Coachsound

The TourMaster User Manual

Multichannel Audio Server

Model: MLA2504

Contents

1.0 TOURMASTER SYSTEM OVERVIEW

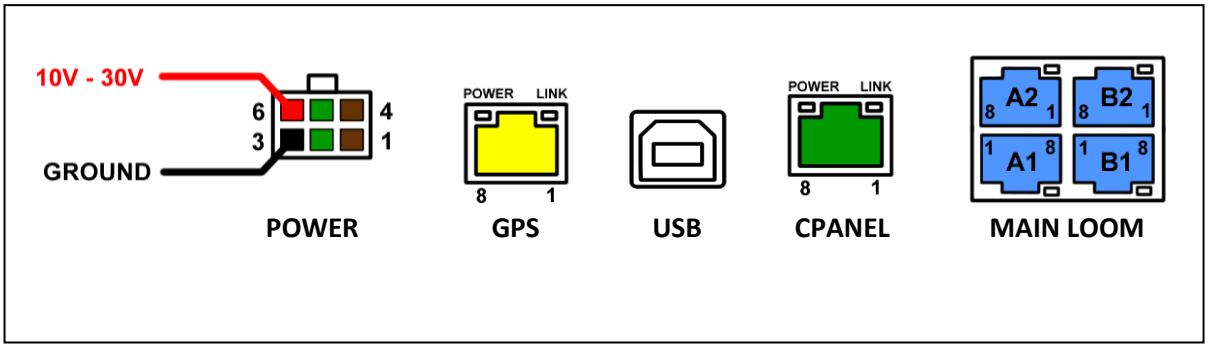
The Coachsound TourMaster is a multichannel tour commentary system that distributes audio to individual seats providing your passengers choice and control of volume and channels. The Coachsound TourMaster system consists of a central head-unit to which the GPS antennae, drivers control panel, microphones and other external audio sources such as DVD players are connected. These connected audio sources, along with the multi-lingual tour commentary and music storage integrated within the TourMaster, is converted to a high quality digital audio signal. This digital signal is then transmitted to each seat-based passenger controller.

This enables you to cater to different foreign speaking tourists on the same tour. The pre-recorded commentary can be manually triggered or set to trigger by GPS.

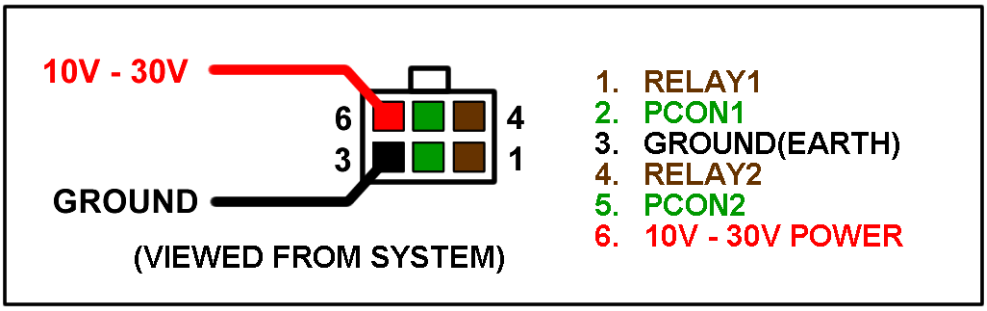
1.1 HEAD UNIT – ELECTRICAL PORTS AND CONNECTIONS DIAGRAM

The purpose of the TourMaster System Head Unit is to store pre-recorded commentary and audio that can be triggered via GPS and distributes the audio to individual seat controllers. Audio from additional external devices can also be distributed to individual seat controllers via the head unit.

Head Unit Port and Connections Diagram



1.2 POWER CONNECTION



This connection is the main power connection for the system. The system can operate from 10V to 30V (12V to 24V nominal) Total current required by the system depends on the supply voltage and the number of connected hubs and audio controllers.

- **10V-30V, GROUND - POWER SUPPLY:**

  These are the power supply connections to the system. The system is internally over-current protected but external fuse protection is recommended:

  - Connect power to ignition side of key and after isolating switches;
  - Recommended external fuse protection: 10 Amp
  - Maximum current (operational – ON via control panel): 5 Amps
  - Maximum current (shutdown – OFF via control panel): 100mA

- **PCON1, PCON2 - REMOTE POWER CONTROL:**

  If a control panel is not used with the system, shorting these two connections together via a switch offer an alternative method of powering up the system remotely.

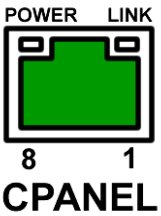
- **RELAY1, RELAY2 - SWITCHED OUTPUT:**

  These are contacts of an internal normally-open (N/O) relay. This relay can be programmed to perform different functions when commentary has been manually played or triggered via GPS. Various relay functions can be set via the "Relay Timer" setting in the Route Builder software tool:

  - **"ONE-SHOT":** Connection closes once for 1 second at the beginning of each commentary. This mode will be selected when the "Relay Timer" setting in Route Builder is set to '1'. This function can be used to activate an external chime;
  - **"FLASH":** Connection alternately opens and closes once per second. Total duration is set by the "Relay Timer" from '2' seconds to '59' seconds. This mode can be used to flash an external sign;
  - **"OFF":** Setting "Relay Timer" to '0' seconds deactivates the relay.

  Note: Maximum contact rating for this relay is 1 Amp.

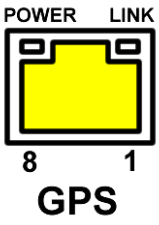
1.3 CONTROL PANEL PORT (CPANEL)



This is the connection for the Driver/Guide control panel. The "LINK" indicator will blink when keys are pressed on the control panel. If the "POWER" indicator goes out when inserting the control panel cable, there is a fault with the panel or panel cable. Remove and check cable and panel for faults.

- A GREEN cable is typically supplied for use with this connection.

1.4 GPS AERIAL PORT



This is the connection for the GPS aerial. The “LINK” indicator will blink once per second when the aerial is operating correctly. If “LINK” does not blink, then there may be a fault with the aerial or cable. If the “POWER” indicator goes out when connecting the aerial there is a fault with the aerial. Remove and check aerial cable and aerial for faults.

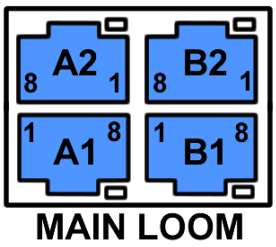
- GPS aerials with a yellow boot on the aerial cable will be compatible with this connection.

1.5 USB PORT

This is the USB connection. When the system is connected via USB cable to a PC, the control panel will display “USB CONNECTED” and the PC will show the system as a disk drive called “TOURMASTER” within Windows Explorer.

The USB port is used in conjunction with the coachsound “Route Builder” software tool to update and synchronize audio tour commentary for the system. (See document: “*Using the Route Builder Tool*”)

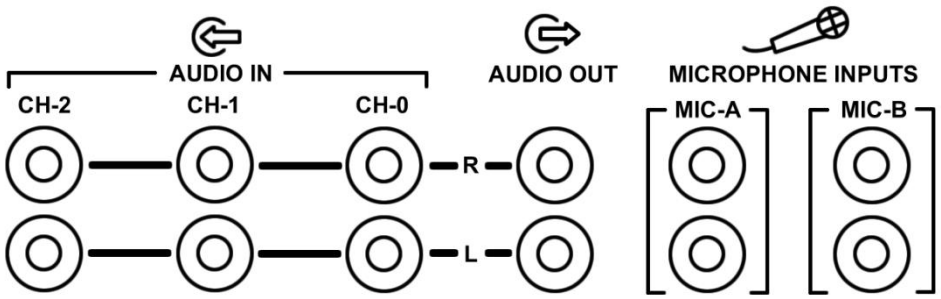
1.6 MAIN LOOM PORTS



The “MAIN LOOM” ports are 4 ports that provide power and digital audio to all hubs and audio controllers in an installation. “POWER” indicators will light when power is present at each loom port. An indicator that goes out when a cable is connected indicates that the over-current protection has activated and therefore is a fault on that loom. Disconnect the loom immediately and test for faults (See document: “*Coachsound Audio Systems: Main loom testing and fault finding*”)

Four ports are provided to allow easy installation into both single-deck and double-deck vehicles, as well as for situations when there are more hubs (audio controllers) that can be run from a single port.

1.7 AUXILIARY AUDIO CHANNELS



1.7.1 AUDIO IN

Stereo RCA input connections provide the option to connect up to three external audio systems such as DVD players, CD players etc to the system. Audio on these connections appear on the audio controller channels after the microphone channels (if enabled) and after any commentary channels and music zones.

SPECIFICATIONS (AUDIO IN):

- Connectors: RCA Stereo
- Audio Level: 0-1V RMS
- Input impedance: 10k Ohms
- Volume control per channel: YES, via control panel. See option: "*4.2.5 Adjust Volumes of Auxiliary Audio* Channels"

1.7.2 AUDIO OUT

One stereo RCA output connection provides the ability to output any audio channel available on the system to an external audio system such as a PA. The audio channel that is assigned to this connection can be changed via the option menu (See option: "*4.2.6 Set the Audio Out* Channel")

SPECIFICATIONS (AUDIO OUT):

- Connectors: RCA Stereo
- Audio Level: 0-1V RMS (Line level)
- Output impedance: 100 Ohms

1.7.3 MICROPHONES IN

Two sets of connectors are present for two independent microphone channels. Each microphone channel ('MIC-A' and 'MIC-B') has two connectors to allow either signal pass-through or the connection of multiple microphones to one input.

- "MIC-A" (when enabled) appears on headphone channel "0"
- "MIC-B" (when enabled) appears on headphone channel "1"

- Activation of the systems VOX (voice override) circuit can cause either MIC-A or MIC-B channels to override all other channels. This can be used (for instance) for live information or alert messages from the driver or tour guide. See option: "*4.2.8 Enable or Disable Microphone VOX* Overrides" for information on this feature.

SPECIFICATIONS (MICROPHONES):

- Connectors: 2 x RCA per microphone input (enables pass-thru or stacking)
- Microphone type: Dynamic (Electret types are not compatible)
- Audio Level: 0-100mV RMS
- Input impedance: 6k Ohms
- Gain control per microphone: YES, via control panel. See option: "*4.2.5 Adjust Volumes of Auxiliary Audio* Channels".

2.0 GETTING STARTED

To get started with your TourMaster system, you can create your GPS driven tour routes with pre-recorded audio commentary and music for your passenger journeys.

2.1 ROUTEBUILDER

The Route Builder software tool is used to set GPS waypoints and store pre-recorded tour commentary and journey information. This can include storage of commentary audio files and music.

Refer to the Routebuilder Guide for step by step instructions for system set up to create/update routes, segments and for adding audio files.

Note: Changes to route information can be easily updated on the original PC that the route was created on.

Section 4 of this manual covers manually setting GPS waypoints.

2.2 SYSTEM FOLDERS, FILES AND FORMATS

2.2.1 "$COM" FOLDER

This folder holds all route/tour information including GPS information and audio files. Its contents are created using the "Route Builder" software tool. The windows installer for the tool can be found in the "\TOOLS" folder on the system.

Note: Do not manually modify any contents of this folder. Any changes or modifications to your route(s) must be done via the "Route Builder" software tool and exported to the system to maintain synchronization with your master Route Builder database.

2.2.2 "MUSIC" FOLDER

The "MUSIC" folder is optional and can contain music or any other audio entertainment. This folder allows the system to also operate as a multi-channel Juke-Box which can be used to enhance the customer experience.

Music channels (ZONES) will appear on headphone channels after both the microphone and commentary channels, but before the external “AUDIO IN” channels.

“ZONE 1” audio can be used as “silence filler” audio between audio commentaries. See option: “*4.2.9 Set the Commentary-Idle* Function” for more information on this feature.

- The (optional) “MUSIC” folder must be at the root of the system disk;
- Inside the “MUSIC” folder, there may be several “ZONE” folders. Each “ZONE” represents a separate headphone channel;
- “ZONE” folder must be in format: “ZONE<space><number>” where <number> is valid from 1 to 10
- Inside each “ZONE” folder, there can be multiple music files. These files random-play within their own headphone channel;
- Audio files must be in 44.1kHz stereo PCM WAV format (WMA, MP3 etc are not supported)

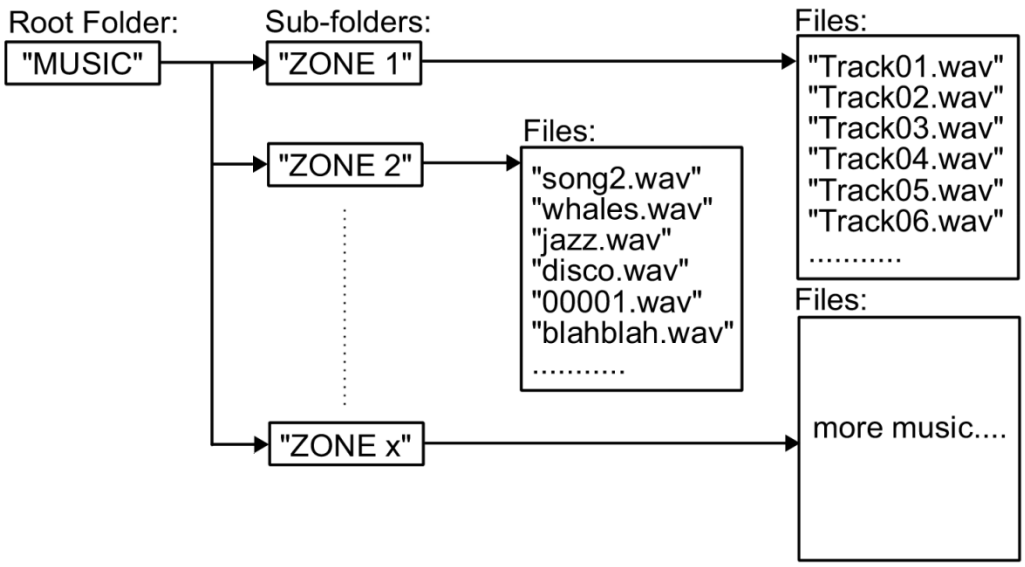


Figure 1 MUSIC folder structure

2.2.3 “SYSTEM” FOLDER

This is where system files are kept. Do not modify or delete this folder or any of the included files.

2.2.4 “TOOLS” FOLDER

This folder contains useful tools and also a demo database that can be used in conjunction with the “Route Builder” tool also found in this directory.

2.2.5 AUDIO FILE FORMAT

The recorded audio format is a follows:

- Audio tour commentary: 44.1kHz, 16-bit, PCM (WAV) format in MONO or STEREO
- ZONE (music channels): 44.1kHz, 16-bit, PCM (WAV) format in STEREO only

NOTES: Audio tour commentary can be recorded in mono or stereo, but all audio commentary files within the *same* route must be of identical format.

When a user changes routes (on the control panel) that have differing channel counts or audio format, all audio controllers will reset back to CH-0 to re-sync with the new channel count.

2.3 HEADPHONE CHANNEL ORDERING

The coachsound system offers a total of 22 mono or 11 stereo audio channels maximum. This channel 'stack' can be a mixture of mono and stereo channels. One stereo channel consumes two of the available 22 channels; a mono channel consumes one available channel.

The sequence in which the audio channels appear on the headphones depends on system settings, available channels and audio format, but is ordered as follows:

1. Two microphone channels (if enabled);
2. On-board audio commentary channels;
3. On-board ZONE channels;
4. Auxiliary audio IN channels.

Example 1:

- Microphones enabled: CH-0 and CH-1
- 5 x audio commentary channels (stereo): CH-2 thru CH-6
- No ZONES: -
- Audio IN channels: CH-7, CH-8, CH-9
- Unused (silent) channels: CH-10, CH-11

Example 2:

- Microphones disabled: -
- 10 x audio commentary channels (mono): CH-0 thru CH-9
- 2 x ZONE channels: CH-10, CH-11
- Audio IN channels: CH-12, CH-13, CH-14
- Unused (silent) channels: CH-15

Example 3:

- Microphones disabled: -
- 10 x audio commentary channels (stereo): CH-0 thru CH-9
- 2 x ZONE channels: CH-10 (second ZONE is unavailable)
- Audio IN channels: unavailable

3.0 BASIC SYSTEM OPERATION

This section explains the basic operation of the system of which the driver or guide would typically need to know:

- Powering the system;
- GPS Status messages;
- Manual versus Autonomous mode;
- Selecting Routes and Segments;
- Playing, pausing and stopping audio commentaries;

3.1 DRIVER/GUIDE CONTROL PANEL

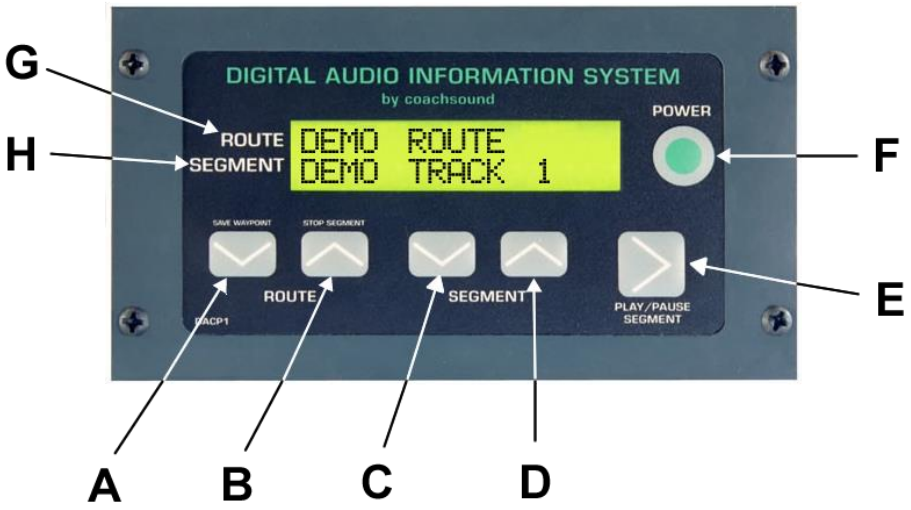


Figure 2 Driver/Guide Control Panel

- **A:** Decrement to previous ROUTE (Tour) + save GPS waypoint
- **B:** Increment to next ROUTE + STOP audio commentary
- **C:** Decrement to previous audio SEGMENT (P.O.I.)
- **D:** Increment to next audio SEGMENT
- **E:** Play/pause current audio commentary
- **F:** Power key
- **G:** Name of selected ROUTE and current audio status.
- **H:** Name of selected SEGMENT and current GPS status

3.2 POWERING THE SYSTEM

Pressing the POWER key will toggle power to the system ON and OFF.

- When the system is turned **OFF**, the backlight will be turned off and the display will show "POWER OFF" plus the firmware version of the control panel (this is not the version of the system unit)

POWER OFF MLACP v1.00

- When the system is turned **ON**, the backlight of the display will light up and a sequence of boot messages will be displayed:

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BUILDING DB PLEASE WAIT...

- When the system has booted, the following messages may be displayed:

NO COMMENTARY FOUND	No commentary has been found. The "Route Builder" tool must be used to export a valid route to the system.
DEMO ROUTE DEMO SEGMENT 1	The system has successfully booted and has loaded the default Route and default audio segment.

Note: Once booted and if GPS is enabled on the system, the display will show various GPS status messages.

3.3 GPS STATUS MESSAGES

- If GPS is enabled, there may be the following GPS messages toggling on the display upon power-up:

NO GPS SIGNAL DEMO SEGMENT 1	"**NO GPS SIGNAL**" indicates that there is a problem with the GPS connection. A technician should check the GPS connection for cable faults or faulty aerial.
NO GPS FIX DEMO SEGMENT 1	"**NO GPS FIX**" is typical at first power-up. The system normally takes a few minutes to gain a GPS fix. Note that the vehicle must have a clear unobstructed view of as much of the sky as possible to gain a GPS fix quickly.

- When the GPS subsystem is operating correctly and all segments in the route have valid GPS information, the following status will appear:

DEMO ROUTE GPS TRACKING...	"**GPS TRACKING…**" indicates that the GPS is fully functional and the system is operating autonomously. User intervention in this mode is not required during normal operation. This is the normal mode of operation when GPS is enabled.

NOTES:

- If GPS functionality is disabled (See option: "*4.2.4 Set GPS On or* Off" option), none of the above messages will appear as the system will be permanently in MANUAL mode.
- If the selected route has one or more segments missing GPS information, the system cannot fully enter autonomous GPS mode. This needs to be resolved before the system can operate 100% autonomously. Please see: "*4.1 Saving GPS* Waypoints" for an explanation of these other status messages referring to missing GPS information.

3.4 MANUAL VS AUTONOMOUS (GPS) MODE

- **Manual Mode**

  System operation without GPS tracking is called “manual mode”. In this mode, the Route and Segment must be pre-selected before manually playing the audio segment via the PLAY key. (The selected Route and Segment is displayed on the control panel). After the commentary has finished playing, the system auto-increments to the next segment in the playlist (playlist order is set via Route Builder). The user therefore *only* needs to press the PLAY key at the correct location to continue the audio commentary in order as dictated by the playlist.

- **Autonomous (GPS) Mode**

  System operation with GPS tracking is called “autonomous mode”. In this mode, only the required route needs to be pre-selected before starting the tour. Once the route has been selected, there is no need to manually operate the system (unless GPS fix is lost, or it is required to manually play a particular commentary, or to stop a commentary that is already playing) The GPS will auto-trigger all audio segments while en-route based on triggering rules assigned via Route Builder. If the vehicle goes off-route (road works etc.) the system will seek for the next GPS location (segment) that is within the route and will carry on without issue.

3.5 SELECTING ROUTES

Pressing the ROUTE UP or DOWN key (if there are multiple routes on the system) will display the name of the next/previous route and ask for confirmation for the route change. Pressing the PLAY key within 5 seconds confirms and selects the new route; otherwise after 5 seconds, the current route will remain selected and the system will return to its previous (manual or auto) operation.

CITY TOUR PLAY TO ACCEPT

A ROUTE key has been pressed and the next route called “CITY TOUR” has been displayed. Pressing the PLAY key within 5 seconds changes the route to “CITY TOUR”.

3.6 SELECTING AUDIO SEGMENTS

Pressing the SEGMENT keys in either MANUAL or AUTO mode will select the next/previous segment in the playlist as set in Route Builder.

In MANUAL mode, the new segment is displayed on the second line on the panel and will be the segment that plays next when the PLAY key is pressed.

In AUTO mode, changing segments is only required if the user needs to manually play a particular segment while en-route. Pressing either segment key causes the system to temporarily change from AUTO to MANUAL mode. While in manual mode, the panel will show the currently selected segment instead of “GPS TRACKING…”. The user then scrolls to the required segment and presses PLAY. Key inactivity for more than 5 seconds causes the system to revert back to AUTO mode.

3.7 PLAYING, PAUSING AND STOPPING AUDIO SEGMENTS

In MANUAL mode, pressing PLAY will play the currently selected segment displayed on the panel second line. The system will auto-increment to the next segment in the playlist once the current segment has finished playing.

In AUTO mode, the user does not need to manually play the audio commentary unless required. The GPS subsystem tracks the location of the vehicle and automatically plays the correct audio segment based on playback rules set in Route Builder.

If the user requires to play a particular audio segment manually then using the segment keys, scrolls to the desired segment and presses the PLAY key (After 5 seconds of panel inactivity, the system may revert back to AUTO mode)

- To **PLAY** a segment, select the segment and press the PLAY key. “PLAYING AUDIO” will then be displayed:

  ```
  PLAYING AUDIO:
  DEMO SEGMENT 1
  ```

- To **PAUSE** the audio when already playing (either from manual or auto mode), press the PLAY key once again. “PAUSED AUDIO” will then be displayed. The panel will “beep-beep” once per second to notify the user that the system is in paused mode.

  ```
  PAUSED AUDIO:
  DEMO SEGMENT 1
  ```

- To **STOP** the audio, the user must first PAUSE the audio. Once paused, press the ROUTE–UP key (a.k.a. “STOP COMMENTARY”). This will stop the current audio commentary and the system will revert back to its previous mode of operation.

4.0 ADVANCED SYSTEM OPERATION

This section explains the advanced operation of the system. These settings are generally used only during system setup. Drivers and guides generally do not need to know how to use advanced operations.

- Saving GPS waypoints;
- Modifying system settings;

4.1 SAVING GPS WAYPOINTS

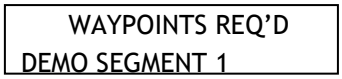
Before coachsound systems can be used autonomously with GPS, all audio segments in the route (tour) must have valid GPS information. The best way to do this is via the "Route Builder" tool and this is the preferred method.

An alternative method is to manually save GPS waypoints to specific segments using the control panel. This is done when the vehicle is stationary at the location, or travelling past the location that needs saving.

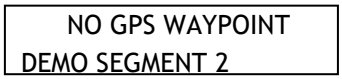
Saving a GPS waypoint to a segment while *stationary* at a location versus *travelling past* a location results in different saved results:

- **STATIONARY AT**: The GPS location is saved, but any heading setting will be removed. Audio for this waypoint will trigger to play irrespective of the vehicles heading;
- **TRAVELLING PAST**: If travelling > 10mph (15kph) past the location, both the GPS location and the vehicles heading is saved. Audio for this waypoint will trigger to play only if the vehicle is on the same heading as when it was saved.

If a selected route has missing GPS information, then certain GPS status messages will be displayed on the panel (if GPS is enabled):



"WAYPOINTS REQ'D" indicates that there is missing GPS information for at least one segment in the selected route.



"NO GPS WAYPOINT" indicates that the currently selected segment is missing GPS information. (In this case "Demo Segment 2" requires GPS information to be saved to it)

If the selected route contains segments with missing GPS information, then en-route these need to be manually selected and played. All other segments within the route will continue to play autonomously via GPS while en-route.

IMPORTANT: Once necessary segments in the route have had their GPS information updated manually, it is essential to import the new GPS information back into "Route Builder". This ensures that the master database for your routes/tours is kept in sync with the latest changes. See document "*Using the Route Builder Tool*".

4.1.1 SAVING A WAYPOINT-MANUAL METHOD

1. Ensure that the GPS option is enabled and the system has a valid GPS fix;
2. Before approaching the location, use the segment keys to scroll to the segment that requires the new GPS information;
3. Press and hold the PLAY key and then also press the ROUTE DOWN key (a.k.a. "SAVE WAYPOINT"). This action needs to be performed within 5 seconds otherwise the system may resume autonomous mode.

4. You should have the following message on the panel. If you accidentally play the audio instead, you must pause and stop the audio and try again;

```
SAVE WAYPOINT?
PLAY=Y, OTHERS=N
```

5. [illegible] "save waypoint" function. You should then see the following message:

```
ARE YOU SURE?
PLAY=Y, OTHERS=N
```

6. When you are either stationary at, or travelling past the location, press PLAY again to confirm the save. It is at this stage that the system reads the most current GPS location from the aerial.
7. Once saved by the system, you should see something similar to the following message. This is the GPS co-ordinates of the location that was just saved. This is displayed so you can write down the co-ordinates if required.

```
LAT: 01234.5678S
LON: 12345.6789E
```

8. Press PLAY again to return to normal operation.

Notes:

- Once GPS waypoints are saved for ALL segments in the selected route, the display will change to "GPS TRACKING…" and the system will become fully autonomous.
- If the selected route has a "Chime Delay" setting, you need to take this into account when choosing the location to save the new GPS position. If the chime delay is set to (say) 3 seconds, then the GPS location to be saved should be 3 seconds *before* you arrive at the location at normal travelling speed.

4.1.2 ERROR MESSAGES WHEN MANUALLY SAVING GPS WAYPOINTS

The following are potential error messages that may appear when trying to save a GPS waypoint:

```
GPS DISABLED
PRESS ANY KEY...
```

"GPS DISABLED" indicates that the GPS option is turned off. See "4.2.4 Set GPS On or Off" to turn this option on.

```
NO GPS SIGNAL
PRESS ANY KEY...
```

"NO GPS SIGNAL" indicates that there was no signal from the aerial when trying to save a waypoint. There may be a problem with the GPS aerial.

```
NO GPS FIX
PRESS ANY KEY...
```

"NO GPS FIX" indicates that the GPS has no fix. Either wait longer for a fix or move to an unobstructed view of the sky.

```
COULD NOT SAVE
PRESS ANY KEY...
```

"COULD NOT SAVE" indicates that there was an unknown problem when saving the GPS location. The new information has probably not been saved.

4.2 MODIFYING SYSTEM SETTINGS

The system has a range of options and settings that can be modified to suit the needs of the tour. These options are managed from within the option menu.

Within all options, the PLAY key is the "YES" or "ACCEPT" key and the other keys (except POWER) are the "NO" keys.

System settings include:

- Set to load-default or resume-previous route and segment at power-up (manual mode)
- Set default route and segment at power-up (manual mode);
- Turn GPS autonomous mode on and off;
- Adjust volumes of the AUDIO-IN and MICROPHONE inputs;
- Set the channel that appears at the AUDIO-OUT connector;
- Turn the microphone input channels on and off;
- Turn the microphone voice override (VOX) function on and off;
- Select the silence filler function between commentaries;

4.2.1 ENTERING THE OPTION MENU

Before any settings can be changed, the user needs to enter the option menu. To enter the option menu, the system must be idle (not playing an audio commentary).

1. Press and hold down the PLAY key;
2. While holding down the PLAY key, also depress both the SEGMENT up and down keys;
3. If successful, you should see the message below:

MODIFY OPTIONS? PLAY=Y, OTHERS=N

Holding down PLAY and then SEGMENT UP and SEGMENT DOWN displays this message.

4. Pressing PLAY again at this point will enter the option menu (Any other key except power will exit the menu and return to normal operation)
5. If you instead manage to play a commentary, you need to first pause and then stop the commentary and try again;

4.2.2 MODIFY INITIAL ROUTE AND SEGMENT

INITIAL R/S? PLAY=Y, OTHERS=N

Pressing PLAY will allow modification of this option. Pressing another key will skip to the next option.

This option determines which route and segment will be initially loaded by default at power-up.

The options are:

- **DEFAULT**: The saved default Route and Segment are loaded at power up (See option: "*4.2.3 Set Default Route and* Segment")
- **RESUME**: (Valid when the system is operated in MANUAL mode only) The system remembers the last route and segment before the system was shut down and reloads these at next power-up. This setting is useful if the vehicle stops (for example) for lunch and powers down the system during the lunch.

To modify this option:

STATUS: DEFAULT SEGMENT UP, PLAY

Use SEGMENT UP to choose the required setting. Once the setting has been made, press the PLAY key to save.

OPTIONS UPDATED. PRESS ANY KEY...	The new setting has been saved; press any key to return to normal operation.

4.2.3 SET DEFAULT ROUTE AND SEGMENT

SET DEFAULT R/S? PLAY=Y, OTHERS=N	Pressing PLAY will allow modification of this option. Pressing another key will skip to the next option.

This option changes the default Route and Segment that loads at power up in manual mode. For this option to be enabled, the option "*4.2.2 Modify Initial Route and* Segment" must be set to "DEFAULT".

To modify this option:

1. *Before* entering the OPTION menu, use the panel to scroll to the required route and segment that you want to become the new defaults at power-up;
2. Enter the option menu and scroll (up) using the SEGMENT key to the "SET DEFAULT R/S?" option and press PLAY to enter the option;
3. Press PLAY again. The following message will appear:

ARE YOU SURE? PLAY=Y, OTHERS=N	Press PLAY to accept the change. Other keys will reject the change and quit the option menu.
OPTIONS UPDATED. PRESS ANY KEY...	The setting has been saved; press any key to return to normal operation.

4.2.4 SET GPS ON OR OFF

SET GPS ON/OFF? PLAY=Y, OTHERS=N	Pressing PLAY will allow modification of this option. Pressing another key will skip to the next option.

This option turns the GPS autonomous mode on or off. Some installations do not require the GPS functionality (in stationary installations for example) and therefore to prevent GPS status messages from flashing on the panel, it is wise to turn the GPS function off completely.

The options are:

- **ON**: This enables the GPS autonomous mode.
- **OFF**: This disables the GPS autonomous mode. The user must play all commentaries manually.

To modify this option:

GPS STATUS: ON SEGMENT UP, PLAY	Use SEGMENT UP to choose the required setting. Once the setting has been made, press the PLAY key to save.
OPTIONS UPDATED. PRESS ANY KEY...	The setting has been saved; press any key to return to normal operation.

4.2.5 ADJUST VOLUMES OF AUXILIARY AUDIO CHANNELS

ADJUST VOLUMES? PLAY=Y, OTHERS=N

Pressing PLAY will allow modification of this option. Pressing another key will skip to the next option.

It is advisable that all headphone channels have approximately the same apparant volume level. This option allows the volume levels of the audio inputs (AUDIO-IN and MICROPHONES) to be adjusted so they have approximately the same volume as the recorded commentary and ZONE's when selecting between different headphone channels.

This option also allows adjustment to the sensitivity of the VOX override circuits (if enabled in the "4.2.8 Enable or Disable Microphone VOX Overrides" option) The VOX circuit when activated by a voice on the microphone, overrides all headphone channels to become the respective microphone channel. This sensitivity should be adjusted so that a person talking with a normal voice into the microphone will trip the circuit, but other noises such as wind and road noise do not. The effective trip-point for each VOX is set by trial and error.

The options are:

- **MIC A:** Adjustment will be made to the MIC-A input channel
- **MIC B:** Adjustment will be made to the MIC-B input channel
- **VOX A:** Adjustment will be made to the VOX sensitivity for MIC-A
- **VOX B:** Adjustment will be made to the VOX sensitivity for MIC-B
- **0:** Adjustment will be made to the CH-0 input channel
- **1:** Adjustment will be made to the CH-1 input channel
- **2:** Adjustment will be made to the CH-2 input channel

To modify this option:

CHANNEL: MIC A CHANNEL VOLUME

Use the ROUTE keys change the selected channel to adjust the volume (gain) for. Press SEGMENT UP to increases volume for the channel. Press SEGMENT DOWN to decrease volume. PLAY returns the system to normal operation.

4.2.6 SET THE AUDIO OUT CHANNEL

SET AUDIO OUT? PLAY=Y, OTHERS=N

Pressing PLAY will allow modification of this option. Pressing another key will skip to the next option.

This option selects the audio channel that appears at the AUDIO-OUT connector. The audio channel numbering displayed here refers to the same channel numbering on the audio controllers.

The options:

- Any channel that can be heard over the headphones can also be output to this connector.

To modify this option:

AUDIO CHANNEL:2 SEGMENT UP, PLAY

Pressing SEGMENT UP changes the channel that appears at the AUDIO-OUT connector. PLAY accepts the new setting.

OPTIONS UPDATED. PRESS ANY KEY...

The setting has been saved; press any key to return to normal operation.

4.2.7 ENABLE OR DISABLE MICROPHONE CHANNELS

SET MICS ON/OFF? PLAY=Y, OTHERS=N

Pressing PLAY will allow modification of this option. Pressing another key will skip to the next option.

This option enables or disables both microphone channels in the system. If the microphones are set to OFF, then the VOX override circuits are also disabled.

The options are:

- **ON**: This enables both microphone input channels and they will appear on audio controller channels '0' and '1'. Audio commentaries begin from channel '2' onwards.
- **OFF**: This disables the microphone channels. Audio commentaries begin from audio controller channel '0' onwards.

To modify this option:

MICS A+B:ON SEGMENT UP, PLAY

Use SEGMENT UP to choose the required setting. Once the setting has been made, press the PLAY key to save.

OPTIONS UPDATED. PRESS ANY KEY...

The setting has been saved; press any key to return to normal operation.

4.2.8 ENABLE OR DISABLE MICROPHONE VOX OVERRIDES

SET VOX ON/OFF? PLAY=Y, OTHERS=N

Pressing PLAY will allow modification of this option. Pressing another key will skip to the next option.

This option enables or disables the microphone VOX override circuit for either microphone input. If the microphones are set to OFF, then this option is unavailable and the VOX override circuits are disabled.

The VOX override circuit detects sound levels above a certain threshold on the microphone channels (as set by the "*4.2.5 Adjust Volumes of Auxiliary Audio* Channels" option). Any sound level above the set threshold overrides all other audio channels to become the microphone channel. The VOX circuit deactivates 5 seconds after detecting no sound levels above the set threshold.

The options are:

- **OFF**: VOX circuits for both "MIC A" and "MIC B" are disabled;
- **MIC A**: The VOX circuit trips only on audio received from "MIC-A" input;
- **MIC B**: The VOX circuit trips only on audio received from "MIC-B" input;
- **BOTH**: The VOX circuit trips on audio received from both MIC inputs.

Note: "MIC A" is dominant if both VOX circuits are activated simultaneously.

To modify this option:

VOX OPTION:MIC A SEGMENT UP, PLAY

Use SEGMENT UP to choose the required setting. Once the setting has been made, press the PLAY key to save.

OPTIONS UPDATED. PRESS ANY KEY...

The setting has been saved; press any key to return to normal operation.

4.2.9 SET THE COMMENTARY-IDLE FUNCTION

SET LING'L IDLE? PLAY=Y, OTHERS=N

Pressing PLAY will allow modification of this option. Pressing another key will skip to the next option.

This option changes what audio appears on the audio commentary channels between commentaries (This is commonly known as "Silence Filler" audio).

Audio from either "ZONE 1" or "AUDIO IN: CH-0" can be chosen to be the silence-filler. (If "ZONE 1" does not exist, then the setting will be the same as choosing "OFF")

This setting also determines what audio appears at the AUDIO-OUT connector if a commentary channel has been selected to appear on this connector (See option: "*4.2.6 Set the Audio Out* Channel"). This is signified by the '-' or '+' suffix on the selectable option.

The options are:

- **OFF**: Commentary channels on the audio controllers and "AUDIO OUT" will be silent between commentaries;
- **ZON-**: Commentary channels on the audio controllers will switch to "ZONE 1" between commentaries. "AUDIO OUT" will be silent between commentaries;
- **ZON+**: Commentary channels on the audio controllers and "AUDIO OUT" will switch to "ZONE 1" between commentaries;
- **AIN-**: Commentary channels on the audio controllers will switch to "AUDIO IN: CH-0" between commentaries. "AUDIO OUT" will be silent between commentaries;
- **AIN+-**: Commentary channels on the audio controllers and "AUDIO OUT" will switch to "AUDIO IN: CH-0" between commentaries;

To adjust this option:

LING'L IDLE: OFF SEGMENT UP, PLAY

Use SEGMENT UP to choose the required setting. Once the setting has been made, press the PLAY key to save.

OPTIONS UPDATED. PRESS ANY KEY...

PLAY has been pressed and the new setting has been saved; press any key to return to normal operation.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.

2. This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at their own expense.

Modifications: Any modifications made to this device that are not approved by Coachsound Pty Ltd may void the authority granted to the user by the FCC to operate this equipment.

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