LX 500 8.0/6.0

GPS Navigation system

Jan. 2002

MUENCHEN EDDM   APT

BRG	062°	DIS	58.3 km
TRK	065°	GS	114 kh
DTK	065°	HDG	065°

[. . . . . ✝ . ╎ . . .] 0.4 km
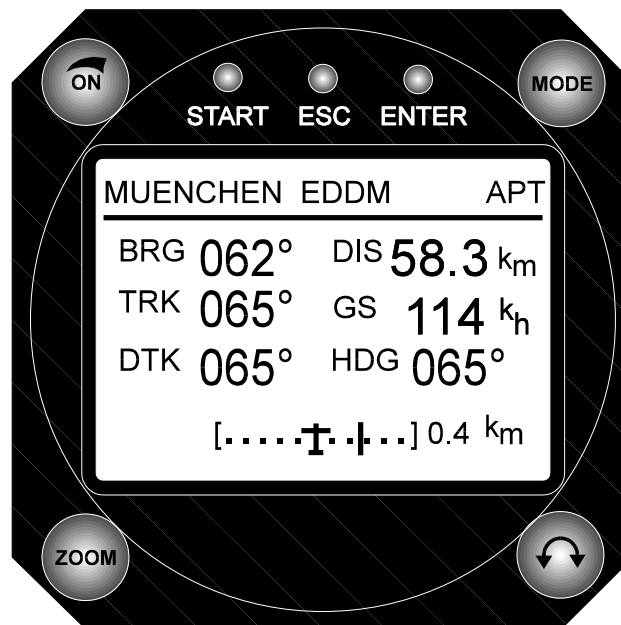
Filser Electronic G.m.b.H.

D-86875 Waal , Gewerbestrasse 2
Tel. 0049-8246-96990

1 Contents

2 General

LX 500 is a compact unit corresponding to the 80 mm airnorm, that means very simple to build in and to use the unit.The high power microcontroller guaranties a very fast reaction on user commands and display changes. The main features are:

- Jeppesen data base for airfields and airspace
- 600 waypoints
- 100 routes
- flight statistic
- near airport function
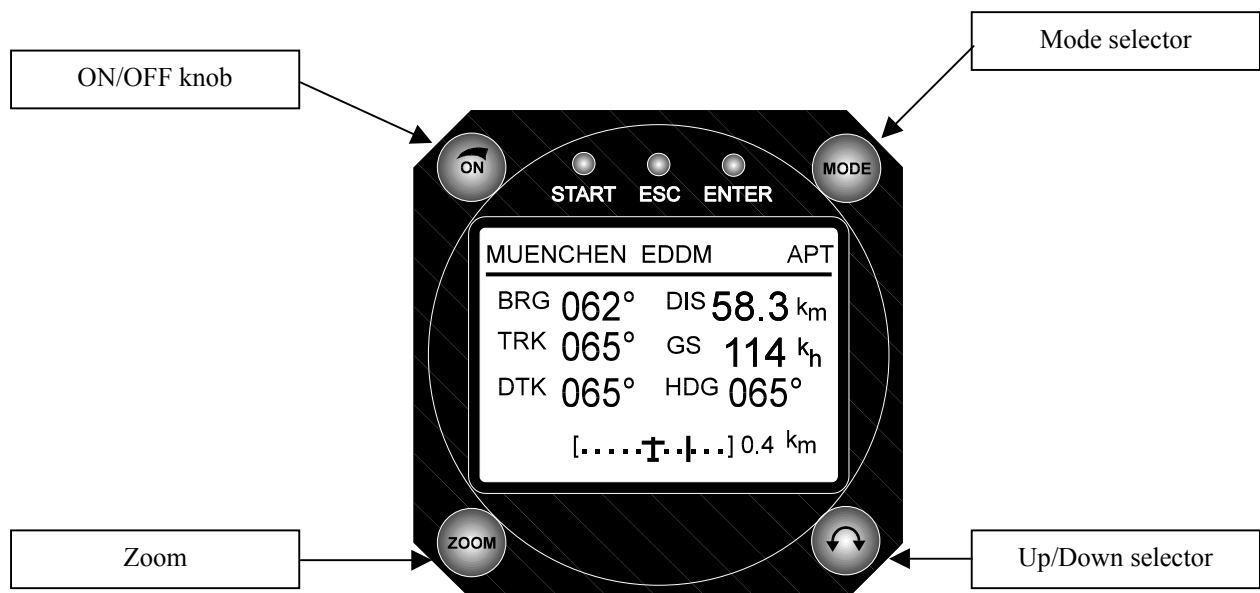
The actual manual describes all instruments having program versions 6.0 or 8.0, regardless if new or upgraded.

2.1 Technical data

- Power suplly 8-36 V DC
- Power consumption ca. 150 mA /12V
- 80 mm air norm
- length 200mm
- NMEA output
- 12 GPS receiver
- PC interface
- Weight apr. 600 gr

2.2 Keys and knobs

The unit controls consists of three knobs, three keys and ON/OFF knob

2.2.1   ON/OFF knob

After rotating to the right, the instrument will turn on and booting procedure will start. To switch the unit OFF simple rotate the knob to the left again.

2.2.2   Start key

It is generally not an edit key, and therefore it is not used very often. It is mainly used to start the route or to over jump one waypoint, which is not actual any more (flying RTE). Having done a mistake inputting data, you can use **start key to jump one position back.**

2.2.3   Mode Selector (knob)

This is the key with **the highest priority** in the whole system. Its rotation will change **mode of operation in any way.**

2.2.4   UP/Down Selector (knob)

The up/down selector is used to **change pages** in selected mode.

2.2.5   ENTER key

It is generally **confirmation key**; all edit functions of the LX 500 will start using it.

2.2.6   ESC key

During the flight the **ESC key is not used very often**, it is mainly used in edit procedures. The key has two main functions:
- To jump one **sub page higher**, **or to cancel any changes in edit procedure**
- During edit procedures (when cursor is blinking) it is possible to **confirm one row** completely instead of pressing ENTER more times.

2.2.7   ZOOM (knob)

The main task of the knob is to change **zoom of the graphic screen**. It is possible to use zoom knob to jump one position back after a mistake has happened in edit mode (blinking cursor).

3 Modes of operation

The LX 500 works in 7 different modes of opereation. The mode selector rotating will select corresponding mode directly. The diagram below shows the mode structure of LX 500.
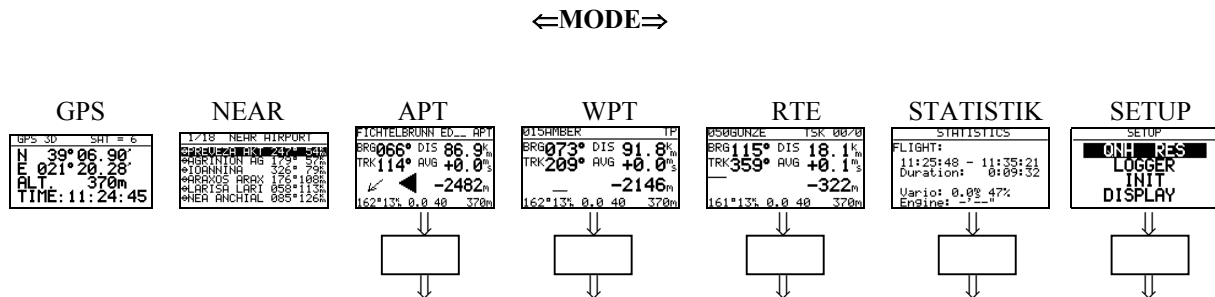
⇐**MODE**⇒

The navigation modes (APT, WPT,RTE) have **sub pages** and they are available rotating up/down selector. See appendix to find the complete three structure diagram of LX 500.

GPS	**GPS status, no edit**
NEAR	**Near APT,VOR,NDB and conditionaly WPT**
APT	**Navigation to an airport**
WPT	**Navigation to the waypoint**
RTE	**Navigation in RTE**
STAT	**Flight statistics and logbook on the ground**

Before using the instrument, plase set all necessary parameters of the instrument. To set your personal settings use SETUP mode. Setup is organized in two levels, setup before password and setup after password.

3.1 SETUP

3.1.1   SETUP before passwod

All settings of that page can be changed every time and by anybody. To select corresponding item **rotate up/down** selector.

3.1.1.1 LOGGER

The logger data is stored in form of well known IGC format, that means for the flight analyses it is possible to use all PC programs accepting IGC files(Lxe, SeeYou, Strepla, Opti …). After **enter on LOGGER** the input of pilot name and airplane data is possible.

```
 FLIGHT SETUP
FLIGHT INFO
 LOGTIME
 EVENT
```

```
FLIGHT INFO
 PILOT NAME
 FRANZ
 PLANE  C 152
 REG D_DBAF■
```

```
SETUP TIME INTERVAL
TOTAL MEMORY:162.4H
  RECORD INT.: 12s
```

Record interval will define time intervals of position storing. Shorter intervals will reduce capacity of the memory. Total memory indicator shows the **capacity of the memory**, this number will not go down after some flights will be done. The number shows the pilot how many hours could he fly not to lossse some flights.The total memory capacity depends on HW configuration of the instrument.

```
SETUP EVENT MARKER
FIX INTERVAL:  2s
NUMBER OF FIX:  30
```

To arrange some adtional logger records use **EVENT function**. After activation some additioanl logger records will follow under conditions set above. 30 additionl fixes will be recorded in two second intervals. To activate the EVENT press START and ESC at the same time. A special message EVENT MARKED will appear after activaction.

3.1.1.2 DISPLAY

```
┌─────────────────────┐
│    SETUP DISPLAY    │
│ LCD CONTRAST: █50%█ │
│ ██████████          │
│ LCD BACKLIGHT: MED  │
└─────────────────────┘
```

LCD contrast setting will adapt the viwing angle, to read the display optimal. The dispay is of extended temperature range additionaly internal temerature compensated. Using the instrument under extreme temperatures use contrast to adapt contrast manualy.

3.1.1.3 TRANSFER

To exchange data LX 500 – PC use **TRANSFER** item. To start data transfer press enter. About details see further paragraphs.

3.1.1.4 PASSWORD

After the input of 96990 the second part of setup will be available.

3.1.2 SETUP after password

Further 9 settings are allowed after input of the password. During the flight the password is inactive, that mans selecting and cofirming PASSWORD with enter will open the menu.

3.1.2.1 MAGNETIC variation

Some types of GPS receivers built into LX 500 don't deliver mg. variation. If the pilot wants to use mg. directions the input of local deviation is mandatory.

3.1.2.2 WPT   (Waypoints)

All settings referring to waypoints should be done using this menu.

```
┌──────────────────────┐
│      SETUP WPT       │
│ WP-QUICK POINT NAME  │
│ DATE:  ▓OFF▓    AP   │
│ WP-QUICK POINT AUTO  │
│ SELECT:  OFF         │
│ NEAR RADIUS:   0.5%  │
│ WP-SORT:  ALPHABET   │
└──────────────────────┘
```

WP-QUICK POINT NAME

It is possible to reproduce waypoints by storing of present. To determine the name of stored waypoint, two possibilities are offered:

- DATE OFF will store present position like AP: XX: XX (xx .xx is time)
- DATE ON will store present position like date and time for instance 24011230 for 24 January,12:30

WP-QUICK POINT – AUTO

Stored waypoint can be selected automaticaly after generated or it can be selected later like all other waypoints.

NEAR RADIUS

This seting has nothing together with setings in OBS.ZONE. It defines near sector arround the waypoint. Flying simple task (see paragrah flying LX 500).

WP-SORT

The waypoints can be sorted under alphabet or under distance respectivly. If distance sorting is taken, the nearest waypoint will be offerd after selection procedure is started.

3.1.2.3   OBS.ZONE (oservation zones)

START ZONE

The pilot is able to defiene near radius of the start waypoint. After being inside **START YONE** the Route will start and the next waypoint will be selected automatically.
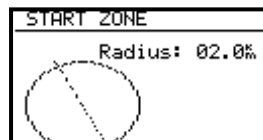
POINT ZONE

The same like previous.

FINISH ZONE

Near area of the last waypoint of the route

TEMPLATES
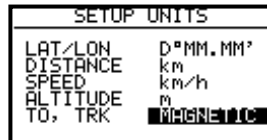
Will refresh default setting 2 km.

3.1.2.4   GPS

UTC offset to get local time indication can be arranged.

```
    SETUP GPS
UTC: +00:  20:35:45
GPS EARTH DATUM:
  WGS-1984
```

The GPS Earth Datum is set to WGS – 1984 and changes are not possible.

3.1.2.5   UNITS

Practically all known units and their combinations can be used.

```
    SETUP UNITS
LAT/LON    D°MM.MM'
DISTANCE   km
SPEED      km/h
ALTITUDE   m
TO, TRK    MAGNETIC
```
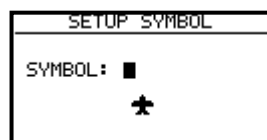
- LAT, LON: decimal minutes or seconds
- DIST: km, nm, ml,
- SP (speed) :   km/h, kts, mph,
- ALTITUDE: m, ft,
- BRG, TRK   mag. (magnetic) or true (using mag. take care on variation)

3.1.2.6   GRAPHICS

SYMBOL
Two sizes of airplane symbol can be selected.

```
   SETUP SYMBOL

SYMBOL: ■
          ✈
```
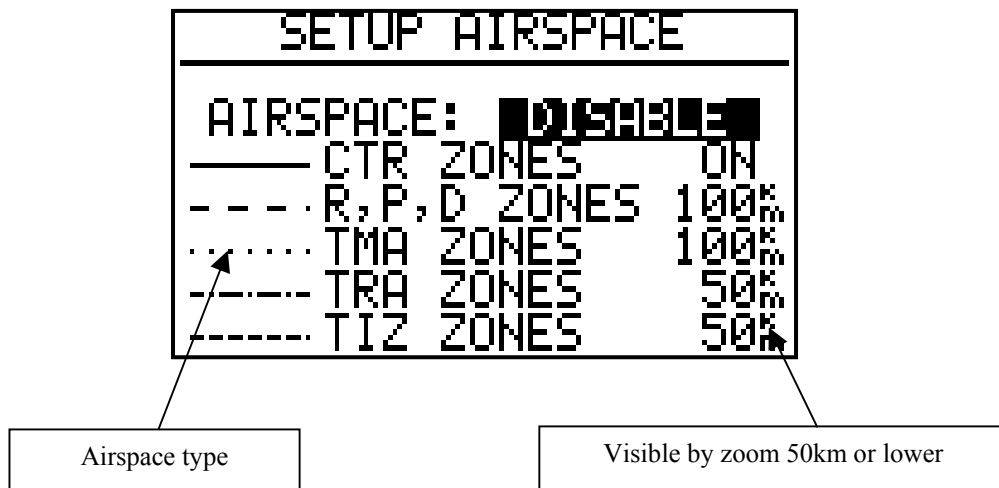
AIRSPACE

The display of airspace is a very important feature of the instrument. To see the airspace it is oblligatory to set AIRSPACE ENABLE. **Not to overload the display** with to much information it is very important to provide some selection and to define under what conditions individual airspace will appear on the display. For each airspace there are settings from OFF till ON. ON means that the airspace is always present on the display and OFF will remove the airspace from the display. Settings from 5 up 100 km defines maximal zoom (selected by zoom knob) where the airspace will be present. Using that methode the pilot is able to avoid owerloading of the display with graphic. Exsample
50 km will show individual airspace only having **zoom 50 km or lover**. The producer offers following configuration.

```
        SETUP AIRSPACE

     AIRSPACE: DISABLE
─────────  CTR ZONES      ON
- - - - ·  R,P,D ZONES  100km
· · · · ·  TMA ZONES    100km
-·--·--·-  TRA ZONES     50km
--------   TIZ ZONES     50km
```

| Airspace type | | Visible by zoom 50km or lower |

- CTR.   control zone
- R.P,D   restricted, prohibited, dangerous
- TRA   training zone
- TIZ   traffic information zones
- TMA   terminal zone

APT

Airfiels with their symbols are present on the display too. The pilot is able to define zoom where the airfields will appear on the display, the logic is identically like by airspace. The airports can be additionaly marked with ICAO or first letters of the name.

```
     APT GRAPHICS
APT ZOOM:  50km
APT NAME: ■ICAO
```
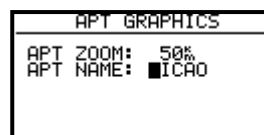
WPT
The same holds true for waypoints.

```
        WP GRAPHICS
WP GRAPHICS ENABLE
  type    zoom   name
W.POINT   50%    NONE
```

3.1.2.7   NMEA

The LX 500 is able to drive other navigation systems sending NMEA data sentences.

```
       SETUP NMEA
TRANSMIT SENTENCE:
GPGGA  N   GPWPL   N
GPRMC  N   GPLX1   N
GPRMB  N   GPBWC   N
GPGLL  N   LXWP_   N
GPR00  N
```

Factoty setting is N for all of them. Usualy used are GGA, RMC and RMB.

3.1.2.8   PC

Data transfer from LX 500 to PC and opposite will work only, if both of them use the same baud rate. The baud rate can be adapted using this paragraph. Normal baud rate is 19200. The modern Windows programs (Lxe) are able to adapt itself to the LX 500's baud rate.

3.1.2.9   DEL WP/RTE

Using this command will delete all waypoints and routes definitively.
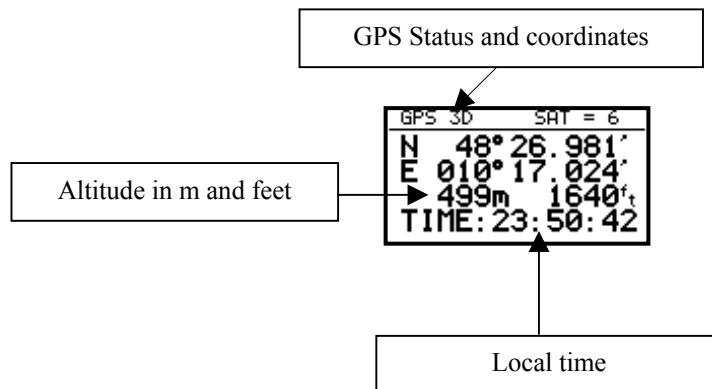
```
         SETUP
DELETE ALL WPT AND
 RTE: N
```

3.2 Navigation using LX 500

Following navigation aids are offered:

- GPS status and coordinates
- Near airport
- APT, airport
- WPT, waypoints
- RTE, route
- STATISTICS inflight and logbook on ground

All mentioned modes are available using mode selector

3.2.1   GPS status display

GPS Status and coordinates

Altitude in m and feet

```
GPS 3D      SAT = 6
N   48°26.981'
E 010°17.024'
▶499m    1640ft
TIME:23:50:42
```

Local time

Rotating up/down selector to the right will extend altiude indication with feet reading also.
The stop watch is working under following propositions.

- START   result STOP: 0: 00
- START   result RUN: 0:12
- START   result STOP: 0:50
- START   result STOP: 0:00   zero seting
- ENTER   result TIME: 11:56:32 local time again

3.2.2   NEAR AIRPORT

Nearest airports, VORs, NDBs and waypoints (conditionally) will be shown in that page.

Waypoint

```
1/17   NEAR AIRPORT
◇AP 09809     146°    9km
⊕BACKNANG-HE 243°   10km
⊕WELZHEIM     148°   11km
⊕ESSLINGEN-J  219°   28km
⊕HEUBACH      124°   31km
⊕HORNBERG     139°   32km
```

Bearing and distance

Airfield

Important!
The waypoints with extension INCL.EMR will be displayed on the near airport page too. The waypoints have different symbols to separate visualy airports from waypoints.

3.2.3   APT airfields

It is one of the three main navigation modes. The first page shows the elementary navigation data like bearing, distance, ground track and ground speed. The **CDI indicator is similar to that one used by VOR** , but not completely (see following paragraphs). Additionally information is brought to the next four pages, available after rotating of up/down selector.

The capacity of LX 500 memory is more than **5000 airfields**. It is not possible to edit the airfield data by the instrument. The LX 500 is using **Jeppesen database, and that database is not free**. To update the database it is possible exclusively using your PC. The data transfer will be successful having a **code based on serial number and data base version**. The codes are available **exclusively by Filser Electronic**. The actual database can be downloaded any time from **www.filser.de or www.lxnavigation.si.**

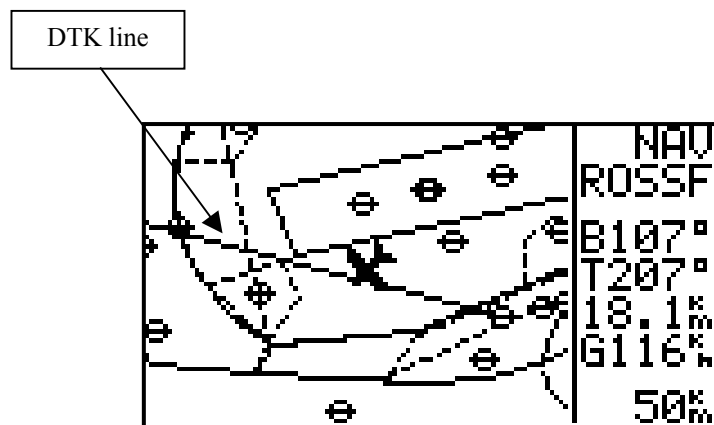### 3.2.3.1 Navigate to APT

Five navigation pages can be used.

1. Navigation page

Off course distance
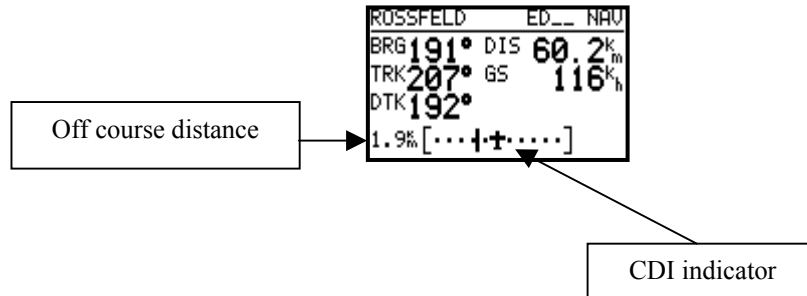
CDI indicator

BRG   bearing
DIS   distance
TRK   track
GS   ground speed
DTK   desired track (use zoom to select)
CDI   indicator

The header is showing first 8 characters of the name and ICAO code. To extend name (up to 16 characters) press **START.**

2. Navigation page (graphic)

DTK line

The display is divided into two parts, the right part consists of navigation data like **name, bearing, track, distance, ground speed and zoom** . The left part is graphic **showing airspace, airfields and waypoints**. The airplane symbol is always **in the midlle of the screen** and the map is moving. A straigt line following DTK (desired track) is going to the airfield symbol. Changing of DTK during the flight will rotate the line also and the same will happen after GO DIRECT. The upper side of the display is always oriented to the north. The zoom knob defines the area shown on the display.

3. Navigation page

```
ROSSFELD      ED__ NAV
GS 116%   TO      28.5%
+-+-+-+-|-█-+-+-+-+-+
                 ◄
0.6%
DTK 067° B 065° T 112
```
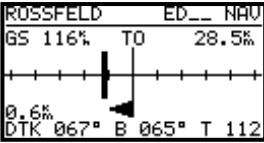
This page is very similar to the first navigation page, with **CDI indicator pointed out**. Additionaly **FROM/TO** indicator and **arrrows** are present to show the pilot to turn left or right to intercept the desired track. The FROM/TO indicator shows the pilot, if the airplane is aproaching to the airport (TO) and opposite (FROM). Having difference between bearing and track more than 90°, it means when FROM is indicated the distance will increase. The TO/FROM indication doesn′t correspond with that one used by VOR.
The DTK defines the direction to the airfield and the deviation from that line is shown on the CDI. After selection it is always **bearing eqal DTK**. That means the navigation from present position to the airfiled is possible without addtionaly setting of DTK. Rotating DTK (zoom) a new direction can be preset and the CDI will show the deviation. To arrange direct fligt to the airport from belivable position use GO DIRECT function. Press ENTER and following menu will open.

```
MENU APT
GO DIRECT
RESTART
SELECT
```

 Simply confirm **GO DIRECT** with enter and bearing will be equal DTK immediatelly, the CDI will be indicated in the middle

4. Navigation page

```
ROSSFELD      ED__ NAV
ACT.T.  ETA     ETE
11:34  12:00   00:26

ELEVATION 800m
HOLD PATTERN ----m
```
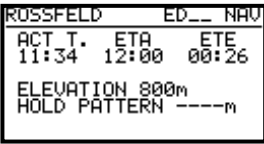
ACT T.   local time
ETA   estimate time of arriwal
ETE   estimate time enroute
ELEVATION   airfield elevation
HOLD PATERN

5. Navigation page

```
AAVAHELUKKA  EFAA NAV
ELEV.:  225m
RWY:   14/32 C
HOLD P.____m  I
TOWER: 123.50MHz
```

RWY   runway direction and surface like concrete (C) or grass (G)
HOLD P.   hold patern altitude and direction, **I** not defined

Imortant!

Those pages are practicaly the same by waypoints and RTE.

3.2.3.2   How to select an airport?

After pressing ENTER on select, the procedure will start.

```
MENU APT
 SELECT
```

There are two ways to select an airport, dierect way using ICAO code, and indirect using serching methode.

```
APT SELECT
ICAO:  ED**
```

```
APT SELECT
ICAO:  EDDM
```

After input of EDDM Munich airport is selected directlly. By unknown ICAO confirm rest two stars with enter (two times) or simply press ESC (once only).

```
APT SELECT
ICAO:  ED**
       GERMANY
```

Use **up/down** selector to to select counrty and confirm with enter.

```
        APT SELECT
ICAO:  ED**
       GERMANY
APT:   M***
```

Define APT, VOR or NDB (up/down) and start with input of first letters of the airfield or nav. aid.
Input of lower amount of character (rest stars confirm with enter or escape) will offer more airports or nav. aids having the same letters. To find the right one use UP/DOWN and enter.

During the flight two additional items will be added. **GO DIRECT** which was described just before. **RESTART** will restart „simple task". More about that see in the paragraph How to fly LX 500.

```
      MENU APT
    GO DIRECT
    RESTART
    SELECT
```

3.2.4   WPT Waypoints

The unit has capacity to store up to 600 waypoints, each name consist of maximum 8 characters. There are 4 ways to get a new waypoint:

- Input of new waypoint manually
- Copy it from APT
- Data transfer from PC, Colibri or LX 20
- Storing of present positions

3.2.4.1   How to select a waypoint

The procedure is very similar to that used by airports. After ENTER on SELECT, EDIT and NEW menu will open. It is to replace stars with the first letters of the name. Having selected sorting by distance the nearest waypoint will appear on the top.

```
        WPT EDIT
   BAD KISS  EXCL.EMR
   LAT.: N 50°12.63'
   LON.: E 010°04.13'
   ELEV.: 0199m
```

3.2.4.2   Edit Waypoint

Following data can be edited after the procedure started.

- name
- coordinates
- elevation

Waypoints can be included in the NEAR AIRPORT function. To use that feature input **INCL.EMR**.

3.2.4.3   Input of a new waypoint

There are more ways to get a new waypoint into LX 500 database. After enter on NEW the procedure will start.

```
      WPT NEW
   COPY APT
   DATA?N
```

The copy procedure will copy one airport (or nav. aid) into waypoint database. After **N** a manual input of name, coordinates and elevation will follow.
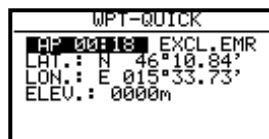
```
      WPT NEW
           EXCL.EMR
LAT.: N  00°00.00'
LON.: E 000°00.00'
ELEV.: 0000m
```
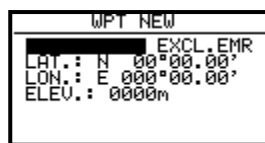
3.2.4.4   WPT delete

By using this function the waypoint will be removed from the database definitively.

```
    WPT DELETE
BAD KISS
DELETE: N
```
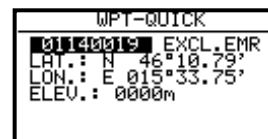
3.2.4.5   WP QUICK (storing of present position)

After pressing START key the actual position will be stored like AP: (time), or date (see SETUP). Storing of present position is possible only in waypoint mode.

```
    WPT-QUICK              WPT-QUICK
AP 00:18 EXCL.EMR     01140019 EXCL.EMR
LAT.: N  46°10.84'    LAT.: N  46°10.79'
LON.: E 015°33.73'    LON.: E 015°33.75'
ELEV.: 0000m          ELEV.: 0000m
```

Stored under time   Stored like date and time

The nane and other data can be edited any time.

3.2.5 RTE (route)

LX 500 route consists of maximal 10 waypoints. The memory capacity is 100 routes. Using of route will bring following advantages:

- Useable statistic during the flight
- Safe navigation from waypoint to waypoint (without selection)
- Simply to modify the route during the flight
- Automatic change over after reaching of waypoint

The menu structure is practically the same like by APT and WPT.
The only differency is the header where you can find **name of the actual waypoint and its position in the route**.
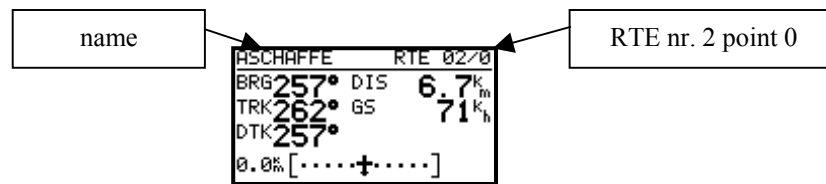

DTK is always set equal to BRG after selection. DTK can be changed during the flight. The graphical screen can make a good job for the pilot, aproaching to the waypoint
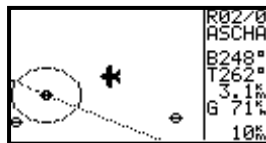
The waypoint marked 0 is always the initial point of the route.
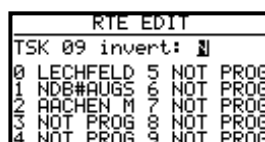
3.2.5.1 RTE select

The selection is done rotating **up/down** selector, RTE number and used waypoints will be shown. A **NOT PROG** message will inform you that the route has not been programmed.
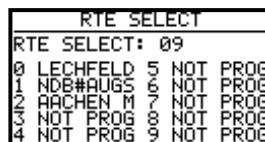
3.2.5.2 RTE edit

To modify the route use EDIT function. INVERT **Y** simple changes the numerical order of the waypoints.

To modify individual waypoints put the cursor on the selected waypoint and press enter.

```
        RTE EDIT
RTE 09:    460.7%
0 LECHFELD 27.1% 011°
1 NDB#AUGS  434% 307°
2 AACHEN M
3 NOT PROG
4 NOT PROG
```

SELECT will replace existing waypoint with a new one
INSERT will insert a new waypoint one position higher.
DELETE will delete the waypoint definitively.

```
        RTE EDIT
RTE 02:    739.8%
0 ASCHAFFE  ┌SELECT┐
1 VOR#ALLE  │INSERT│
2 NDB#AUGS  │DELETE│
3 HAGUENAU
4 LANDSBER  272m 107
```

```
        RTE EDIT
RTE 09:    460.7%
0 LE ┌WPT┐─┌SELECT┐
1 ND │NAV│ │INSERT│
2 AF └───┘ │DELETE│
3 NOT PROG
4 NOT PROG
```

The selection can be done from WPT database or from the NAV database (APT, VOR, NDB). Selecting from NAV will generate additional waypoints.

3.2.5.3   RTE new

Creation of new RTE is possible only having selected a NOT PROG before. The copy allows to copy a similar RTE and simply modifying it.

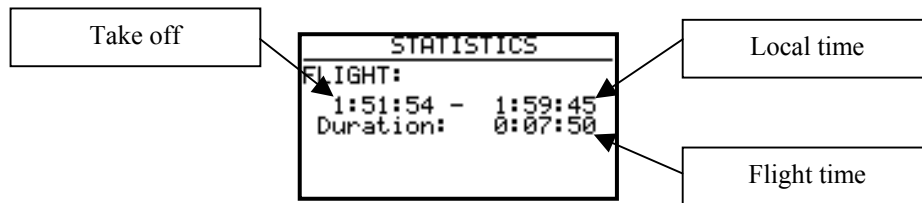```
        RTE NEW
EDIT NEW RTE:
  COPY RTE: N
```

### 3.2.5.4   Delete

Delete actual RTE definitively.

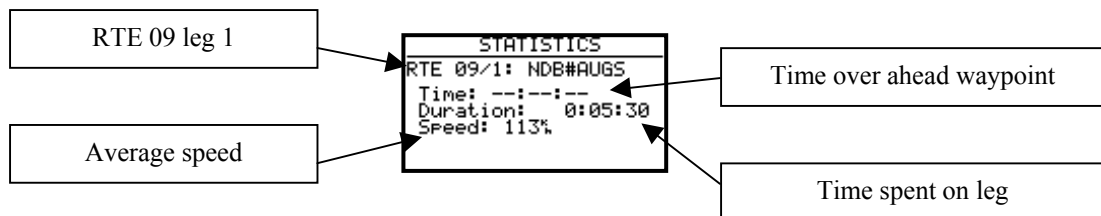## 3.2.6   Statistics

There are two levels of statistics, in flight and on ground in form of a logbook.
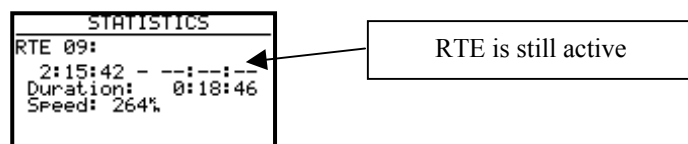
### 3.2.6.1  In flight statistics

| Take off | | STATISTICS | | Local time |
| | | FLIGHT: | | |
| | | 1:51:54 - 1:59:45 | | |
| | | Duration:  0:07:50 | | Flight time |

The flight starts a few seconds after take off automatically and opposite will happen after landing
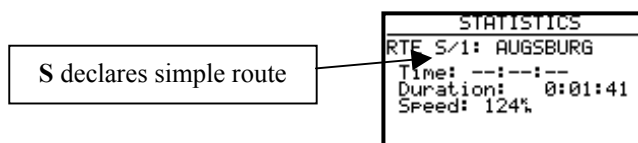
### 3.2.6.2  RTE Statistics

| RTE 09 leg 1 | | STATISTICS | | Time over ahead waypoint |
| | | RTE 09/1: NDB#AUGS | | |
| | | Time: --:--:-- | | |
| Average speed | | Duration:  0:05:30 | | |
| | | Speed: 113% | | Time spent on leg |

To select next legs use up/down selector.

| STATISTICS | | RTE is still active |
| RTE 09: | | |
| 2:15:42 - --:--:-- | | |
| Duration:  0:18:46 | | |
| Speed: 264% | | |

The last screen will show RTE statistics till actual position.

If no regular RTE has been flown, a very useable statistic data will be present. In that case we speak about „simple route". The take off position will be taken like the first point of the route. Following points will be set automaticaly if the airplane will be near an APT, VOR, NDB or waypoint. To inform the pilot what kind of route is he flying, **S** is added.

| **S** declares simple route | | STATISTICS |
| | | RTE S/1: AUGSBURG |
| | | Time: --:--:-- |
| | | Duration:  0:01:41 |
| | | Speed: 124% |

Immediately after a regular route starts, the „simple" variant will be deleted automaticaly.

### 3.2.6.3   LOG  BOOK

All flights are stored regarding date and flight time. After the memory is full the oldest flights will be lost. The **memory capacity indication** will show how many flighthours it is possible to fly **without loosing of previous flights.**

```
        LOGBOOK
08.01.02  2:42   2:45
08.01.02  1:51   2:36
08.01.02  0:32   0:55
08.01.02  0:03   0:19
```

3.3 Flying using LX 500

It is recommended to prepare and check the LX 500 on ground before take off.

3.3.1   Preparation on ground

After switching the LX 500 on the program and database version will be shown for a few seconds. Then the instrument switches automatically to the GPS mode. It is recommended to do the following procedures before take off:
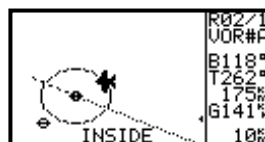
- Check GPS status
- Check settings
- Check required waypoints and airfields
- Create RTE

3.3.2

After the pre set ground speed has been reached, the logger will change from stop to run and logbook will supply statistics.

3.3.2.1   How to start the RTE ?

The RTE starts automatically after the aircraft reaches near cylinder (diameter set in OBS. ZONE) of the first point (**0**). The very significant indication is to **change of navigation data to the first waypoint (1).**

```
                    R02/1
                    VOR#A

                    B118°
                    T262°
                     175k
                    G141%
        INSIDE       10k
```

 The graphic page will show cylinder aproaching to the waypoint, ISIDE will confirm reaching of the near area. Not reaching the cylinder it is possible to start RTE simple by holding **START** key for **apr. 6 seconds** (simple wait till navigation will change). Use the same methode if you want to overjump one not reached waypoint. To restart the already started RTE use **RESTART** command.

```
  MENU RTE
GO DIRECT
 RESTART
  EDIT
 INS.NEAR
```

INS. NEAR will allow to set any point from NEAR AIRPORT, as a next waypoint of the RTE.

3.3.2.2   Change over ahead waypoint

The LX 500 will change over to the next waypoint automatically, after reaching near conditions. To skip one waypoint use DELETE or manually jump (START for 6 seconds) to the next.

3.3.2.3   RTE END

After the last point has been reached, the RTE will end. A very typical message will appear on the screen (**RTE END**). To allow start of a new RTE after RTE END use RESTART.

3.3.2.4   SIMPLE ROUTE

This function is active all the time if no regular RTE is started. After a regular RTE will be started, the simple RTE data will be deleted. To fly the "simple RTE" no pilot's setting is necessary. After reaching speed the actual position will be taken like the first point. Over flying waypoints, airports or nav. aids (should be selected), they will be stored like waypoints of a route. The in flight statistics will give useable data during the flight and normal flight evaluation on ground.

4 Communication LX 500-PC and other devices

LX 500 is able to communicate with:
- PC (LXe Programm, Strepla,Opti und CAL)
- LX 20
- Colibri
- Posigraph

Communication with Colibri, LX 20 and Posigraph base on:
- WPT, RTE bidirectional data transfer
- Flight info bidirectional

4.1 Communication LX 500-PC

Serial port is used to establish data exchange LX 500 – PC. A special cable, on one side 5P round and 9P SUB D on another side, is delivered with the unit.
The basic flight evaluation and communication PC program named Lxe is delivered on CD together with the unit (the old DOS program, LXGPS is still working with 8.0 and 6.0). Lxe is runs in Win. 95, Win. 98, Millenium and XP. Instructions how to use Lxe will be found in the help of Lxe (german and english). Following data excahnges can be realised using Lxe:

- Read log book (downloading flights)
- Read WPT and RTE (da4)
- Read flight info
- Write WPT and RTE (da4)
- Write flight info
- Write nav. aids
- Write airspace

To update the database it is obligatory to input the **release code** (the code is delivred through Filser Electronic exclusively).

The following procedure should be respected before data exchange starts.

- LX 500 SETUP/TRANSFER
- Run Lxe
- ENTER on LX500
- Wait till CONNECT on LX 500 will appear

The **CONNECT** message is an indication that both units are ready for data transfer. If the connection is not established an error message will follow (NO RESPONSE). Having problems getting CONNECT check following:

- Close aplicatons occupaing com port
- Check cables and connectors.

4.2 Communication with LX 20 and Colibri

Step	LX 20	LX 5000
1	MENU LOGGER	SETUP TRANSFER
2		ENTER
3	READ or WRITE key	Transfer
4		ENTER

LX 500

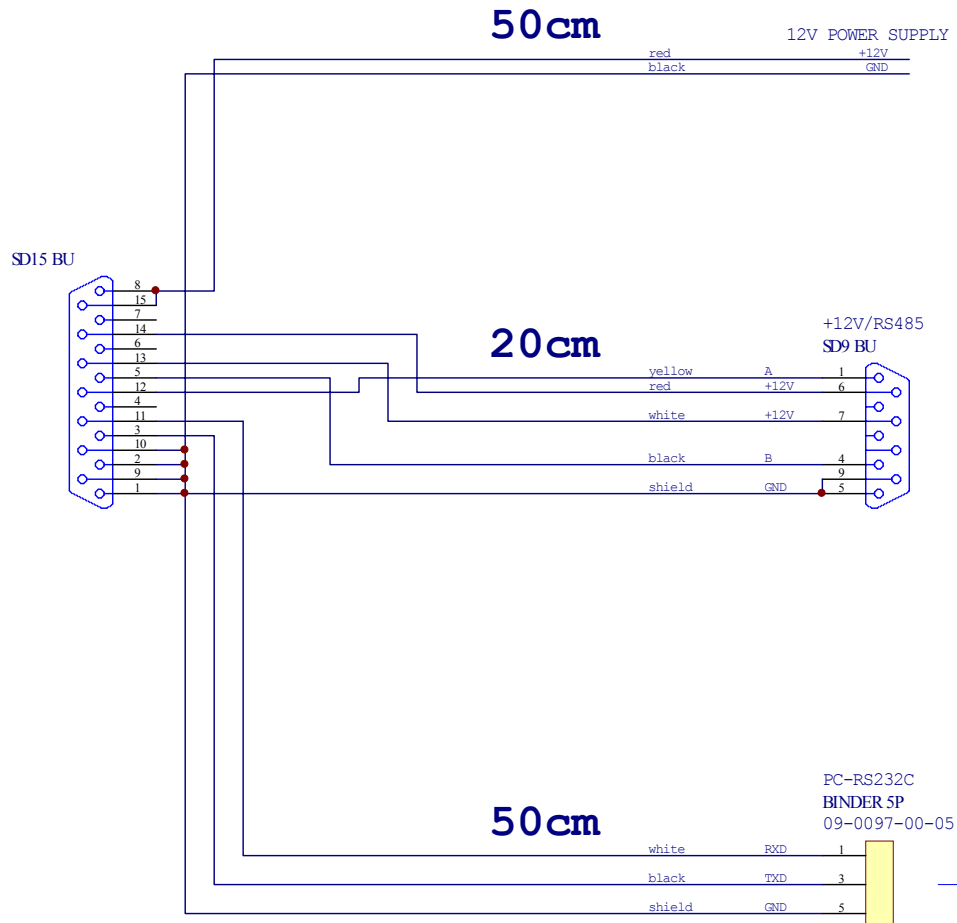| |
|---|
| READ WPT/RTE |
| READ INFO |
| WITE WPT/RTE |
| WRITE INFO |

5 Installation

The installation of LX 500 is very simple, as we know that the unit fulfils air norm 80 mm. Only one additional mechanical operation should be done. All four holes to fix the instrument should be 6.5 mm.
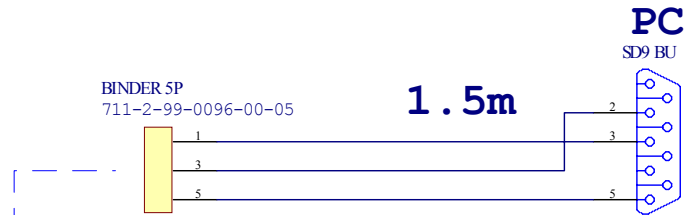
All electrical connections are done using one 15 P SUB D connector. The power line for the unit should be protected using an external fuse (2A). The power cable should be of min. 0.5 mm2.
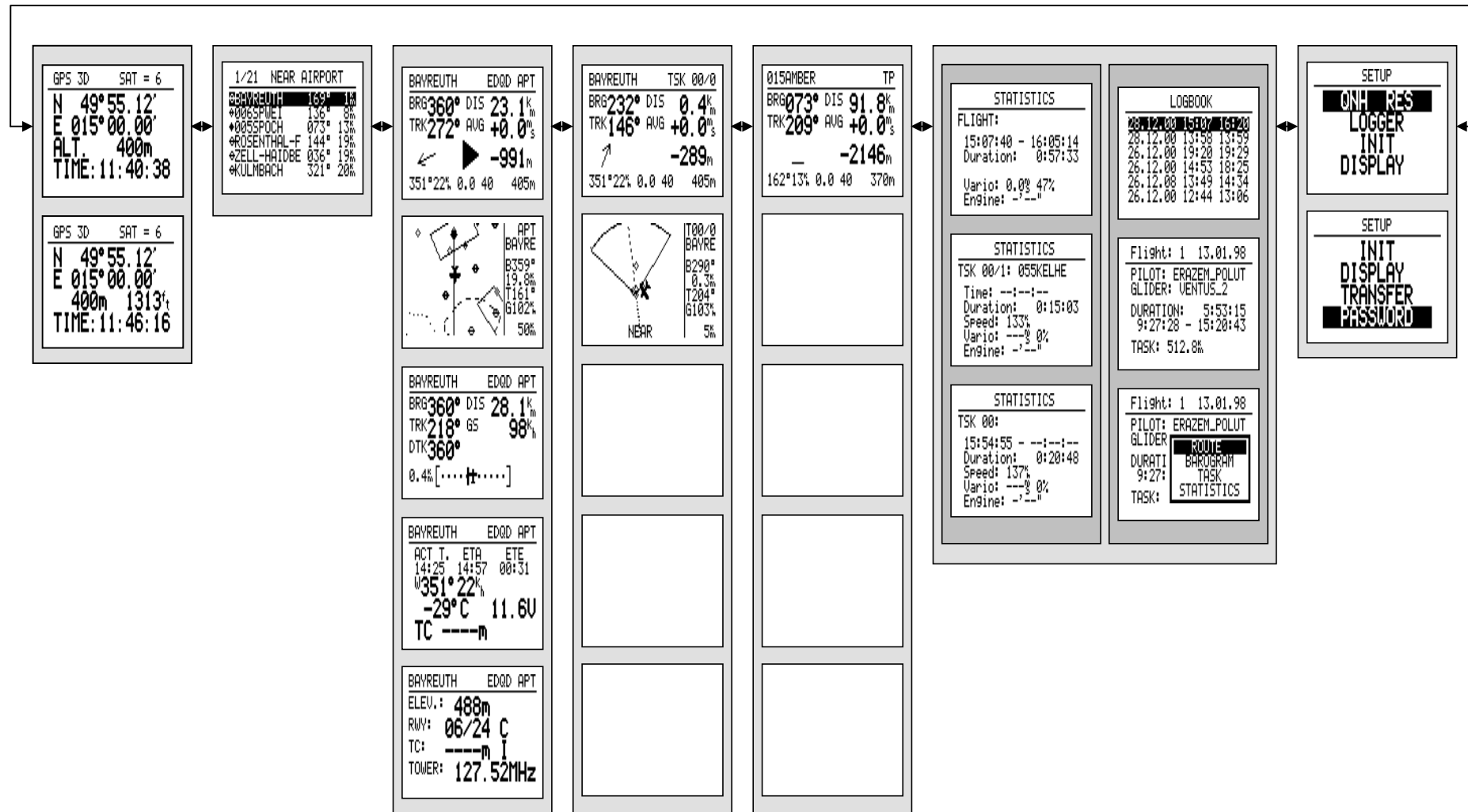
5.1 Wiring

LX500 WIRING

LX500 PC CABLE

50cm

12V POWER SUPPLY

red   +12V

black   GND

PC

SD9 BU

BINDER 5P
711-2-99-0096-00-05

1.5m

SD15 BU

8
15
7
14
6
13
5
12
4
11
3
10
2
9
1

20cm

+12V/RS485
SD9 BU

yellow   A   1
red   +12V   6
white   +12V   7
black   B   4
shield   GND   5

PC-RS232C
BINDER 5P
09-0097-00-05

50cm

white   RXD   1
black   TXD   3
shield   GND   5

5.2 Tree structure Diagram

6 Passwords

96990   System parameter
- **55556 will disconnect internal mounted GPS receiver and will activate NMEA input via PC port. After that it is possible to simulate flights to learn more about the instrument at home. To arrange flight simulation it is necessry to run LXSIM PC program and to connect the unit with PC cable to the PC. Following parameters can be simulated.**
- **Groundspeed**
- **Groundtrack**
- **Wind**
- **GPS status**
- **Position**
- **Airlane symbol is movin over the map**

This feature is very usefull to learn about LX 500 in details practicing at home.

7 Changes

8 BASIC NAVIGATION TERMS