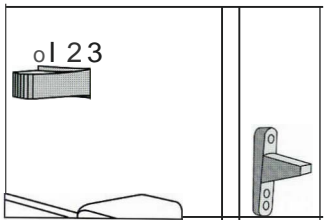
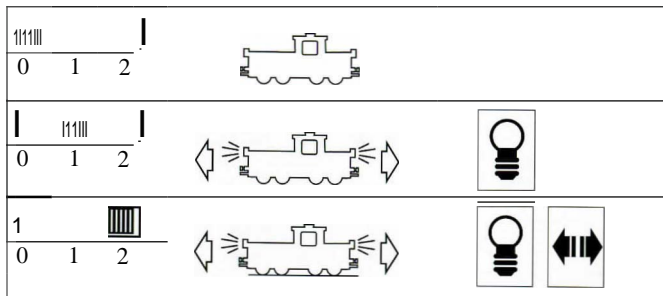
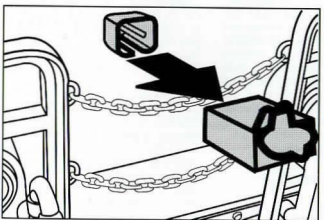


Abb. 1, 2: Betriebsartenschalter
Abb. 3: Mehrzweck-Steckdose



Fig. 1, 2: Power control switch
Fig. 3: Multi-purpose socket



Illustr. 1, 2: Selecteur d'alimentation
Illustr. 3: Douille à usages multiples

	3 = hand-off function on, Back-EMF on Hand-off function on: When operating with 55015, you can adjust direction and speed for two seconds after selecting a moving loco without causing the loco to stop. Reset of most programmed CVs 55 = most important CVs are reset to the factory Dre-set values		
CV55	Back-EMF: Max. adjustment factor (0: small, 255: large) Specifies the max. increase or decrease of voltage applied during each time interval (programmed in CV61) Attention! The factory pre-set values of CV60 and CV61 are optimized for LGB motors.	(1..255)	[48]
CV60	Back-EMF: Adjustment frequency (0: often, 255: seldom) Specifies how often per second the motor voltage is adjusted - accordingly, the loco will react to curves and grades immediately or with a short delay	(0..255)	[0]
CV61	Back-EMF: Max. Adjustment (0: small, 255: max.) Limits the total adjustment in motor voltage. If there is a very large load on the motor, the adjustment will not exceed this value - for more realistic operations, so that locos will slow a bit on grades.	(0..255)	[255]
CV62	Speed steps programmed by user (see CV29): 28 speed steps are programmed in CV67 to CV94.	(0..255)	
CV67	With LGB MTS, every second value is skipped (14 speed steps). Factory pre-set speed steps: 7, 9, 11, 13, 16, 20, 24, 28, 32, 36, 42, 48, 54, 60, 68, 76, 84, 92, 102, 112, 124, 136, 152, 168, 188, 208, 230, 255 Pre-set values for user-programmable speed steps: 8, 16, 24, 32, 40, 48, 56, 64, 72, 80, 88, 96, 104, 112, 120, 128, 136, 144, 152, 160, 168, 176, 184, 192, 208, 224, 240, 255 Hint: The speed steps are factory pre-set and programming is not necessary. Use the 55045 MTS PC Decoder Programming Module for programming.	(0..255)	
CV94			

General programming procedure with 55015 Universal Remote:

- Registers CV1 through CV4 can be programmed directly by programming the desired function value in the register.
- To program higher CVs:
 - In register CV6, input the number of the register you want to program.
 - Then input the desired function value in register CV5.

Example:

Set hand-over function to ON (program register CV54 to function value 3).

- To program:
- Display shows "P --"
 - Select register CV6 (press 6).
 - Input 54 (register you want to

- program).
- Execute programming (press right arrow button).
- Display shows "P --"
- Select register CV5 (press 5).
- Input 3 (selected function value)
- Execute programming (press right arrow button).

When programming with the 55045, all function values are programmed directly.

AUTHORIZED SERVICE

Improper service will void your warranty. For quality service, contact your authorized retailer or one of the following LGB factory service stations:

Ernst Paul Lehmann Patentwerk
Reparatur-Abteilung
Saganer Strasse 1-5
0-90475 NQmberg
GERMANY
Telephone: (0911) 83707 0
Fax: (0911) 83707 70
LGB of America
Repair Department
6444 Nancy Ridge Drive
San Diego, CA 92121
USA

Telephone: (858) 535-9387
Fax: (858) 535-1091

You are responsible for any shipping costs, insurance and customs fees.

Hint: Information on LGB products and LGB representatives around the world is available online at www.lgb.com

CAUTION! This model is not for children under 8 years of age. This model has small parts, sharp parts and moving parts. Save the supplied packaging and instructions.

LGB, LEHMANN and the LGB TOYTRAIN logotype are registered trademarks of Ernst Paul Lehmann Patentwerk, NQmberg, Germany. Other trademarks are the property of their owners. Products and specifications are subject to change without notice.
© 2002 Ernst Paul Lehmann Patentwerk.