EURO-DART
Electronic Darts Machine

HANDBOOK

EURO-DART

LEGAL STATEMENTS

To deliver any part or documentation of the machine over to a third party is forbidden without written permission of EURO-DART KFT. Unauthorized reproduction and distribution of the handbook is prohibited.

LIMITED WARRANTY

According to this warranty card within the warranty period we guarantee to repair the wrong machine free of charge or provide a new one (in case the repair is not possible), if the breakdown accrues from defect in material or construction. The warranty period is 1+2 years.

Our guarantee does not cover the following breakdown cases: misuse, modification, tampering, disrepair, intentional damaging, improper storage, transport, damages caused by the forces of nature, or any other damages caused after purchase.

The warranty period begins on the date of purchase. Our guarantee is only valid if the customer fills out the registration card and sends it back to the manufacturer.

Manufacturer: **EURO-DART**

Serial number: ……………………………
Date of purchase: …………………………

Distributor:

The PIN code of your machine:

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1. INTRODUCTION

The EURO-DART is electronically controlled darts equipment, with which you can play according to the traditional darts rules or you can choose from a wide variety of new games. The dimensions of the machine are related to the international standards. The scores are displayed on electronic display units. The dartboard is made of plastic; it has a cavernous construction. You have to hit the dartboard with metal-lined, but plastic tipped safe darts.

2. GENERAL DESCRIPTION

2.1 The dimensions of the machine

2.1.1 Standing machine	Height:	220 cm
	Width:	61 cm
	Depth:	60.5 cm
2.1.2 Shut machine	Height:	115 cm
	Width:	61 cm
	Depth:	95.5 cm
2.1.3 Weight:		80 kg

2.2 Electric parameters

Operating voltage 220/230V, 50Hz.
Operating power 50W.

Use only standard outlet supplied with protection ground.

WARNING! Before opening the machine always disconnect the unit from the power outlet!

2.3 Transport

Before transporting EURO-DART, please shut the equipment down. First back off the bolt connection between the lower and upper parts of the machine. The screws are placed inside the lower instrument box.

After this operation fold the upper part behind the lower part. Velcro assures the caging. During transport always attach the equipment to the vehicle, and beware of damages of the surfaces. (It is recommended to cover the machine with protective masking tissue.) Always carry the equipment lying on its side! Lying on the front boards can cause damages in functional elements.

CAUTION! Do not leave unfixed metal parts in the instrument box, because these components can cause faults in the control panel. Our warranty does not cover these kinds of damages.

2.4 Storage

Out of operation always store the equipment prepared to transport.

2.5 Installation

1. Unpack the equipment.
2. Take the keys from the side of the lower part of the machine.
3. Velcro clamps the upper part (inclusive the dartboard) to the lower part. To back off this adhesive bonding please pull up the upper part and then fold it up on to the lower part.
4. Fix the upper part to the lower part with the screws available in the instrument box.
5. Take the power cord from the instrument box and plug it into the plug cap placed on the rear side of the machine.
6. Set up the equipment on its feet safely.
7. Place the START LINE (oche) on the floor 2.37 m wide from the sign marked on the side of the machine. The START LINE-foil is also placed in the instrument box.
8. Plug the power cord into the power outlet. Turn the equipment on.
9. Insert coins and begin to play.

IMPORTANT NOTES

1. Before opening the machine always disconnect the unit from the power outlet.
2. Only qualified technicians are allowed to repair the machine.
3. The EURO-DART can be connected only to 230V – 50Hz power outlet.
4. The machine needs dry environment for normal operation.
5. To avoid tipping always fix the upper part to the lower part with the supplied screws.
6. The equipment has to be placed in safe, suitable circumstances. It is not allowed to walk across the game area. Make sure that the thrown darts can not hurt anybody near-by the machine.

2.6 Maintenance

The EURO-DART needs minimal maintenance. But disregarding this attention can cause defective operation and decrease of income.

Maintenance of the dartboard: During the game the arrowheads of the darts can break off in the segments of the target. They may pass behind the grid and cause fouling of the segments. To avoid this it is recommended to control the segments weekly and clear away the broken arrowheads. Remove the front panel from around the target, and then take the dartboard by its upper side and fold down. In this position you can easily remove the broken arrowheads with a special tool.

Cleaning of the machine: It is important to keep the equipment clean and tidy. Disregarding this can affect mood of playing and thus cause decrease of income. (Who likes to play on a dirty machine?) Wipe the case and the front panels with a wet cloth, and then with a dry one. Vacuum the dirt from the slab rubber at the bottom, and then clean with a wet cloth. Do not forget the top of the machine.

CAUTION!   Do not use any kind of scratchy cleaning material!
Do not douse the dartboard into water!

Changing lamps: Find the wrong lights. TEST-MODE helps you (LHT-light test).

Coin selector lamps:
Open the door of the coin selector.
Pull off the lamp socket from the door.
Change the wrong lamp.

Pushbutton lamps:
Open the door of the console.
Pull off the socket unit from the back of the button.
Change the wrong lamp.

Lamps under the dartboard:
Take the front panel from around the target.
Change the wrong lamp. Twist the light bulb counter-clockwise.
Place the new lamp.

Display lamps:
Remove the screws from the display module.
Pull out the display unit, and then disconnect the contacts.
Screw off the front panel from the unit.
Remove the wrong light from the display unit.
Fix the new one.
Put together the display unit.

2.7 The basic construction of the equipment

The EURO-DART has two main mechanical parts:

2.7.1 Lower part

It contains the moneybox, the coin selector, and the console with the pushbuttons, the control panel, the power-supply unit, the socket unit and the on-and-off switch.

2.7.2 Upper part

It contains the dartboard with the contact matrix, the upper and lower display modules, the target lighting, the infrared detector; the piezoelectric hit sensor, the speaker, and the lamp module under the dartboard.

THE MAIN UNITS OF THE EQUIPMENT:

2.7.3 The dartboard with the contact matrix

They are made of long lasting, competent materials. Use maximum 18 cm length and 18 g weight darts with plastic arrowheads.

2.7.4 The lamps under the dartboard

Under the dartboard in the middle there is the bull's eye symbol. If a player hits the bull's eye, the bull's eye symbol flashes. To the left from this lamp there is the NOT ALLOWED (red) lamp. This lamp indicates that it is not allowed to throw, because the player does not have more valid dart. To the right from the bull's eye lamp there is the FREE (green) lamp. This lamp indicates that the player has valid darts. The two lamps on the sides are the NO SCORE lamps. These lamps indicate that the player with his (her) last throwing did not get any score.

2.7.5 The dartboard lighting

There is a 15 W fluorescent lamp in the head of the equipment, which lightens the target area.

2.7.6 The display modules

The equipment has two display units. The upper display is for the first 4 players (1-4.); the lower one is for 4 additional players (5-8.). In the middle of these units there are yellow number displays with three digits. Generally these displays count the points of the player in the actual round, or show what the player has to hit. Under these number displays there are additional number displays with two digits. These small displays show the number of the actual round. There are additional red score displays for each player to show their results during the game.

2.7.7 The console

The game selector buttons are built in the console. You can select from the games with these buttons. There is an additional button in the console. During the game in case you do not want to use the automatic rotation method, with this button you can change player.

2.7.8 The control panel

This is the "brain" of the equipment. The sensitivity potentiometer for the piezoelectric sensor and the potentiometer for the volume can be found on this panel.

2.7.9 The coin selector

The EURO-DART built with two mechanical coin selectors. These factory-tested selectors are set at normal. At your request we can supply the equipment with extra electric coin selector.

2.7.10 The infrared detector

The machine is supplied with infrared detector. After throwing of a player the next one takes off the darts from the dartboard, moves back to the START LINE (oche), and can start throwing. This module attends to the movement of the player (moving away from the machine) and executes the player rotation automatically.

2.7.11 The piezoelectric sensor

The equipment is supplied with piezoelectric sensor. This unit attends to those vibrations which ones caused by hitting the machine, but not the target. These are evaluated as wrong hits.

2.7.12 The speaker

The sound system is supplied with a 3W, 8-ohm speaker.

2.7.13. The power supply

The electronically controlled power supply unit can be found in a separate box. This module has dead short circuit protection.

3. RUN BOOK

3.1 Events after switching on

3.1.1 Asking access code

Each machine is equipped with an own access code. The pin code does not depend on the serial number, and (e.g. in case of stealing) without this code number the machine is useless. After switching on the equipment, (if this function is enabled in SETUP MODE) the word PIN appears on the display, and the machine waits for the code number. Until the right access code is entered, the machine remains in this status; thus in case of stealing the "new owner" is not able to use it. To enter the pin code, use the segments of the dartboard. Push the segments with one digit like pushing buttons on a calculator. After entering the right pin code an effect sounds, and the machine begins to operate.

CAUTION! If the above function (asking access code) is enabled, without entering the access code you can not get in SETUP MODE and can not shut off the function itself (viz. asking access code). For this reason loosing this pin code makes the equipment useless until you get a new code number from the manufacturer.

In case of loosing or forgetting the access code you can get it from the manufacturer. If the machine is stolen immediately call the manufacturer to prohibit the machine. After this we do not give the access code or any further information about your equipment to anybody except you. This function (asking access code) operates only in that case, if it is enabled in SETUP MODE!

3.1.2 Testing the dartboard, testing the coin selector

After switching on, the machine makes a test and controls the segments of the dartboard. If it finds a jammed segment, then the "TARGET ERROR" message and the number of the jammed segment appear on the display and a signal sounds. The machine also checks on the coin selector for breakdowns. If it finds any failure, the "COI SEL ERROR" message appears on the display. After readjusting the failures the equipment operates normally.

3.1.3 Turning on the equipment with different pushbuttons

If you push <SHIFT> button right before switching on, and keep it pushed, and release after a few seconds, the TEST MODE starts to operate. Later you can read more about TEST MODE.

If you push the second button from the right, and keep it pushed, and release after a few seconds, then the machine cancels the credits remained from previous games. In this case the machine runs automatically in DEMO phase. With this method you can cancel previous credits whenever you want. In SETUP MODE you can enable this function in advance; this way after turning off the machine always cancels the remaining credits.

You can get in SETUP MODE after opening the console. Later, in chapter "7.1 Entering SETUP MODE" you can read more about SETUP MODE.

3.1.4 DEMO phase

After turning on, if there is no remained credit in the equipment, the machine flashes its lights and displays. In this phase it does not respond to pushing buttons, but attends to the coin selector. After inserting coin the machine runs GAME SELECT phase.

After a game, if there is no remained credits, the equipment always runs DEMO phase.

3.1.5 Inserting coin

The two built in coin selectors of the equipment are equal. Inserting coin with the indicated value, the machine increases the number of credits. There is an additional possibility to increase the number of credits with the key. The credits are stored in the memory. In SETUP MODE you can control and cancel the stored credit values.

3.1.6 GAME SELECT phase

In this phase the machine flashes its game selector buttons, you can choose any of them. Pushing one of these buttons the name of the game appears on the upper display. The lower display shows the number of rounds of the selected game. The display on the left shows the necessary credits for one player. There are several games attached to each button. You can change between these games with pushing the button more times.

If you have chosen a game with difficulties, then their buttons start to flash and you can choose from the difficulties. Push the button of the desired difficulty to set it. Push again to turn out. If the desired game is chosen, with <SHIFT> button you can enter the number of the players. The machine enables you to enter so many players as many credits are given.

If the number of player is already set, don't push the buttons anymore, after a few seconds the game will start. There is a chance to change the chosen game and its settings without loosing credits before the first throw. Pushing any of the buttons brings you back to the beginning of GAME SELECT phase. But if you've thrown your first dart, the machine accounts the game as started, and takes the credit for it.

After you finished a game, and there is still credit in the machine, it brings you back to the beginning of GAME SELECT phase.

3.1.7 How to change player

If a player has thrown all the three darts, the machine turns out the lighting dart symbols, but the lamp above the player's points remains on. The <SHIFT> button will flash indicating that the players have to change. The next player has to remove the darts from the target, and get back behind the START LINE. During this the machine makes the changes, the lamp above the next player's points flashes and a few seconds later the equipment gives the ready sign. You can also make the changes with <SHIFT> button.

3.1.8 How to cancel a game

Every game can be cancelled and the machine can be reset when the player still has darts. In this case push <SHIFT> button and keep it pushed until the machine gives a sound effect. After releasing <SHIFT> button and the machine will be reset.

3.1.9 Taking the darts away

If any of the players does not want to continue playing, or for any other reason the darts must be taken away, push <SHIFT> for a short time. The machine gives a sound effect and takes the darts away from the player. The equipment makes the changes.

3.1.10. WIN phase

The games can be finished two ways. The game reaches the last round, in this case the machine computes the winner depending the rules. Somebody before the last round finishes the game with performing conditions needed for winning immediately. If there is a winner, the machine immediately declares the win, and celebrates the winner player or a team with flashing their points and diodes. During this the equipment plays music. If you do not want to listen to the music, push <SHIFT> button.

The machine plays 6+1 pre-programmed music.

    0 - There is no melody just short sound-effects
    1 - What shall we do with the drunken sailor
    2 - Mozart: Turkish March
    3 - Theme from Rocky
    4 - My grandfather's clock
    5 - Auld Lang Syne
    6 - There are different melodies at the end of each game (factory setting)

The desired music can be set in the SETUP menu.

3.1.11 Draw

After the song of victory the machine draw a number between 1 and 21 (number of target segments). If the drawn number is equal with the serial number of the winner, then the machine gives an extra credit. If a team wins the game, the chance is bigger. The credit counters do not count this credit, but the players can play again. If we calculate with a single winner, there is about 5% the chance for the extra credit. But a win probably inspires the players to insert more coin and play again. This way the income is enlarging.

This service can be enabled or disabled in SETUP MODE.

3.1.12 Showing statistics

After this the machine shows the statistics, in case it is enabled in the SETUP MODE. If it is disabled, the machine resets after draw. Between the steps of WIN phase you can change with <SHIFT> button, thus you don't have to wait for each automatic step. If you let the machine

operating alone, it takes one minute to change between the steps, and at the end the equipment will be reset.

3.1.13 Target alarm

This function is for warning those, who throw dart without inserting coins. In this case the machine gives siren-sound to inspire the player to insert coin. This service can be disabled in SETUP MODE.

3.1.14 Sound effects

During operation in each situation the equipment plays a special sound effect, for example at changing player, false throwing, throwing triple. With this help even the player standing back to the machine is able to recognize the actual phase.

3.1.15 How to set the order of players

Some of the games have that kind of rules, that starter (who first throws) has a great advantage. In this case there are several methods to set the order of players. The players can play more games, thus each player has the chance to start once. They also can draw lots. Traditionally the players throw for the Bull. It means, that before they start the game each player throws once on the dartboard, and tries to hit the Bulleye. After this they set the order of players according to the results - the distance between the player's dart and the Bulleye. In an extreme case it is necessary to count the holes between the dart and the middle of the dartboard. Without inserting coins the electronic darts machines give siren-sound in case of throwing. Because of this it is unease to throw for the bull. The EURO-DART machine gives the chance to throw for the bull before starting the game. After the three dart of the first player appears on the display, you could already start the game. But instead of throwing, push <SHIFT> button, then the machine assures the possibility to throw for the bull. The starting points disappear from the display, and the players have free throws (equal with the number of players + 2). You get these 2 extra throws, because the machine may count a false throw when you have to pull out a dart.

If all players have thrown a dart to the bull, the order of players can be set. Push <SHIFT> button to get back to the game. Now it's time to start the game!

3.1.16 Replay

In case of failure during a game, you can reset the 3 darts by pushing the <REPLAY> button on the side of the equipment. After a played game, if there is enough credit in the machine, it sets back the previous game.

4. RULES OF THE GAME

4.1 General rules

- The centre of the target board is at the height of 1.73 metres above the ground level.
- The START LINE (oche) is 0.9 meter long. It is at 2.37 metres distance from the dartboard set paralelly with the plane of the dartboard. The players throw from behind it.
- It is not allowed crossing over the START LINE. In this case the throw is invalid.

The players throw three darts in each round. The machine automatically records and displays the points made. After the throws pull the darts out. The next player is allowed to throw when the FREE light and the three dart symbols are on.

4.2 The rules of the EURO-DART game

4.2.1 HIGH SCORE

It is the simplest dart game. The players throw three darts in each round. All the throws are valid that hit the targetboard. At the end of the game the player who has the highest score is the winner.

This game is played individually, for 1-8 players. It is recommended for beginners.

4.2.2 LOW SCORE

This game is a bit more difficult. The player has to have as low score as possible. The players throw three darts following each other. The players are not allowed to hit any sector whose number is less than the number of the actual round. For example, in the 4th round the player has to hit the sector 4 at least. If the player hits the sector 2, the machine adds 20 penalty points plus the number of the sector (that is 22 points in this case) to the score of the player. The invalid throws, that don't hit the target, are worth 50 penalty points. At the end of the game the player with the lowest score is the winner. Of course, the double and triple hits are worth multiple points.

The LOW SCORE is played individually, for 1-8 players. It is recommended for beginners and for those of intermediate level.

4.2.3 HARD SCORE

Each player starts from 500 points. The player who reaches or passes 0 first is the winner. The first dart decreases the points of the previous player, the second decreases the player's points, the third decreases the next player's points. If the player throws the first or/and the third dart invalid, he gets 50 penalty points. There is no penalty, if he throws the second near the target.

4.2.4 '01 GAMES

These are the most popular games of the traditional dart, they are standard competition-games. There are four versions in this machine - the 301, 501, 701, 901 games. These numbers mean the beginning points of the players. All the points thrown decrease the points of the player. Beginning from these points the players have to reach exactly 0 as soon as possible. Usually the first player who reaches 0 is the winner. There is an EQUAL option when the player who reached 0 first doesn't win automatically, because this option makes it possible for the rest of the players to reach 0 with the same number of darts (equal chance). But then the results have to be announced. When somebody is close to 0 and hits more than enough to reach exactly 0, his points go back to where they were at the beginning of the round and the player loses the rest of the darts for that round. When a player is so close to 0 that one throw is enough for him to get out, the machine will indicate the right sector to hit and to win the game. The options for this game are discussed in the „Difficulties" chapter.

This game is for players of all levels, it is suited for individual and team play as well.

4.2.5 SHANGHAI

In this game the player has to hit the sector following the increasing sequence of the numbers. The first in line is the section 1. Before the throw the machine will indicate the actual sector for each player. If the player doesn't hit, he throws again until he hits, even until the end of the game. If he hits, he gets the points of the sector and is allowed to throw at the next target. The double and triple hits are worth multiple points. At the end the player who scores more wins the game. There is an opportunity to win instantly. When the player hits three sectors in one round and he has a simple, a double and a triple hit (the order doesn't matter), he wins instantly apart from the scores of the other players. This kind of round is called SHANGHAI.

This is an individual game for 1-8 players. It is recommended for players of advanced level.

4.2.6 PUB GAME

The course of the game is completely the same as of the HIGH SCORE, except that there are only two rounds in it. Each player throws six darts in the two rounds and the highest score wins. The point in this game is that four players can play for one credit and they can decide fast who will buy the drinks of the others.

It is recommended for players of all levels.

4.2.7 FLASH GAME

Its course is completely the same as of the PUB GAME, except that each player throws only one dart. Eight players can play for one credit.

4.2.8 CRICKET

In this game the red and yellow diodes on the displays play a great part. The seven columns indicate the numbers from 15 to 20 and the Bullseye. The player has to hit a section three

times in order to turn on or off (depending on the version of game) the three diodes belonging to the actual number. If the player hits double or triple, two or three diodes light up at the same time. The purpose of the game is to turn on/off all the diodes. The first player who manages to do it is the winner. When the player turns on/off all the three diodes of a number, he closes that number. After that the player can get points, if he hits again the section he closed himself. When teams compete, a number can be considered closed when both players of the team have turned on/off the diodes belonging to the number.

The versions of the CRICKET:

NO SCORE CRICKET

It is the simplest version of the cricket games. The players have to hit the sectors as much time as it's necessary to turn on all the diodes. There is no scoring in this game. The player who turns on all the diodes first is the winner. If the number of the rounds is limited, the player who has more diodes lighting wins the game (apart from the numbering of the diodes).

CRICKET

It is the traditional game. After closing a number the player can make points. For example, if two diodes of 19 are turned on and the player hits a triple 19, the third diode lights up and the player gets the remaining 38 points (indicated in the display). If all the players have closed the same number, there is no way to make any points with that number. The way of the scoring can be adjusted in the SETUP MODE. When one of the players has closed a number and it stops the others in scoring, it makes the game slightly difficult. When all the players have to close a number in order to stop scoring, it makes the game easier. Because, while any of the players has not closed a number, all the other players can score by hitting that sector. In this version the player who gets out first and has the most points is the winner. If he who gets out first doesn't have the most points, the machine won't announce him as the winner. But, if in the further rounds he makes enough points to take the lead, he instantly wins. If, meanwhile, anybody else gets out with more points, that player is the winner. If the number of the rounds is limited, the player with more points is the winner.

CUT-THROAT CRICKET

In this version the player can make points, but not for himself. when a player has closed a number and hits it again, the machine adds the points to the score of each player who has not closed that number yet. At the end of the game the player with the least points is the winner. If the number of rounds is limited, the player with the least points is the winner. This game is very exciting and full of turns as we can punish the other players with points systematically, raising their points above ours.

All these three cricket-versions can be played as team-games as well. There are two modes in SETUP for team-games. In one of the settings if one player gets out, his team wins. In the other both players have to get out in order that the team could win the game.

BLACK-OUT CRICKET

The players have to throw on the numbers from 20 to 15 in sequence, then on the bull. They have to hit each sectors three times starting with 20. If any of the players has closed a number and hits it again, he increases the points of those who haven't closed that number yet. If a player hits a wrong sector, he increases his own points. The

throwing goes on until everybody has closed that number. The player with the least points is the winner.

ABSURD CRICKET

All the diodes light from 15 to Bull. By hitting the sectors the players have to turn them off. If the player hits the right sector, he gets the points. If he hits a wrong sector, he increases the points of the other players. After closing the sector the player can decrease the points of those who has not closed the same sector yet. The player with the highest score wins.

PAIR CRICKET

All the diodes light from 15 to Bull. By hitting the sectors the players have to turn them off. The players have to hit the odd numbers in the odd rounds and hit the even numbers in the even rounds. When somebody has all the odd or even numbers hit, he can throw at the rest of the numbers in each round. The player who turns all his diodes off first is the winner.

It is recommended for players of advanced level.

4.2.9 FIVES

In this game the players have to throw the three darts in a way that the amount of the hits could be divided by five with no remainder. If the player manages to do it, the machine adds the quotient to his points. For example, hitting 85points with three darts the player makes 17 points. If he fails, he won't get any points in that round. If the player throws invalid, the machine subtracts the number of the round from the points made in that round that is the closer to the end the more. It's necessary, because on one hand it keeps the player away from throwing intentionally an invalid after two good hits (like 60+40) in order to keep the divisibility of the amount by five. On the other hand, it keeps the game exciting by the end because an accidental error can cost a lot, even if someone is far ahead. For example, in the 5th round one of the players makes 60 points with two darts, that is he has 12 points, but he throws the third invalid, therefore the machine subtracts 5 (the number of the actual round), thus the player has made only 7 points in that round.

When the amount can't be divided by five and, in addition, the player throws an invalid, the machine subtracts the number of the round from his points made before that round. The machine won't decrease the number further than 0, that is the players can't have negative score. At the end of the game the player with the highest score is the winner. The double and triple hits are worth the sector two or three times.

The FIVES is played individually, for 1-8 players. it is recommended for players of intermediate level.

4.2.10 HALVE

This game is made for professionals with no trembling hands. There are seven rounds in this game. Each player throws 21 darts. At the beginning of the game the machine arranges the 20 sectors and the Bullseye in accidental succesion and during the game it will indicate these 21 sectors in the same sequence for each player. The players throw three darts in each round but one dart is for one target. The number of the actual sector will appear in the middle display.

The players start from 0. If the player hits the right sector, he gets the points (double and triple hit is worth multiple points). If he fails, the machine divides his current points in two. When dividing, the machine rounds up. When the points of a player are divided to 1, the machine won't divide it further, The player will keep this 1 point until he hits the indicated sector.

This game is very exciting, because it's not enough to hit simply the sector indicated, but to hit the double or triple part of it and to make as much points as possible. Due to the dividing even the advantage of 100 points can disappear. For example, the player has 190 points and he fails to hit the right sector. His score is divided to 95. The player who was behind him by 90 points takes the lead with his 100 points. The throws that don't hit the targetboard also divide the score. At the end of the game the player with the highest score is the winner.

The HALVE is played individually, for 1-8 players. It is recommended for players of professional levels.

4.2.11 BULLMASTER

This game provides help to improve the aiming at the Bullseye. In the first half of the game the player is allowed to throw at the Bull only. If he hits any other sector, he won't get any points. In the second half of the game the player has to collect as much points as he can because the machine adds only that part of the points to the score that are above 40. In the first ten rounds the odd players throw at the Bull (it is indicated by a red line near the display and the „BUL" caption), in the second ten rounds the even players throw at the Bull and the odd players collect the points. The subtraction of 40 points in each round makes the competing equal.

The BULLMASTER is played individually, for 1-8 players. It is recommended for players of intermediate and professional levels.

4.2.12 RED MASTER

The players start from 0. Hitting the red segments the player gets the points, while hitting the blue segments the player loses the points. The score won't go below 0. Invalid throws are worth 20 penalty points subtracted.

4.2.13 301 PARCHESS

A lot of people like those games where the primary purpose is not our own proceeding but spoiling the score of the competitors. The 301 Parchess perfectly satisfies this demand. The players start from 0. The player who reaches exactly 301 points first is the winner. After throwing a dart, if the player has exactly the same points as his competitor, he spoils the score of his competitor to 0. When teams compete, the player can't spoil his teammate's score, if their points are the same.

The game becomes exciting by the fact that the spoiling can go round, if there are enough players. The player of spoiled score can catch up with the others fast, especially if they get forward in small steps or a difficulty (e.g. master out) won't let them out. The game itself is practically the same as a 301 game played backwards. When the players have all the rounds played and nobody could get out, the player with the highest score is the winner.

The options, difficulties are the same as of the '01 games. It is an enjoyable and exciting game for players of all levels.

4.2.14 TRAINING DOWN

Under 60 points the machine gives „one-dart-exits" in succession. Just the double and triple sectors are valid. The winner is who reaches 0 first.

It is recommended for professionals.

4.2.15 TRAINING UP

This game is the same as the previous one, except that it starts from below and goes up to 60 points. The winner is who hits triple 20 first.

It is recommended for professionals.

4.3 Difficulties – options

There are ten basic games in this machine. These are the following:

High-score, Low-score, '01 Games, Cricket, Shanghai, Pub game, 301 Parchess, Fives, Halve, Bullmaster. The four versions of the '01 Games and the three Cricket-versions increase the number of the games to 15. Several games can be combined with different difficulties, this way the number of the game-versions grow beyond 100.

You can make difficulties for three of the basic games: '01 Games, Cricket, 301 Parchess.

4.3.1 Introducing the difficulties

DOUBLE IN

The player has to hit a double segment first in order to start the game. The inner part of the Bullseye is regarded as double, therefore it is valid in this option.

DOUBLE OUT

The player has to hit a double segment last in order to get out of the game. He has to reach 0 with a double.

MASTER OUT

The player has to hit a double or triple segment last. He has to reach 0 this way.

TEAM

This option helps to set the team-game up. A team always consists of two players. The first team has the 1st and 3rd players, the second has the 2nd and 4th players, the third has the 5th and 7th players and the fourth has the 6th and 8th players. In TEAM option a player can get out, if

his teammate has less points than the other players have together. Otherwise this player becomes „frozen" and won't be announced as winner. He has to wait until his teammate decreases his points sufficiently to put the team in winner position.

EQUAL

This option stops the advantages hidden in the succession of throwing. Usually who throws first gets out first. In EQUAL option the machine won't announce the player who gets out first as the winner, but provides the opportunity for the rest of the players to get out with the same number of darts. If any of these players gets out, he ties with the first. If the first player gets out with two darts, the machine allows two more darts for the rest of the players. If any of them manages to get out with only one dart, that player will be the winner.

4.4 Versions of the game

4.4.1 For the '01 Games and for the 301 Parchess

DOUBLE–IN, DOUBLE–OUT, MASTER OUT, TEAM, EQUAL

These difficulties can be combined, except the TEAM – EQUAL and the DOUBLE OUT – MASTER OUT combinations.

There are 18 combinations for the '01 Games and for the 301 Parchess. It is 90 versions altogether.

4.4.2 Cricket-versions

- Cricket

- No score cricket

- Cut-throat cricket

- Black out cricket

- Absurd cricket

- Pair cricket

These games are described in details in the introduction of games.

The TEAM-option can be chosen to the first three of the cricket-games, therefore 9 cricket-versions in total can be played with this machine.

At last there are 12 games, where no difficulties can be used.

According to these there are 111 game-versions in total, that can be set up in this machine which makes this machine unique in the world of the dart-machines.

5. STATISTICS, BOOKKEEPING

5.1 Data of bookkeeping

During operation the machine books all the data the owner needs to control the operation, to make an account in the case of leasing and to determine the exploitation of the machine.

The data counted and stored by the dart-machine are the following:

Name of the counter	Clearable?	Counting
01. Counter for coins inserted in the coin inspector I.	NO	All the coins inserted, channel by channel
02. Counter for coins inserted in the coin inspector II.	YES	Coins inserted, channel by channel from last clearing
03. Counter for credits given by key I.	NO	All the credits given by key
04. Counter for credits given by key II.	YES	Credits given by key from last clearing
05. Game counter I.	NO	All the games played
06. Game counter II.	YES	Games played from last clearing
07. Free game counter I.	NO	All the free games played
08. Free game counter II.	NO	Free games played from last clearing
09. Counter of operating hours	NO	All the operating hours
10. Counter of passive hours	NO	Passive hours from the above operating hours (no actual playing)
11. Popularity of the game	NO	An own counter for each games

By the throws and scores the machine is able to make statistical calculation. It is useful for anybody who would like to follow his results, improvement. The statistical data don't depend on the rivals, so anybody can get a personal rate that makes even those players comparable who never played together. These rates are very useful for competitors who can set themselves an aim they want to achieve. They can continuously follow their own development.

5.2 Statistics

During operation various statistical reports can be made by the points the players scored to determine the level and skills of a player objectively. The machine calculates three different data.

5.2.1 PPR - Points per Round

The machine divides the player's score by the number of the rounds started and expresses the result approximately. Thus the points the player scored in the rounds can be averaged out.

5.2.2 PPD - Points per Dart

The player's score divided by the number of the darts thrown. Thus it can be known how many points the player scored with one dart on average.

Note: Statistically about 40 points per round and 13.5 points per dart can be achieved if anybody throws at random.

5.2.3 PER - Percent of Hits

In those games where every dart has to be thrown in determined segments, after throwing it is clearly decidable whether the throw was precise or not. So the Percent of Hits shows the precise throws in proportion to all the darts thrown. If all the darts hit, 100 PER is achieved.

Note: It's hard to achieve high PER, still, the 21-round Cricket can be finished in the 14th round by not more than 40 PER.

Displaying the statistical data can be allowed or prohibited in SETUP mode.

Each rate can be applied in those games only, where it can be interpreted, therefore the statistical elements belonging to the games are factory-set. The following table shows what data the machine calculates in the games.

Statistics belonging to the games

Name of the game	Statistical calculation
HI SCORE	PPR, PPD
LOW SCORE	PPR, PPD
301	PPR, PPD
501	PPR, PPD
701	PPR, PPD
901	PPR, PPD
SHANGHAI	PER [%]
PUB GAME	PPR, PPD
CRICKET	PER [%]
FIVES	nothing
HALVE	PER [%]
BULLMASTER	nothing
301 PARCHESS	nothing

Note: According to the rules in FIVES, you have to score as much points as possible, but with the third dart you have to make the score dividable by 5, thus the request of PER and high PPR appears combined, so there is no reason in counting them separately. Things are the same in the case of the BULLMASTER, because you have to hit the bull in 10 rounds then in the next 10 rounds you have to score as much points as possible. In 301 PARCHESS the players frequently reduce the competitors' scores to 0, thus you need more rounds to achieve the points required than in the traditional 301. This spoils the PPR, even if you throw well (with high PER). In these three games the machine doesn't count any statistics.

6. TEST MODE

The TEST MODE is a very important service of these kind of multilateral machines, in which you can find a lot of input and output tools, contacts, switches, push-buttons, lights etc. The TEST MODE is divided into 11 separate steps, which makes it possible to check each unit separately. The TEST MODE performs the following test-phases:

6.1 Steps of TEST MODE

SOU	SOUND TEST
SPE	SPEAK TEST
INF	INFRA SENSOR TEST
SEN	PIEZO SENSOR TEST
TAR	TARGET TEST
LHT	LIGHT TEST
BUT	BUTTON TEST
COI	COIN SELECTOR TEST
DSP	DISPLAY TEST
PRG	PROGRAM TEST
BYE	CHANGE TO PLAY MODE

6.2 Access in TEST MODE

The TEST MODE can be started three different ways:

- Before turning the machine on, push <SHIFT> button and hold it for a couple of seconds after turning on. Losing hold of <SHIFT> button, TEST MODE starts to run. There is an exception: if the request of PIN-code is allowed, after turning on the machine asks for a code-number. While entering this in, and a bit further, hold the <SHIFT> button pushed to activate TEST MODE.

- There are 4 small buttons on the lower part of the central unit. Push <TEST> button (the third from the left), this way you have entered TEST MODE.

- The TEST MODE can get started from SETUP MODE as well. When you are in SETUP MODE, get to the 31st menu point (TEST MODE) and get in it. After changing the actual

setting on YES, push <SHIFT> button - and you enter TEST MODE. But you can't get from TEST MODE back to SETUP. There is a reason for this: anybody can start the TEST MODE without opening the machine, which is necessary for the daily use. But if you want to activate the SETUP, you have to open the machine because there you can change important settings (like clearing the counters). Therefore it's important that only the authorized persons should enter the SETUP MODE.

6.3 Operating of the tests

The TEST MODE is divided in 11 steps listed above. In these phases we can test the separate parts of the machine. After entering TEST MODE the first phase (SOUND TEST) starts to run. During the test you can go on the next phase by pushing once the <SHIFT> button. A beep sounds and the name of the next phase appears on the display. From TEST MODE you can get access only in GAME MODE, but after testing, it's a possible solution to turn the machine off and on. During test you got to use only <SHIFT> button, except DSP MODE and BYE MODE, where an extra button operates. This button controls the displays and diodes, and the outgoing by BYE MODE.

6.3.1. Detailed description of the test modes

SOU	SOUND TEST

The machine makes different sound effects. During this the volume can be tuned. If there is no sound, the failure of the speaker or the amplifier can be recognized.

SPE	SPEAK TEST

The machine gives different speech-sounds out. If there is no sound, probably the sound IC, U23 (next to the volume-control potentiometer) went wrong on condition. Call a qualified technician to fix it.

INF	INFRA SENSOR TEST

In this phase the infra sensor works alone. The Bullseye symbol lights up when the sensor detects anything and dies out if there is nothing detected. Meanwhile the main light is on. This phase serves the accurate tuning and controlling of the infra sensor. A small screwdriver through a hole on its box can tune the sensor. Let a qualified technician make it because of the fine-tuning.

SEN	PIEZO SENSOR TEST

In this phase the piezo sensor works alone. The tuning of the sensor can be checked by test-throws. Only qualified technicians can make the fine-tuning of the sensitivity with the longish tubular trimmer on the central unit.

TAR	TARGET TEST

In this phase the target works alone. During the test-throws the display shows the number and the identifier of the segment (simple throw: nothing, double throw: d, triple throw: t).

LHT	LIGHT TEST

In this phase you can test the lights of the machine. It's an important test, because the most common failure in the machine is when the lights are gone. During the test the lamps light up one by one then at the end all the lamps light up at the same time. If any of the lamps fails to light up, you can be sure that it's gone.

BUT	BUTTON TEST

In this phase you can test the buttons. Push any of the buttons and they will light up. This way you can check each button except <SHIFT>, using this you step to the next test.

COI	COIN SELECTOR TEST

In this phase you can test the coin selector and the key-operated switch. The lower display shows small lines. In the case of mechanical coin selector after inserting a coin in the left slot the channel-number of the selector appears "Ch1" and the line jumps up followed by a sound. Inserting a coin in the right slot the "Ch2" appears on the display. When feeding credits by key the "Fed" title appears followed by a sound different from the previous ones. The credits fed in during the test won't be booked.

If the coin-selector is electronic, when you insert any kind of coins the display will show the number of the activated channel from Ch1 to Ch12. Everything else goes like written above.

DSP	DISPLAY TEST

In this phase you can test the diodes and displays of the two displays. The displays continuously show different numbers and the diodes light up one by one. Push the lighting button under <SHIFT>, all the displays and diodes light up at the same time. During the test each diodes and displaying segment gets voltage so if any of them fails to light up, there is a failure in one of the displays.

PRG	PROGRAM TEST

In this phase the machine tests its own writable memory (RAM test). During the test an increasing number appears on the display which shows the number of the memory-block actually tested. The memory is divided into 64 blocks. After reaching 64, the test starts again and runs until you go on the next phase with <SHIFT> button.

BYE	CHANGE TO PLAY MODE

In this phase you can exit TEST MODE and enter GAME MODE. If the BYE (Good-bye) word appears on the display, push the button on the right to exit TEST MODE and enter GAME MODE. A short sound and the lighting button on the right indicate the opportunity for change. If you don't want to exit but start TEST MODE again, just simply use <SHIFT> button to step on next phase (i.e. the first).

7. SETUP MODE

SETUP MODE gives an opportunity to change the settings in the machine. The SETUP MODE helps you with this in an intelligent way: use the pushbuttons to choose from the following menu:

01 -	LOA	LOAD FACTORY SETTINGS
02 -	SER	SERIAL NUMBER
03 -	IDE	IDENTIFIER
04 -	PIN	PIN CODE
05 -	INF	INFRA SENSOR MODE
06 -	DEL	DELAY
07 -	SIR	SIREN
08 -	SON	SONG NUMBER
09 -	SPE	SPEAK ENABLE
10 -	CHA	CHAMPIONSHIP
11 -	COU	COIN COUNTER
12 -	FED	FED CREDIT
13 -	GAC	GAME COUNTER
14 -	FRC	FREEGAME COUNTER
15 -	CLR	CLEARING THE COUNTERS
16 -	C-C	COIN PER CREDIT
17 -	RET	CREDIT RETAIN
18 -	DRA	DRAWING AFTER PLAYING
19 -	BON	BONUS CREDIT
20 -	HOU	HOURS COUNTER
21 -	STA	STATISTICS ENABLE
22 -	POP	GAME POPULARITY
23 -	ROU	ROUNDS FOR GAMES
24 -	CDP	CREDIT FOR GAMES
25 -	BUL	BULL SPLITTING FOR GAMES
26 -	CRC	CRICKET CLOSE MODE
27 -	TCR	TEAM CRICKET WIN MODE
28 -	OPR	OPTION ROUNDS
29 -	BEG	BEGIN ORDER
30 -	NOD	NO DARTS
31 -	TES	CHANGE TO TEST MODE
32 -	BYE	CHANGE TO PLAY MODE

7.1 Entering SETUP MODE

Only those can gain access that has a key to open the middle door of the machine. It means that if you have a key, technically you can change any data. There is only one way to enter this mode: you can find four small pushbuttons on the lower part of the central unit. Push the SETUP button. SETUP MODE starts to run the menu point 01 (LOAD).

7.2 Operating SETUP MODE

In this mode the <SHIFT> button plays a great part. Use this button to enter and exit the menu points meanwhile saving the data installed. Saving data in SETUP MODE is automatic, therefore when exiting any of the phases the machine stores the changes so you can even turn it off. This is why it's so important to leave the right data in the menu point before exiting it. In SETUP MODE the button on the far right serves as an <UP> button, the very next to it serves as a <DOWN> button. It means that with the <UP> button you can increase the values, with the <DOWN> button you can decrease the values. The third button from the right sometimes has some function when in a menu point you can change the values of each game. In this case it becomes the <GAME-ARRANGING> button.

After starting SETUP MODE you can see the number of the activated phase in the central field of the lower display. The name [or code] of the phase appears in the lower right corner. Now you can get to any of the setup phases with the <UP> and <DOWN> buttons. Then the phase-code jumps up in the next line and the data belonging to the menu point appear in the lower right corner. In some of the menu points you can see the name of the actual game in the upper right corner while the phase code appears in the upper left corner of the lower display. You can change the data the following way. It's a general rule that with the <UP> button you increase the value and with the <DOWN> you decrease it. You can save the changes and exit the menu point with <SHIFT> button. In those menu points where you can change the data of more games, first you have to find the game requested with <GAME-ARRANGING> button (if you go past the game, you can go round), then change the values with <UP> and <DOWN>. Then go on the next game with <GAME-ARRANGING> button and at the end exit the menu point with <SHIFT> button.

Factory settings for the games

The name of the game	Scope of the rounds	Factory setting	Credit per one player	Bullseye splitting
HI SCORE	5 - 21	7	1	Split
LOW SCORE	5 - 21	7	1	Split
HARD SCORE	5 - 21	7	1	Split
301	5 - 21	14	2	Split
501	15 - 35	21	3	Split
701	15 - 35	30	4	Split
901	20 - 45	40	5	Split
SHANGHAI	7	7	1	Split
PUB GAME	5	2	1	Split
FLASH GAME	5	2	1	Split
CRICKET	15 - 35	21	3	Split
FIVES	5 - 21	9	1	Split
HALVE	7	7	1	Split
BULLMASTER	20	20	2	Split
RED MASTER		7	1	Split
TRAINING UP		21	3	Split
TRAINING DOWN		21	3	Split
301 PARCHESS	5 - 21	12	2	Split

Factor settings for the variables of the SETUP

		Scope	Factory setting
01	LOAD FACTORY SETTINGS	YES - NO	NO
02	SERIAL NUMBER	READ ONLY	
03	IDENTIFIER	0 – 99	0
04	PIN CODE	YES – NO	NO
05	INFRA SENSOR MODE	0 – 2	1
06	DELAY	2 – 8	4
07	SIREN	YES – NO	YES
08	SONG NUMBER	0 – 6	3
09	SPEAK ENABLE	0 – 3	1
10	CHAMPIONSHIP	0 – 2	0
11	COIN COUNTER	READ ONLY	
12	FED CREDIT	READ ONLY	
13	GAME COUNTER	READ ONLY	
14	FREEGAME COUNTER	READ ONLY	
15	CLEARING THE COUNTERS	YES – NO	NO
16	COIN PER CREDIT	0 - 9	see: supplement
17	CREDIT RETAIN	YES – NO	YES
18	DRAWING AFTER PLAYING	YES – NO	YES
19	BONUS CREDIT	0 – 99	50
20	HOURS COUNTER	READ ONLY	
21	STATISTICS ENABLE	YES – NO	NO
22	GAME POPULARITY	READ ONLY	
23	ROUNDS FOR GAMES	see: supplement	see: supplement
24	CREDIT FOR GAMES	see: supplement	see: supplement
25	BULL SPLITTING FOR GAMES	see: supplement	see: supplement
26	CRICKET CLOSE MODE	ONE – ALL	ALL
27	TEAM CRICKET WIN MODE	ONE – ALL	ONE
28	OPTION ROUNDS	0 – 6	2
29	BEGIN ORDER	YES – NO	YES
30	NO DARTS	YES – NO	YES
31	CHANGE TO TEST MODE	YES – NO	NO
32	CHANGE TO PLAY MODE	YES – NO	NO

7.3 The detailed description of SETUP menu points

01 - LOA   LOAD FACTORY SETTINGS

This function loads the factory settings in the machine. You may need it when there is a fuss caused by too much adjusting or there is a damage of the data. Enter the menu point with <SHIFT>. The NO word appears. Change it to YES with the <UP> button and push the <SHIFT> again. This way the machine loads the factory data. When the loading is completed the machine makes a sound signal. If you'd changed your mind, just shift back to the NO with <DOWN> button then exit the menu point with <SHIFT>. Now the factory settings won't get loaded so you can avoid the unwanted, accidental loading.

02 - SER   SERIAL NUMBER

This menu point displays the serial number of the machine. In case of losing the PIN-code you need the serial number to apply for the PIN-code. The factory gives you the PIN-code by the serial number.

03 - IDE   IDENTIFIER

In this menu point the owner or the operator can set a personal two-digit number in the machine, thus it's easy to distinguish the machines if you own more machines. If you make records on the machine (like income, operating hours etc.), it's enough to identify the machine with this number. Push <SHIFT> button to enter. The identifier appears. If you want to change it, push <SHIFT> button again then increase the number with <UP> button or decrease it with <DOWN>. To save the chosen number, push the <SHIFT> again.

WARNING! When exiting the menu point the number gets saved automatically, so be careful with changing the number!

04 - PIN   PIN CODE

This menu point allows or prohibits asking for PIN-code when you turn the machine on. If it's in NO position, after turning on the machine starts its normal operation. If it's in YES position, the display shows the PIN word and the machine waits until you enter the PIN-code of the dartboard.

05 - INF   INFRA SENSOR MODE

This menu point determines which way the sensor works. The modes are the following:

0 – infra sensor is turned off

In this mode the machine doesn't use the sensor (you can even take it off). The <SHIFT> button makes the change of players.

1 – infra detecting only at change

Now the sensor works only at change of players and it makes the change automatically after pulling the darts out - when the player is getting off the machine.

2 – infra detecting during the throws

In this mode the sensor works during throwing and if it detects a player, besides recording the throw, gives a siren-sound that the player was too close (or just pushed the dart in instead of throwing).

You can enter in the menu point with <SHIFT>. The number of mode appears. You can increase the number with <UP> or decrease it with <DOWN>. Then exit with <SHIFT> and the new setting is saved.

06 - DEL   DELAY

In this menu point you can adjust the time left for the change of players. The timing is perfect when it lasts until the player after pulling out the darts gets back behind the START LINE (oche) and turns towards the dartboard. The time can be adjusted between 2 and 8 seconds and it starts when the player has left the sensor's zone. Enter the menu point with <SHIFT> . The actual timing appears. You can increase the number with <UP> and decrease it with <DOWN>. Then exit with <SHIFT> and the new time is saved.

07 - SIR   SIREN

In this menu point you can allow the machine to make a siren-sound if anybody throws when there are no games played. It's necessary against those who want to play without paying. Enter the menu point with <SHIFT>. The actual setting appears. You can choose YES with <UP> and NO with <DOWN>. Then exit with <SHIFT> and the setting is saved. (YES means the permission to make the sound.)

08 - SON   SONG NUMBER

In this menu point you can choose the melody, the sound-effect for the announcement of the winner. Enter with <SHIFT>. The actual number appears. You can increase it with <UP> or decrease it with <DOWN>. Then exit with <SHIFT> and the new number is saved.

>   0 - There is no melody just short sound-effects
>   1 - What shall we do with the drunken sailor
>   2 - Mozart: Turkish March
>   3 - Theme from Rocky
>   4 - My grandfather's clock
>   5 - Auld Lang Syne
>   6 - There are different melodies at the end of each game (factory setting)

09 - SPE   SPEAK ENABLE

In this menu point you can allow that human voice effects should follow each event. The machine automatically orders the effects – which are stored in advance – to the different events. Enter the menu point with <SHIFT>. The actual setting appears (0–3). You can increase it with <UP> or decrease it to 0 with <DOWN>. Then exit with <SHIFT> and the new setting is saved. The meaning of the settings:

>   0 - voice effects are not allowed
>   1 - all the voice effects are allowed
>   2 - there are no effects while throwing, but there are when choosing a game
>   3 - there aren't any effects either at throwing or at choosing

In the 1-2-3 settings when there is an error, when coins are inserted, statistics are made, when more coins are requested or bonus-credits are given, there are other effects beside the listed above.

10 - CHA   CHAMPION SHIP

This menu point has three settings from 0 to 2. In 00 the games finish at the actual round-limits and the actual sound effects can be heard. This is the factory setting. In 01 the games finish at the actual round-limits (as in 00), but the sound effects are shorter than in 00. In 02 there aren't any round limits in the 01 games. The game is over when any of the players reaches the score requested to win. The sound effects are shorter here, too.

```
┌─────────────────────────────────────────────────────────────────────┐
│              FRE          FREE PLAY                                  │
└─────────────────────────────────────────────────────────────────────┘
```

At this point it's necessary to mention FREE PLAY MODE. In this mode you can install games without any credit, e.g. for competitors to exercise themselves or for friends, family members etc. In this mode the machine allows unlimited games disregarding the credits taken in. The machine doesn't store the FREE PLAY MODE for security reasons, so after turning the machine off, you can't get back again to this mode by turning the machine on. Therefore you can't leave it in this mode accidentally; thus you can avoid the losses that could happen. The machine counts the number of the games and the amount of the credits requested so you can follow how many credits you have given away. Enter this mode the following way: there are small buttons on the lower part of the central unit. Push the FREE button. The FRE notice appears on the lower display, so the FREE PLAY MODE is on.

```
┌─────────────────────────────────────────────────────────────────────┐
│          11 -  COU          COIN COUNTER                            │
└─────────────────────────────────────────────────────────────────────┘
```

In this menu point you can check the coin counters channel by channel. The upper display shows the amount of all coins inserted. It's a six-digit number under LFT – LIFETIME word. The lower display shows the clearable coin counter. The CLE – CLEARABLE word appears. In this mode you can't do any clearing. It's reasonable to do the clearing when you empty the cash box, thus next time the counter will show the next income. You can enter and exit the menu point with <SHIFT>. The coin counters appear as ordered to the activated channels. To shift to the next counter push the lighting button under <SHIFT> button.

- If the machine is equipped with a mechanical coin selector, when entering the menu point the Ch1 sign appears in the upper left corner of the displays. This means the coin selector on the left. The upper display shows the amount of all coins inserted in the left selector. You can see a six–digit number under LFT – LIFETIME word. The lower display shows the amount of all coins inserted in the left selector since the last clearing. It's a six–digit number under CLE – CLEARABLE word.

  Pushing the lighting under <SHIFT> the Ch2 appears in the upper left corner of the displays. It means the coin selector on the right. The upper display shows the amount of all coins inserted in the right selector. You can see a six–digit number under LFT – LIFETIME word. The lower display shows the amount of all coins inserted in the right selector since the last clearing. It's a six–digit number under CLE – CLEARABLE word.

- If the machine is equipped with electric coin selector, entering the menu point the Ch1 appears in the left corner of the displays. This means the coin counter on Channel 1. The upper display shows the amount of all coins inserted in Channel 1. You can see a six–digit number under LFT – LIFETIME word. The lower display shows the amount of all coins inserted in the Channel 1 since the last clearing. It's a six–digit number under CLE – CLEARABLE word.

Pushing the lighting button under <SHIFT> the Ch2 appears in the upper left corner of the displays. This means the coin counter on Channel 2. The upper display shows the amount of all coins inserted in Channel 2. You can see a six–digit number under LFT – LIFETIME word. The lower display shows the amount of all coins inserted in Channel 2 since the last clearing. It's a six–digit number under CLE – CLEARABLE word.

Pushing again the button under <SHIFT>, you can even get to Ch12. The factory determines how many channels can be used. This determines how many sorts of coins can be used to operate the machine.

COI TEST helps to identify which coin belongs to which channel. Inserting different coins, the number of the proper channel appears. It's useful to keep this in mind.

---

12 - FED   FED CREDIT

In this menu point the credits fed by key can be controlled. Entering the menu point the FED word appears in the upper left corner of the displays. The upper display shows the amount of all credits fed by key. You can see a six-digit number under LFT – LIFETIME word. The lower display shows the amount of all credits inserted since the last clearing. It's a six-digit number under CLE – CLEARABLE word. You can enter and exit the menu point with <SHIFT> button.

The coin amount counted by the counters (see: previous menu point) has to be in the cash box (if there was a deletion at the last emptying). By the 12 – FED menu point you can settle account with anybody who has the key. So when emptying the machine the amount of the coins counted and the credits fed by key make the base to settle account.

---

13 - GAC   GAME COUNTER

In this menu point the game counters can be checked. The number of all played games appears on the upper display. You can see a six-digit number under the PLD – PLAYED word. The lower display shows the clearable game counter under CLE – CLEARING word. You can't do the clearing in this menu point. It's worth deleting the counter by emptying cash box, thus next time you will know how many games were played since last clearing. You can enter and exit the menu point with <SHIFT> button.

---

14 - FRC   FREE GAME COUNTER

In this menu point the free game counters can be checked. The upper display shows the amount of credits requested on paper to the free games played. This number appears under the CRE – CREDIT word. The lower display shows the number of all the free games played. It's

a six-digit number under PLD – PLAYED word. In this menu point you can't do the clearing. This counter can't be deleted, so if it's necessary to know the amount of free games and credits, write them down before entering FREE PLAY mode. To enter and exit the menu point, use <SHIFT> button.

---

15 - CLE   CLEARING THE COUNTERS

In this menu point you can clear the clearable counters in fact. All the clearable counters get cleared at the same time. These are the following:

      1 - clearable coin counters
      2 - clearable credit counters
      3 - clearable game counter

Enter the menu point with <SHIFT> button. The NO setting appears (to avoid accidental clears). Use the UP to shift to YES. Then clear the counters with <SHIFT>. A sound follows the clearing and at the same time you have exited the menu point.

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16 - COC   COIN PER CREDIT

In this menu point you can determine the proportion between coins and credits for each channel both at mechanical and electric coin selectors. It doesn't refer to the key-operated switch because you can give in only one credit a time. Enter the menu point with <SHIFT> button. The Ch1 appears on the right. Under this you can see the proportion between coins and credits belonging to this channel. The number on the right means the credits and the left one means the coins. You can increase the credits with the button on the far right. The button next to it is for the coins. Reaching 9 both numbers shift to 0 and go round. 0 means 10 so the setting 0-9 means that for 10 coins you get 9 credits. With the two buttons on the right you can set any kind of proportions. Pushing the third button from the right (lighting) you can shift to an other channel. Now the number of the channel (e.g. Ch2) and the actual proportion appear on the display. You can change the numbers with the two buttons on the right like in the case of CH1. The machine automatically saves the data when exiting the menu point.

For example 3-5 rate means that if you insert 3 coins in, you get 5 credits. 9-7 means 7 credits for 9 coins. Because both numbers can be set from 1 up to 10, there can be 100 different proportions set in one channel. There are equivalent proportions like 3-3, 5-5, 9-9 when for one coin you get one credit. Similarly the 2-4, 3-6, 4-8 mean the same. It's worth using the most simplified of the equivalent proportions though for the machine it doesn't matter. Because the channels can be adjusted separately it's possible that the Ch1 unit gives 1 credit for 1 coin while the Ch2 unit gives 6 credits for 5coins.

The electrical counters built in the software handle the coin channels separately, so by settling account the number of coins can be controlled per units. There is no constant relation between coins and credits because the proportion can be changed any time. Thus the settling account has to be done according to the number of coins.

In accordance with the actual proportion the machine always gives the maximum credit. For example in the case of 3-2 proportion it doesn't give any credits for the first coin, after inserting the second coin it gives one credit, and after the third it gives the other credit. In the case of 2-3 proportion it gives two credits for one coin and the third for the other one. Extreme values: one credit for ten coins (if you have change) or ten credits for one coin (for money in larger units).

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17 - RET   CREDIT RETAIN

In this menu point the machine can be ordered to retain the credits after turning off. In NO position the machine deletes all the credits left. (The counter counts these credits so they have to be settled up). Enter the menu point with <SHIFT>. The actual setting appears. You can change it to YES with <UP> or to NO with <DOWN>. Then exit with <SHIFT> and the setting is saved. (YES means retaining the credits.)

Note: there is an other way to delete the credits left in the machine, see 3.1.3-menu point.

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18 - DRA   DRAWING AFTER PLAYING

In this menu point you can allow the drawing after playing. Enter the menu point with <SHIFT>. The actual setting appears. You can change it to YES with <UP> or to NO with <DOWN>. Then exit with <SHIFT> and the setting is saved. (YES means letting the drawing).

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19 - BON   BONUS CREDIT

In this menu point you can allow the machine to give bonus credits. The machine observes the credits and it gives a bonus credit after each nth credit. Then the counting starts again. If you adjust the number to 0, there won't be any bonus credits. The maximum can be 99 (it can't go any further because the players wouldn't even recognize what happened). For example at setting 25 after each 25th credit there is a bonus, what means 4 percents. Enter the menu point with <SHIFT>, the actual setting appears. You can increase the number with <UP> and decrease it with <DOWN>. Then exit with <SHIFT> and the new setting is saved.

20 - HOU   HOURS COUNTER

In this menu point you can check the counter of operating hours. The upper display shows the sum of the operating hours (HOU-sign), the lower display shows the passive hours (PAS-sign). The difference between them shows the clear playtime. These counters can't be cleared. The counting of operating hours can be useful to find out how effectively the machine works and in what part of the operating hours the actual playing goes. Enter the menu point with <SHIFT>. The counters appear. To exit push <SHIFT> button.

21 - STA   STATISTICS ENABLE

In this menu point you can allow the machine to display statistical calculations based on the throws of the players. Enter the menu point with <SHIFT>. The actual setting appears. You can shift to YES with the <UP> button and shift to NO with <DOWN> button. Push the <SHIFT> to exit and the new setting is saved (YES means to display the statistical data).

Note: there is a table enclosed to show the statistics belonging to the games.

22 - POP   GAME POPULARITY

In this menu point you can take a look at the popularity of the games. Each game has its own counter. When starting a game the number on the right counter increases automatically. Enter the menu point with <SHIFT>. The first game (HI SCORE) and its counter appears. You can see the number of the game (HI SCORE) played. Pushing <GAME-ARRANGING> button you can get to any of the games. Each shows its own counter. Exit with <SHIFT>.

23 - ROU   ROUNDS FOR GAMES

In this menu point you can determine the number of rounds for each game. The setting can be done within the broad limits the factory determined. Enter the menu point with the <SHIFT>, choose a game with <GAME-ARRANGING>, set the number of rounds with <UP> and <DOWN>. When exiting the new numbers get saved automatically.

24 - CDP   CREDIT FOR GAMES

In this menu point you can determine for each game how many credits a player needs. The setting can be done within the broad limits the factory determines. Enter the menu point with <SHIFT> ,choose the right game with <GAME-ARRANGING> button, then use the <UP> and <DOWN> buttons to set the credit number you want. Exit the menu point and the new settings are saved.

25 - BUL   BULL SPLITTING FOR GAMES

In this menu point you can determine for each game, which one you want to use: the whole or the split Bullseye. There are three settings you can choose. The SPL-sign means the Split Bullseye operation where the center is worth 50 points and the ring around it 25 points. The setting 25 means that the whole Bullseye is worth 25 points and the throw is taken for simple (it's hindering). The setting 50 means that the whole Bullseye is worth 50 points and the throw is taken for double (alleviation). Enter with <SHIFT>, choose the game requested with <GAME-ARRANGING> then use <UP> and <DOWN> to set the splitting you want. Exit with <SHIFT> and the new setting is saved.

26 - CRC   CRICKET CLOSE MODE

In this menu point you can change an internal setting of the Cricket game. A number is taken for closed when all the three diodes belonging to one player are lit up (when there is a team, both players have to close the number). If a player have closed a number, he or she can get more points (for himself /herself or for the rival, depending on the game they play) by hitting the number again, except when somebody else has closed the number too.
There are two settings:

> *ONE – if one of the players closes a number, nobody else can get points with that number*
> *ALL – anybody can collect one's points with the number until each player has closed that number*

Enter menu point with <SHIFT>, then use the <UP> and <DOWN> to choose the setting you want (ONE or ALL). You can exit with <SHIFT>.

27 - TCR	TEAM CRICKET WIN MODE

You can change an other setting of Cricket game in this menu point. When there is team playing it's always under discussion when the team is taken for winner: is it enough if one of the players finishes the game (it's usually enough) or both have to be.

ONE – one player is enough to finish the game for the team to win
ALL – both players have to finish the game

Enter with <SHIFT>, choose the appropriate setting with <UP> or <DOWN>, then exit.

28 - OPR	OPTION ROUNDS

In this menu point you can choose the number of the rounds the machine adds to the regular rounds of a game, if in a '01 game there is a hindering chosen. Enter with <SHIFT>. The actual number of added rounds appears. You can change it in broad limits. Exit, and the new setting is saved.

29 - BEG	BEGINNING ORDER

In this menu point you can allow the throwing on the Bullseye. It's played before the game, to decide who starts the game. Enter with <SHIFT>. YES setting appears. You can shift to NO with <UP>. Exit, and the setting is saved.

30 - NOD	NO DARTS

In this menu point you can allow the machine to warn the player after the third throw, that there aren't any more darts. If you don't want this service, enter the menu point and shift to NO. If you want the service, shift to YES. Exit with <SHIFT>, and the setting is saved.

31 - TES	CHANGE TO TEST MODE

In this menu point you can change to TEST MODE. Enter the menu point with <SHIFT>. The basic setting is NO to avoid the accidental changes. Use <UP> button to shift to YES. Exit, and the setting is saved. The machine changes to TEST MODE while giving a sound-effect.

32 - BYE   CHANGE TO PLY MODE

In this menu point you can change to PLAY MODE (not FREE PLAY!). Enter with <SHIFT>. The basic setting is NO to avoid the accidental changes. To change to PLAY MODE shift to YES with <UP> button and exit with <SHIFT>. The machine changes to PLAY MODE while giving a sound-effect and – depending on the credits – it starts the demo-phase or the game-choosing phase.

8. ERRORDETECTING

There is an electronic error detecting and recognizing system in the machine. It recognizes the type of the error, identifies which part went wrong and displays it on the central display units.

Plus there is the TEST MODE to detect errors. The secondary tests in it control each unit, the displays, and the operating units separately (see: TEST MODE).

8.1 Error messages

8.1.1 ERR–TAR (error target)

Type of error: a target-segment has got stuck. The lower central display shows the number of the segment.

Source of error: something (e.g. a broken dart-head) has got stuck to or under the segment.

Problem solving: remove the object that causes the error.

8.1.2 ERR–BUT (error button)

Type of error: a button has got stuck on the operating board. The light of the button blinks.

Source of error: the unit on the back of the button has got displaced or something has got stuck in the button.

Problem solving: rearrange the button or remove the object stuck.

8.1.3 ERR – COI (error coin selector)

by mechanical coin selector

Type of error: one of the microswitches has got stuck.

Source of error: the microswitch has got displaced or a coin has got stuck or something causes a short circuit in the microswitch.

Problem solving: rearrange the switch, remove the coin, and clear the dead short circuit.