

*Flybarless Control Gyro*  
**CGY760R**

Gyro Program Box  
**GPB-1**

**Software Update Functions**

## CGY760R Software Updating Procedure

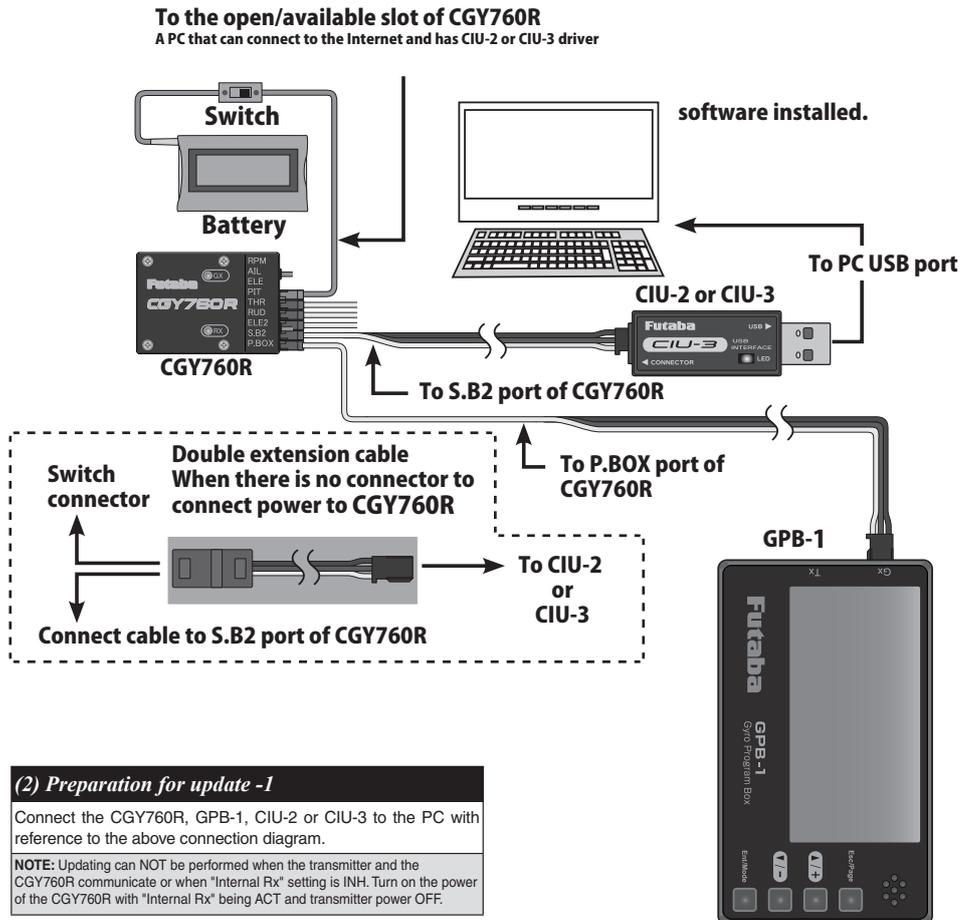
### GYRO UPDATE (Update mode of CGY760R)

This menu is used to adjust the update mode of the CGY760R. The mode selected will be determined by the model of the CIU selected and personal preference. For example, when using the CIU-3, the user may select either the high speed or the slow speed modes. If using the CIU-2, only the slow speed mode is available.

- \* The following optional products are required for the update.
  - CIU-2 or CIU-3
  - Cable for CGY760R / GY701 / GY520 or DSC cable for update

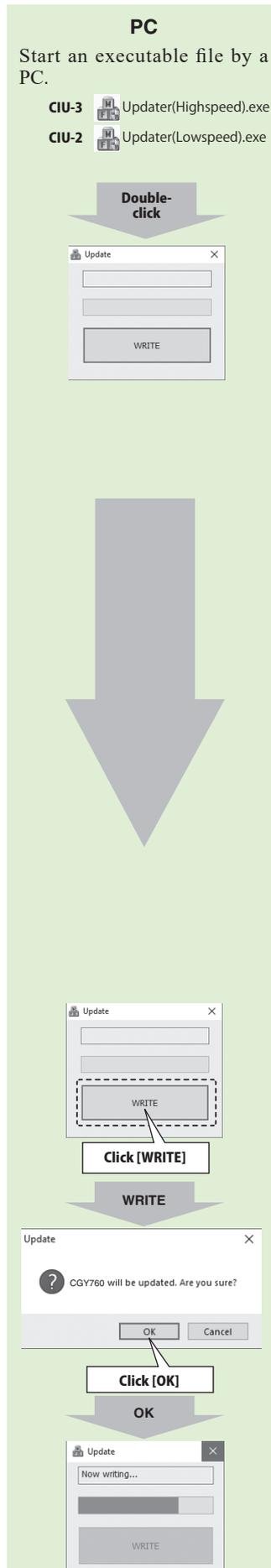
### (1) Download CGY760R update file

Download the CGY760R update file from our website or your local distributor's website.

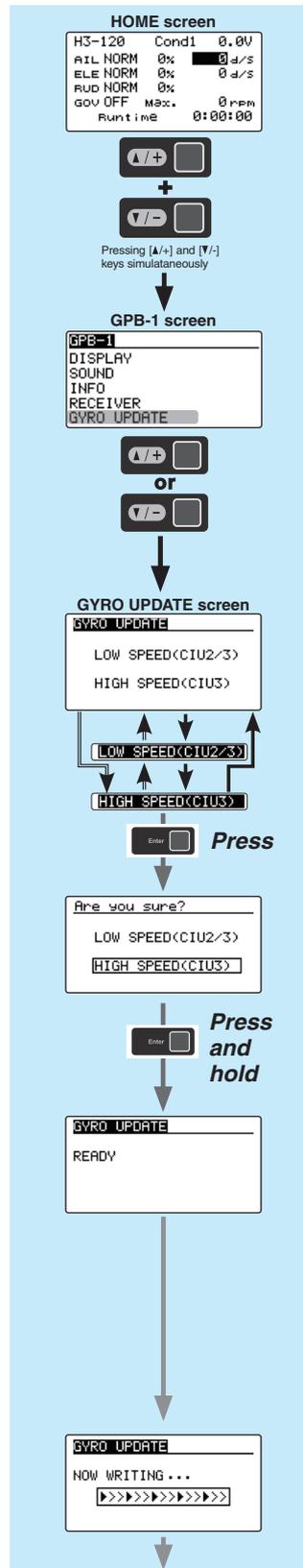


**NOTE:** Updating can NOT be performed when the transmitter and the CGY760R communicate or when "Internal Rx" setting is INH. Turn on the power of the CGY760R with "Internal Rx" being ACT and transmitter power OFF.

## PC side



## GPB-1 side



### (3) Preparation for update -2

Refer to the "GYRO UPDATE" screen from the GPB-1 menu screen.

### (4) Selection of CIU (Speed)

Use the [▲/+] or [▼/-] key to move the cursor to "LOW SPEED (CIU2/3)" or "HIGH SPEED CIU3" and press the [Enter] key. The "Are you sure?" indication will appear on-screen.

Press and hold the Enter key.

### (5) Perform update

Click on the update file downloaded to the PC to update the CGY760R.

### CAUTION

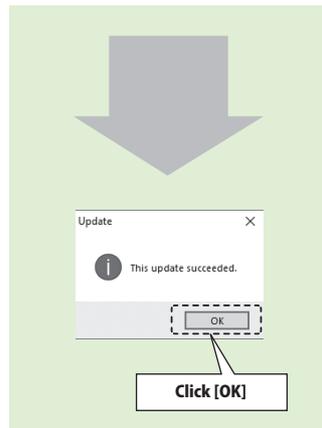
Do not turn off the power or remove the battery while updating. CGY760R and GPB-1 may be damaged.

If the update is not performed normally, "FAILED !" will be displayed. In If the update has failed, please start the process once again from the beginning. Should it fail once more, it is likely that the update file has been corrupted when downloaded previously. Please download this file and restart the procedure.

### GYRO UPDATE

FAILED !

## PC side



## GPB-1 side



### (6) Update complete

When the update has been successfully concluded, "Completed" appears on the screen of GPB-1.

This section shows error scenarios. On the PC side, three error dialog boxes are shown: "A CIU-2/3 is not connected.", "No product is connected.", and "This connected product does not match the update file.". On the GPB-1 side, a screen displays "PROGRAM UPDATE (HI) WRITE FAILED".

**Error**

If and error message appears, try redoing the update from the beginning.

If the cable disconnects or a contact failure occurs during the update, the update stops halfway. In that case, please try updating again from the beginning.

If the CGY760R / GPB-1 fails to update or does not start, please have it serviced.

## GPB-1 Software Update Procedure

### GPB-1 UPDATE

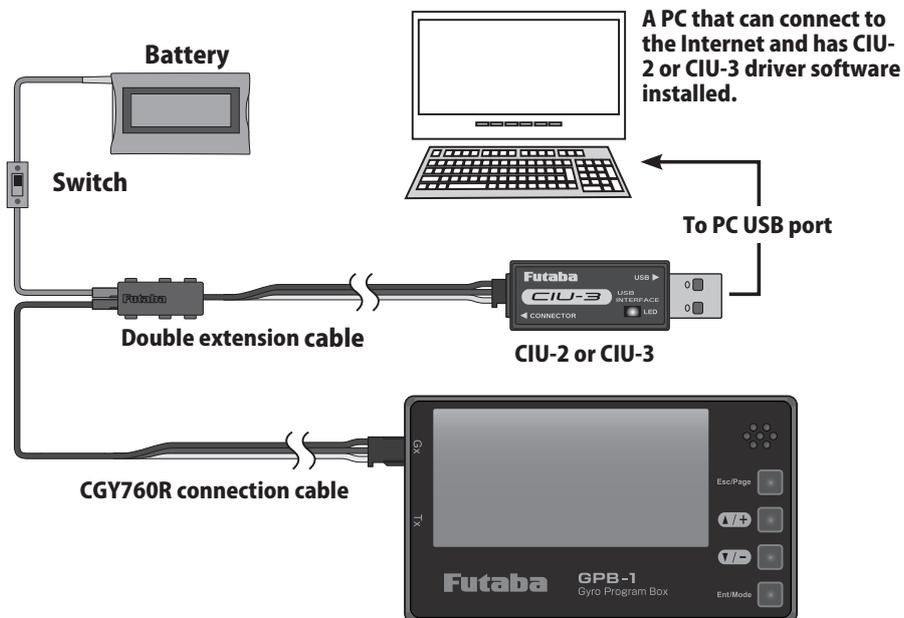
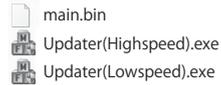
The GPB-1 can be updated from PC using CIU-2 or CIU-3.

\* The following optional products are required for the update.

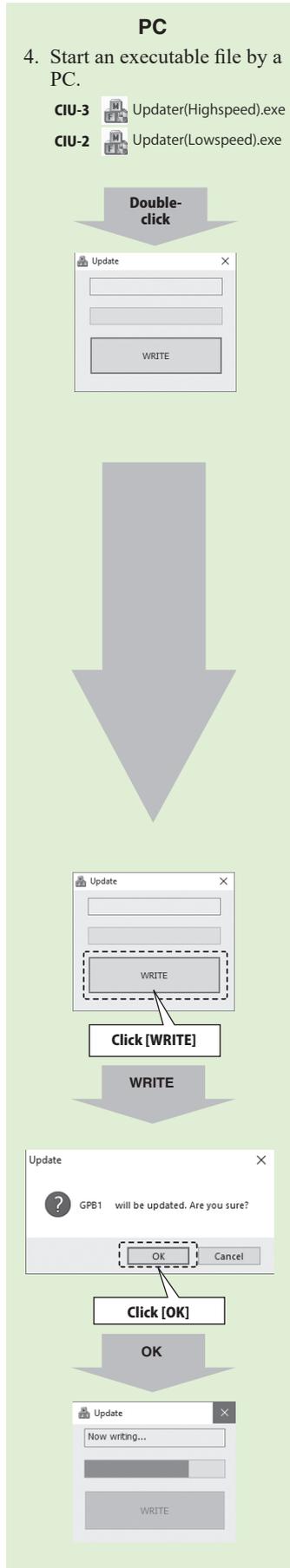
- CIU-2 or CIU-3
- Cable for CGY760R / GY701 / GY520 or DSC cable for update
- Receiver battery

1. Download the CGY760R update file from our website or your local distributor's website.

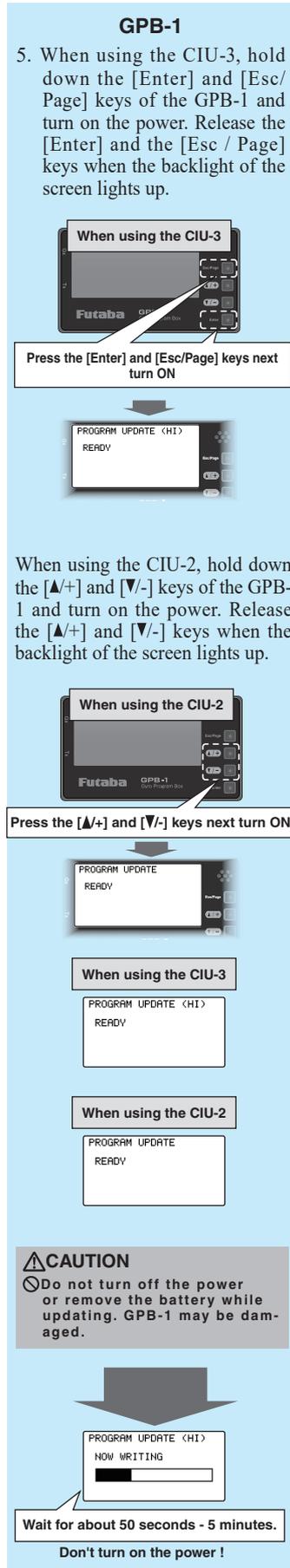
2. Extract the zip file on your computer.
3. Connect as shown in the figure.



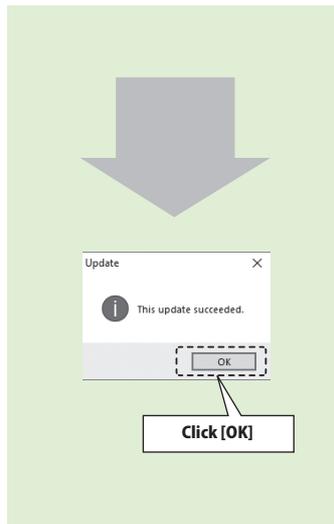
## PC side



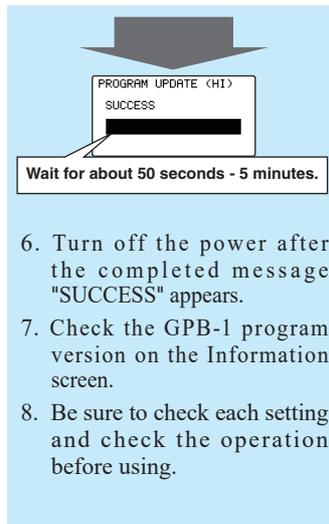
## GPB-1 side



## PC side



## GPB-1 side



**Error**

If and error message appears, try redoing the update form the beginning.

PROGRAM UPDATE (HI)  
WRITE FAILED

If the cable disconnects or a contact failure occurs during the update, the update stops halfway. In that case, please try updating again from the beginning.

If the GPB-1 fails to update or does not start, please have it serviced.

## Update Functions Ver 3.0

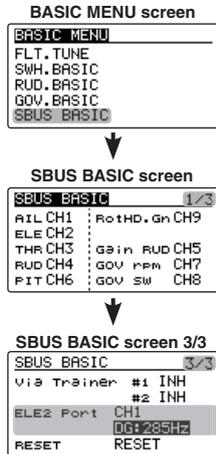
This software update adds or changes the following functions. In addition to the manual originally supplied with your system, please now refer to the following new instructions: (CGY760R and GPB-1 must be updated separately.)

Functions Ver 3.0	Necessity of updating	
	GPB-1	CGY760R
Added a servo type select function for using ELE2 ports other than swash.	○	○
Added the condition function to the "Base Gain" of the "FLT. tune" (aileron / elevator).	○	○
Added the condition function to the "Head Resp" of the "FLT. EXPERT".	○	○

## Functions Ver 3.0

### ELE2 (S.BUS connection) Additional Servo Type

Added a servo type select function for using ELE2 ports other than swash.



### (13) ELE2 channel Servo Type

*(If you want to use the ELE2 port for purposes other than swash.)*

This selects the ELE2 servo types. There are three types of the servo driving frequency selection, AN:70 Hz, DG285 Hz, and 760 μS. All Futaba digital servos can be operated with fastest DG:285 Hz mode but some of other brands of servos do not support DG:285 Hz mode. In this case, select the proper servo driving frequency per the manufacturer's specifications. Move the cursor to "Servo Type" by pressing the [▲/+] or [▼/-] key and press the [Enter] key to enter the setting mode. Then select the servo type with the [▲/+] or [▼/-] key. When "EXECUTE: Enter (1 sec)" is displayed, press the [Enter] key for about 1 second. This changes the selected type and exits the setting mode.

If you select H4-00 or H4-45 with 4 servo swashes, cannot set this ELE2 port servo type. In that case, select all swash servo types in SWH basic servo type.

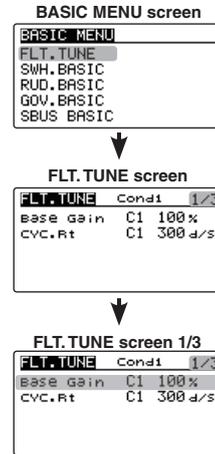
**Setting: AN:70Hz/DG:760 μ S/DG:285 Hz Initial setting: DG:285 Hz**

#### ⚠WARNING

❗ The servo type parameter within the CGY must match the type of servo you are using. Incorrect setting may damage the CGY or the servo. Incorrect setting may also result in a loss of control during flight.

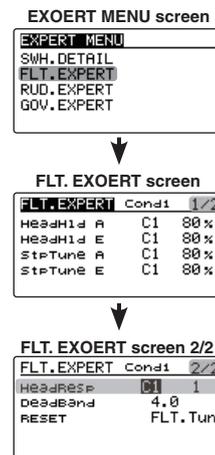
### Base Gain: Base Gain Condition

Added the condition function to the "Base Gain" of the "FLT. tune" (aileron / elevator).



### HeadResp: Head Response Condition

Added the condition function to the "Head Resp" of the "FLT. EXPERT".



## 3D VIA TRAINER Screen FUNCTION LIST

```
Via Trainer 1/10
<AIL/ELE>
Base Gain C1 100 %
CVC.Rt C1 300 d/s
Cnt.AuthAIL C1 40%
Cnt.AuthELE C1 40%
```

\*

```
Via Trainer 6/10
<FLT>
HeadHld A C1 80%
StpTune A C1 80%
HeadRESP C1 1
```

\*

```
Via Trainer 2/10
<AIL/ELE>
EXPO. C1 -20%
FLT.Styl C1 +50n
```

```
Via Trainer 7/10
<FLT>
HeadHld E C1 80%
StpTune E C1 80%
```

```
Via Trainer 3/10
<AIL/ELE>
ELE.Comp C1 0%
```

```
Via Trainer 8/10
<RUD>
EXP.AVCS -20%
EXP.NORM -20%
```

```
Via Trainer 4/10
<SWASH>
SWS.Rate C1 50%
PIT.Rate C1 50%
SWS.Rin9 C1 130%
```

```
Via Trainer 9/10
<RUD>
CNT.D1In 15n
CNT.D1In 15n
CNT.D1Out 12n
CNT.D1Out 12n
```

```
Via Trainer 5/10
<GOVERNOR>
GOV.Gain C1 40%
L Lmt.L rpm C1 25%
L Lmt.H rpm C1 45%
```

```
Via Trainer 10/10
<RUD>
ANG 720 d
Tail RESP. 1
```

\* The items with added condition function.

## Update Functions Ver 2.0

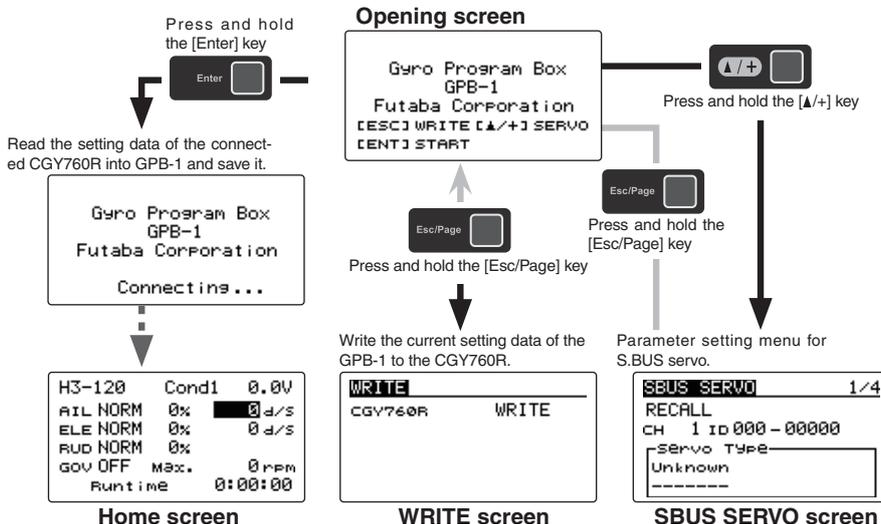
This software update adds or changes the following functions. In addition to the manual originally supplied with your system, please now refer to the following new instructions: (CGY760R and GPB-1 must be updated separately.)

Functions Ver 2.0	Necessity of updating	
	GPB-1	CGY760R
Another receiver can be used	○	○
ELE 2 can be operated when SWASH TYPE setting is "H1, H3 - XX"	○	○
"L. Scale" is added to the choice of setup style (Large scale model default value)	○	—
ELE. Comp can set condition and via trainer	○	○
When Governor function is INH, change so that gear ratio and number of poles can be set	○	—
When the setup style is "3D", the gyro gain of RUD is now adjustable in the RUD basic display.	○	—
GPB-1 setting data can be written to CGY760R (Setting data can be copied from other CGY760R to CGY760R)	○	—
S.BUS servo setting is possible with GPB-1	○	—

## Opening Screen

When GPB-1 starts up with power on, the opening screen is displayed first.

**CAUTION**  
 Since the data of CGY760R or GPB-1 is rewritten each power up, always check the operation key.



## Functions Ver 2.0

### Used by another receiver

#### RECEIVER (Receiver system setting)

On the "RECEIVER" screen, make sure that the CGY760R setting matches the protocol that is selected/utilized in the transmitter. Display the "RECEIVER" screen from the GPB-1 menu screen.

#### Note:

To change the "Receiver System" type, first power off the transmitter and receiver, and re-power the CGY760R while the transmitter is still in the OFF position. The only way to change the receiver type is by power cycling the gyro first.

**HOME screen**

```
H3-120 Cond1 0.0V
AIL NORM 0% 0.4/5
ELE NORM 0% 0.4/5
RUD NORM 0%
GOV OFF Max. 0 RPM
Runtime 0:00:00
```



Pressing [A/+ ] and [V/- ] keys simultaneously

#### GPB-1 screen

```
GPB-1
DISPLAY
SOUND
INFO
RECEIVER
GYRO UPDATE
```

#### RECEIVER screen

```
RECEIVER
FASSTest
Internal Rx ACT
```

#### FASSTest

```
Internal Rx INH
```

```
RECEIVER
Internal Rx INH
```

With "INH" setting the receiver system will not display.

#### RECEIVER

Set the same system as the transmitter to be linked. Move the cursor to the system such as "FASSTest" with the [A/+ ] or [V/- ] key and press the [Enter] key to enter the setting mode. Then select the system with the [A/+ ] or [V/- ] key. Since "EXECUTE: Enter (1sec)" is displayed. Pressing the [Enter] key for about 1 second changes the selected system and exits the setting mode. After changing the communication mode, link with the transmitter.

Setting: FASSTest / T-FHSS

#### Internal Rx

It is a setting to turn on / off the function of the internal receiver. In the same way as in "Receiver System", set ACT / INH of "Internal Rx" by pressing the [Enter] key for about 1 second. When "Internal Rx" setting is INH, (1) communication mode is not displayed.

Setting: ACT / INH

#### CAUTION

⚠ Please turn off the power when connecting the receiver.

If the power is on and connected, the CGY760R or the receiver may be damaged.

#### WARNING

⚠ If you do not turn off the power after changing "Internal Rx" setting to INH, the internal receiver is in operation. After changing the setting, please power cycle. If the power is not cycled, the receiver will not keep bind and the helicopter will crash.

### ELE2 (S.BUS connection)

When SWASH TYPE setting is "H1 and H3 - XX", CH operation of ELE 2 is possible.

#### BASIC MENU screen

```
BASIC MENU
FLT. TUNE
SWH. BASIC
RUD. BASIC
GOV. BASIC
SBUS BASIC
```

#### SBUS BASIC screen

```
SBUS BASIC 1/3
AIL CH1 : RotHD. Gr. CH9
ELE CH2
THR CH3 : Gain RUD CH5
RUD CH4 : GOV RPM CH7
FIT CH6 : GOV SW CH8
```

#### SBUS BASIC screen 3/3

```
SBUS BASIC 3/3
Via Trainer #1 INH
ELE2 Port #2 INH
RESET RESET
```

#### S. BUS connection: ELE2 (Elevator) channel

Select "ELE 2 CH" in the same way as other S.BUS connection channels and use the [A/+ ] or [V/- ] key to set the elevator 2 channels of the transmitter.

The "SWH BASIC" settings can be set only for H1 and H3-XX (When set to H4-XX, it is automatically set to ELE's CH setting.) If you change the setting between H1 and H3, the CH will remain as it is.

### Setup style "L.SCALE"

L.SCALE: Initial parameter mode corresponding to a large machine with a total length of 2.5 m or more.

#### BASIC MENU screen

```
BASIC MENU
FLT. TUNE
SWH. BASIC
RUD. BASIC
GOV. BASIC
SBUS BASIC
```

#### SWH. BASIC screen 1/5

```
SWH. BASIC 1/5
Setup style L.SCALE
Gyro set Dir 1
Servo Type DG:285Hz
SWASH Type H3-120
Servo Dir # 1
```

#### Setup style

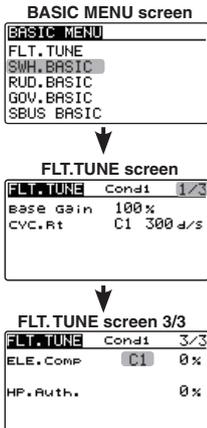
3D mode contains a proven set of parameters which are good for not only 3D but also F3C flying. F3C Mode and L.SCALE (Large scale model) Mode are for unique or special tuning types only.

\*The changed menu is indicated on a map.

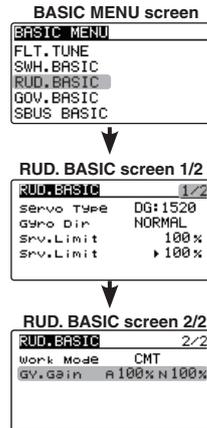
\*When the style is changed, setting of AIL/ELE/RUD is re-initialized and defaults are changed.

Move the cursor to "Setup style" by pressing the [A/+ ] or [V/- ] key and press the [Enter] key to enter the setting mode. Use the [A/+ ] or [V/- ] key to set the style. When "EXECUTE: Enter (1 sec)" is displayed. Press the [Enter] key for about 1 second to changes the selected style. The program will also exit the setting mode accordingly.

## ELE. Comp can set condition and via trainer



## Gyro base gain setting to RUD. BASIC



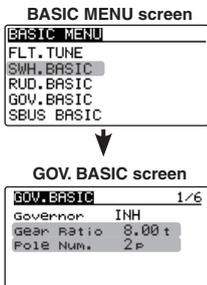
### GY. Gain: Gyro base gain setting

This parameter sets the base gain of the gyro. This can be used to adjust the gain % if your actual transmitter gain does not match the gain on the CGY760R correctly. Use the [▲/+] or [▼/-] key to setting the gain.

**Setting ranges:** 0 ~ 150% **Initial value:** 100%

## Gear Ratio and Pole number

When the Governor function is INH, gear ratio and pole number can be set.



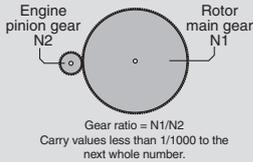
### Gear Ratio:

Input the main rotor gear ratio by pushing the [▲/+] or [▼/-] key to select the desired working mode.

**Setting ranges:** 1.00 ~ 50.00 t **Initial value:** 8.00 t

#### Notes:

- If the gear ratio is not properly set, the set speed and actual engine speed will be different.
- The gear ratio should be given in the helicopter instruction manual. If the helicopter instruction manual does not give the gear ratio, calculate the gear ratio as follows:



### Pole Num.: Pole number

This parameter is used when using a direct phase sensor attachment to a brushless motor lead. Input the motor pole count as specified by the brushless motor manufacturer. When using any revolution sensor other than a direct phase sensor type, set the pole number to 2 p.

**Note:** For nitro use, set to 2 p.

**Note:** The input signal range of the CGY760R is 0.0 v - 3.0 v. Exceeding this voltage range may cause damage to the CGY760R.

**Setting ranges:** 2 ~ 24 P **Initial value:** 2 P

## Writes data saved in GPB-1 to CGY760R

You can copy data when replacing the CGY760R in your machine.

- The data to be written is the "BASIC" menu and "EXPERT" menu.
- With the exception, the setting of ACT / INH of "Internal" on the "RECEIVER" screen of the GPB-1 menu is written.

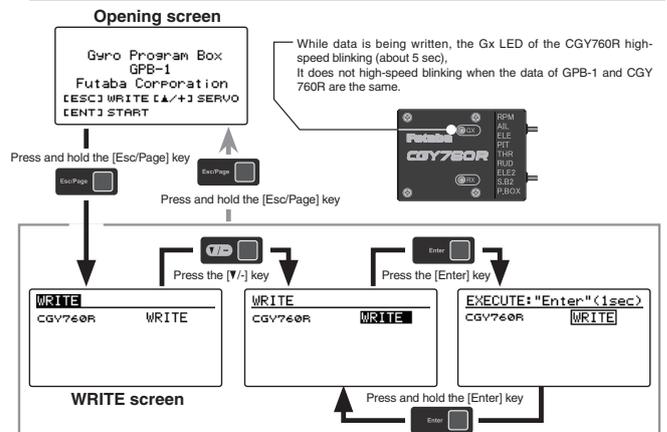
### ⚠ WARNING

After writing, if the setting is "INH", the internal receiver is operating without turning off the power supply once. If the receiver is connected while it is operating, the helicopter crashes with inoperable state.

- When copying from another CGY760R, connect the copy source CGY760R to the GPB-1 in advance and let the GPB-1 read the setting data.

### ⚠ CAUTION

If you press [Ent] start from the opening screen and display the home screen, the setting data of the connected CGY760R will be saved in GPB-1. Please save the setting data to be written again to GPB-1.



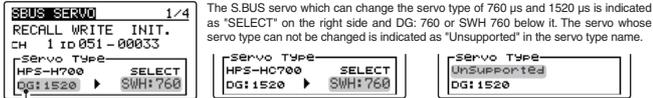


## Change servo type

Changing the servo pulse width from 1520 to 760 is possible with the servo type function.

### Display of "servo type" when reading

\* When "RECALL" is executed, the servo type name is displayed on the left side of the screen, and the current 760 or 1520 type is displayed below it. The S.BUS servo not supporting servo type change displays "Unsupported".

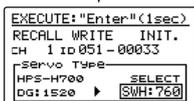


The S.BUS servo which can change the servo type of 760  $\mu$ s and 1520  $\mu$ s is indicated as "SELECT" on the right side and DG: 760 or SWH 760 below it. The servo whose servo type can not be changed is indicated as "Unsupported" in the servo type name.

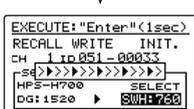
\* Current type



Press the [Enter] key



Press and hold the [Enter] key

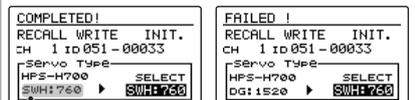


### Change servo type DG:1520 $\leftrightarrow$ DG:760

Change the servo type (760  $\mu$ s / 1520  $\mu$ s) to the connected servo. Move the cursor to the type under "SELECT" by pressing the [▲/+] or [▼/-] key. Press the [Enter] key to enter the changing mode. When "EXECUTE: Enter (1sec)" is displayed, use the [▲/+] or [▼/-] keys to select the servo type to change, press and hold the [Enter] key for about 1 second. To cancel, select press [Enter] key or [Esc/Page] key to exit the changing mode.

- "COMPLETED!" is displayed on the screen and The type display on the left side is updated to the changed type. Initialize each parameter.

- If "FAILED" is displayed on the screen, please go again or turn the power off and confirm the connection, then turn the power on and perform the operation again.



Updated servo type

\* A new S.BUS servo (example: HPS-H700) that can set both parameters for swash (SWH: 760) and Rudder (RUD: 760) is loaded first, the servo type name on the left side, DG: 1520, SWH: 760 is displayed under "SELECT" on the right side. Changing the servo type from SWH: 760 to RUD: 760 will display RUD: 760 under the servo type name the next time you load it. However, if you change the parameter of RUD: 760, the subsequent reading will show SWH: 760. Please mark so that the set servo type can be determined.

### Notes on servo set to 760 $\mu$ s

To connect the servo set to "DG: 760" or "SWH: 760" to AIL / ELE / PIT / ELE 2, set the servo type to "DG: 760".

To use the servo set to "DG: 760" or "RUD: 760" for RUD, set the servo type to "DG: 760".

Please set the servo type to "DG: 285 Hz" for the AIL / ELE / PIT / ELE 2 servo set to "DG: 1520". For RUD servo, set the servo type to "DG: 1520".

### CAUTION

Be sure to connect the servo and CGY760R with the same setting. If you connect a different setting servo with CGY760R, the servo may be damaged.

#### Servo type: 760 $\mu$ s



#### Servo type: 1520 $\mu$ s



### When the CH setting is DG1 or DG2

If the CH setting is DG1 or DG2, the servo type can not be changed. Before changing to Servo type, you need to set it to CH 1 to 16 with CH setting and execute "WRITE".



### CAUTION

The servo of 760  $\mu$ s is not connected to ordinary CH, SBUS / SBUS 2 connector such as receiver not compatible.

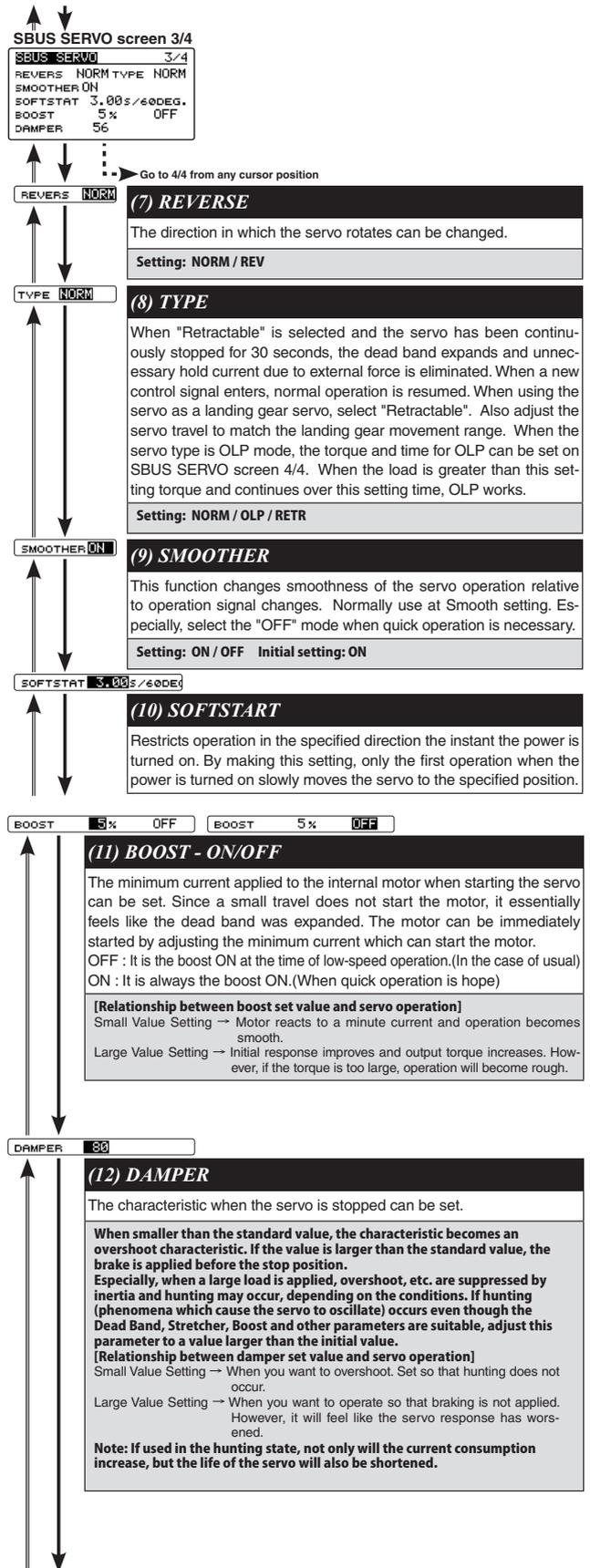
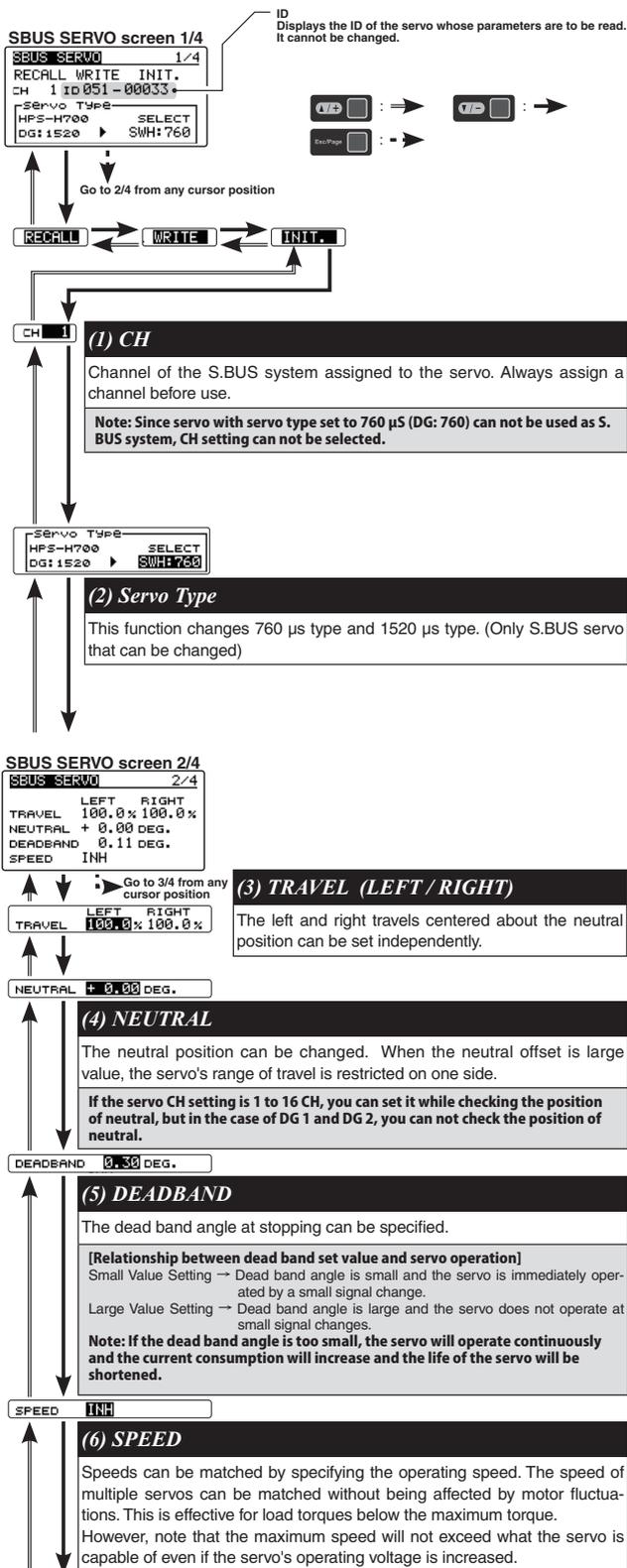
The servo may be damaged.

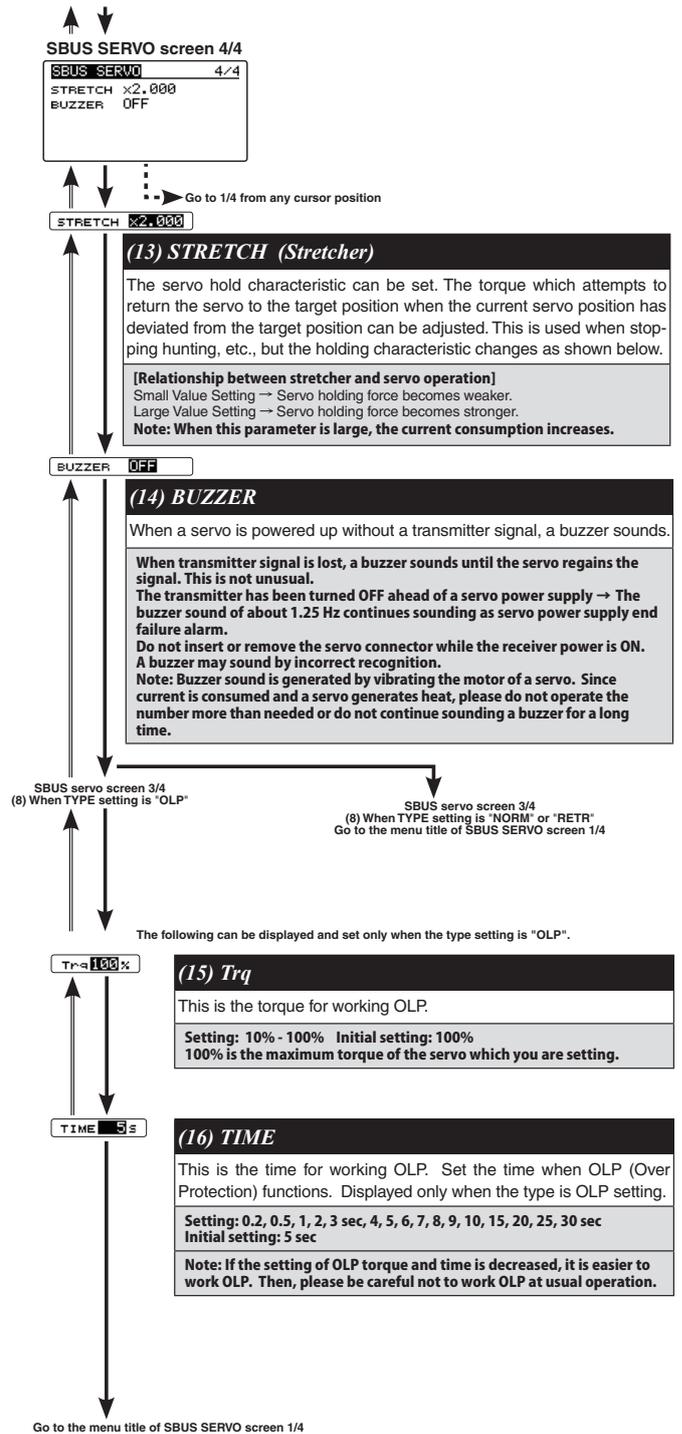
Do not set 760  $\mu$ s servo parameters with transmitter unsupported to 760  $\mu$ s and PC S-LINK software. Be sure to set parameters with GPB-1.

The servo may be damaged.

## Description of function of each parameter

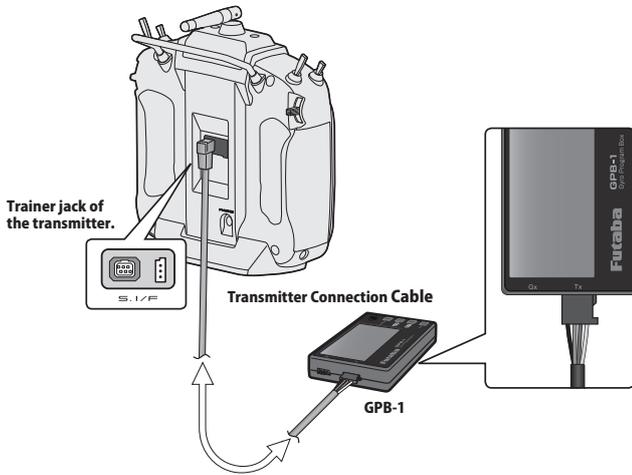
With some S.BUS(2) servos, there are some functions which cannot be used.  
If a function cannot be used, the display screen will change.





## VIA TRAINER FUNCTION

When using "Via Trainer" which wirelessly transfers gyro setting data from the transmitter, connect the transmitter and the GPB-1 as shown below.



### CAUTION

- ❗ Be sure to check the operation for all conditions 1 to 5 before flying.
- ❗ Be sure to connect and disconnect the transmitter and GPB-1 connection cable with the power off.

## 3D VIA TRAINER Screen FUNCTION LIST

Via Trainer 1/16	
<RIL/ELE>	
CYC.Rt	C1 300 d/s
Cnt.AuthAIL	C1 40%
Cnt.AuthELE	C1 40%

### -FLT.TUNE

CYC. Rt: Cyclic rate setting  
 Cnt. AuthAIL: Control Authority Aileron  
 Cnt. AuthELE: Control Authority Elevator

Via Trainer 2/16	
<RIL/ELE>	
EXPO.	C1 -20%
FLT.Styl	C1 +50%

EXPO.: Exponential  
 FLT. Styl: Flight style

Via Trainer 3/16	
<RIL/ELE>	
ELE.Comp	C1 0%

ELE. Comp: Elevator pre compensation

Via Trainer 4/16	
<SWASH>	
SWS.Rate	C1 50%
PIT.Rate	C1 50%
SWS.Ring	C1 130%

### -SWH. BASIC

SWS. Rate: Rate adjustment  
 PIT. Rate: Rate adjustment  
 SWS. Ring

Via Trainer 5/16	
<GOVERNOR>	
GOV.Gain	C1 40%
L Lmt.L rpm	C1 25%
L Lmt.H rpm	C1 45%

### -GOV. BASIC

GOV Gain: Governor gain  
 L Lmt. L rpm: Low limit hovering RPM  
 L Lmt. H rpm: Low limit idling RPM

Via Trainer 6/16	
<FLT>	
HeadHld A	C1 80%
StopTune A	C1 80%
HeadRESP	1

### -FLT. EXPERT

HeadHld A: Head hold aileron  
 StopTune A: Stop tune aileron  
 HeadResp: Head Response

Via Trainer 7/16	
<FLT>	
HeadHld E	C1 80%
StopTune E	C1 80%

HeadHld E: Head hold elevator  
 StopTune E: Stop tune elevator

Via Trainer 8/16	
<RUD>	
EXP.AVCS	-20%
EXP.NORM	-20%

### -RUD. EXPERT

EXP. AVCS: Rudder exponential AVCS  
 EXP. NORM: Rudder exponential NORMAL

Via Trainer 9/16	
<RUD>	
CNT.DlIn	15n
CNT.DlOut	15n
CNT.DlOut	12n
CNT.DlOut	12n

CNT. DlIn: Control delay in  
 CNT. DlOut: Control delay out

Via Trainer 10/16	
<RUD>	
ANG	720 d
Tail RESP.	1

ANG: Pirouette speed  
 Tail Resp: Tail response