Automotive Data Solutions Inc.

INSTALL GUIDE
ADS-TB-FM2-EN

FM2

AVAILABLE FOR: ADS-TB

Rev. Date: June 05, 2013
Doc. No.: ##11549##

VERSION FRANÇAISE DISPONIBLE EN LIGNE AU **WWW.IDATALINK.COM**
PLEASE VISIT **WWW.IDATALINK.COM/SUPPORT** FOR COMPLETE PRODUCT DETAILS

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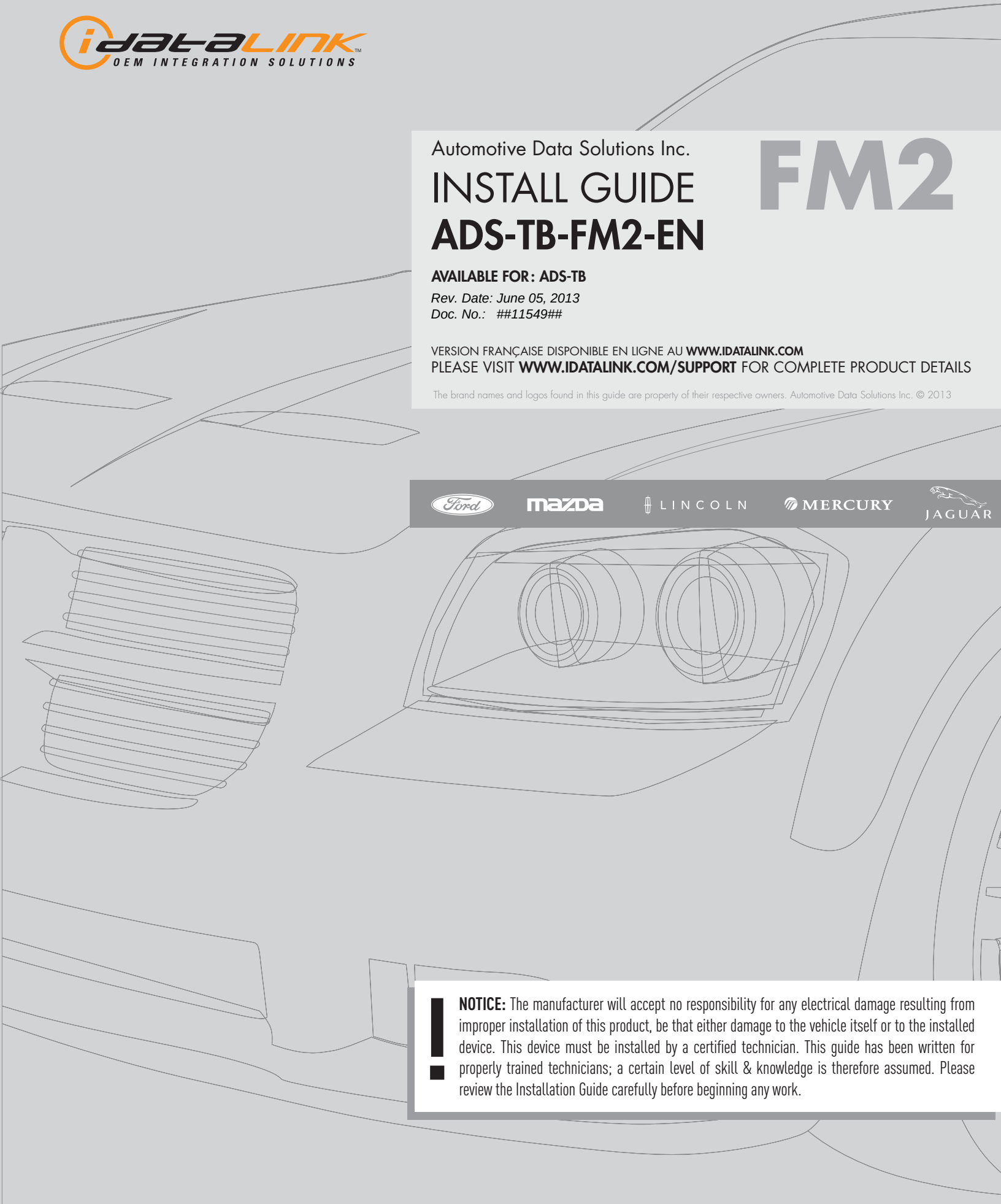

NOTICE: The manufacturer will accept no responsibility for any electrical damage resulting from improper installation of this product, be that either damage to the vehicle itself or to the installed device. This device must be installed by a certified technician. This guide has been written for properly trained technicians; a certain level of skill & knowledge is therefore assumed. Please review the Installation Guide carefully before beginning any work.

INSTALL TYPE SELECTION

MAKE	MODEL	YEAR	INSTALL TYPE	NUMBER OF KEYS
FORD	Contour	98-00	1	1
	Crown Victoria	98-02	1	1
	Crown Victoria	03-09	1	2
	E-Series	08-13	1	2
	Edge	07-10	1	2
	Escape	01-12	1	2
	Escape Hybrid	05-12	1	2
	Excursion	00-05	1	1
	Expedition	99-01	1	1
	Expedition	02-13	1	2
	Explorer	98-01	1	1
	Explorer	02-10	1	2
	Explorer Sport Trac	01	1	1
	Explorer Sport Trac	02-05	1	2
	Explorer Sport Trac	07-10	1	2
	F150	99-03	1	1
	F150	04-11	1	2
	F-Series Super Duty	08-10	1	2
	Fiesta	11-13	1	2
	Five Hundred	05-07	1	2
	Flex	09-12	1	2
	Focus	00-11	1	2
	Freestar	04-07	1	2
	Freestyle	05-07	1	2
	Fusion	06-12	1	2
	Fusion Hybrid	10-12	1	2
	GT	05-06	1	2
	Mustang	99-04	1	1
	Mustang	05-13	1	2
	Ranger	99-01*	1	1
	Ranger	**01-10	1	2
	Taurus Standard key	98-99	1	1
	Taurus Standard key	00-12	1	2
	Taurus X	08-10	1	2
	Thunderbird	02-05	3	2
	Transit Connect	10-13	1	2
	Windstar	99-01*	1	1
	Windstar	**01-03	1	2
JAGUAR	S-Type	99-08	3	2
	X-Type	02-09	3	2

* Vehicles manufactured before 07/24/2000
**Vehicles manufactured after 07/24/2000

MAKE	MODEL	YEAR	INSTALL TYPE	NUMBER OF KEYS
LINCOLN	Aviator	03-05	1	2
	Blackwood	02-03	1	2
	Continental	98-02	1	1
	LS	00-06	3	2
	Mark LT	06-08	1	2
	MKS w/o smartkey	09-12	1	2
	MKX	07-10	1	2
	MKZ	07-12	1	2
	Navigator	99-01	1	1
	Navigator	02-13	1	2
	Town Car	98-02	1	1
	Town Car	03-11	1	2
	Zephyr	06	1	2
MAZDA	2	11-13	1	2
	3	04-09	2	2
	3 w/o smartkey	10-13	2	2
	5	06-13	2	2
	6	03-08	2	2
	6 w/o smartkey	09-13	2	2
	B-Series	99-01*	1	1
	B-Series	**01-10	1	2
	CX7	07-12	2	2
	CX9	07-13	2	2
	MX-5	06-13	2	2
	RX-8	04-11	2	2
	Tribute	01-11	1	2
MERCURY	Cougar	99-02	1	1
	Grand Marquis	98-02	1	1
	Grand Marquis	03-10	1	2
	Marauder	03-04	1	2
	Mariner	05-10	1	2
	Mariner Hybrid	06-10	1	2
	Milan	06-10	1	2
	Montego	05-07	1	2
	Monterey	04-07	1	2
	Mountaineer	98-01	1	1
	Mountaineer	02-10	1	2
	Mystique	98-00	1	1
	Sable	98-99	1	1
	Sable	00-05	1	2
	Sable	07-09	1	2
VPG	MV-1	12-13	1	2

NOTE

I IMPORTANT: some vehicles only require 1 key for programming.

II KLON service is avaible with the TB-FM2 solution for vehicles that require 2 keys for programming.

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KNOWLEDGE BASE

FM ADVANCED FIRMWARE

INSTALL TYPE 2:
The installation type 2 is a result of long term field testing with logic analyzers and aftermarket products permanently installed in multiple vehicles. During the researches, it's been possible to identify strong bouncing frequencies received through the immobilizer antenna during remote start due to many different types of products. The most common products to affect the immobilizer communication are; Blue Tooth devices, cellular hands free kits, cell phones, wireless internet, Two way aftermarket alarm/starters (depending on RF timing), remaining key in the ignition barrel are all examples of interfering devices. Our researches concluded that the PATS immobilizers systems using the D type connector were a lot more sensitive to external RF than any other PATS receivers.

For this reason, from now on, we recommend you to use the install type 2 on any vehicle equipped with the D type connector PATS immobilizer. Alto we list only the D type vehicles for type 2, it is recommended to use the type 2 installation method for vehicles equipped with many RF devices or if the vehicle owner intends to remote start the vehicle with a key remaining in the ignition barrel. (RF collisions may result into intermittent remote start failure since the module protection will interrupt communications upon collision detection to avoid sending any corrupted informations to the vehicle)

INSTALL TYPE 3:
On only few vehicles the PATS immobilizer module is powered on constant 12 Volts instead of being powered on ignition. Since all the other vehicles PATS systems are powered on ignition, the ignition signal is used to synchronize the immobilizer challenge/communication. On the PATS systems powered on 12 Volts, a learning error will occur due to the wrong communication timing. This will prevent the module from learning the vehicle and the module LED will start blinking Red.

We recommend to correct the vehicle circuitry by changing the PATS power source to an Ignition power source instead of constant 12 Volts. A fuse should be used as recommended in the install schematic.

The vehicle will properly start using a key or the remote starter once this modification is performed to adapt to the normal PATS initialization timings.
The modification have to be secured and left permanent in the vehicle.

ADVANCED DIAGNOSTIC
Did you know the Firmware is monitoring the entire module learning process and records everything in its EEPROM?
Exactly, as soon the module is connected to the vehicle it starts monitoring and recording all its I/O's (same as an airplane black box). The information can be extracted from the module and sent to your technical support team for advanced debugging at any required time.

The information recorded is:
- Install Type
- 1st key code
- 1st ignition cycle ON position timing
- 1st ignition cycle OFF position timing
- 2nd key code
- 2nd ignition ON position timing
- 2nd ignition OFF position timing
- Any immobilizer communication collision
- RS232 communications
- Vehicle unlocking its programming
- Module key code sent to vehicle and validated or rejected
- Spikes on the ignition wire
- Cloned keys detection
- Protected memory buffer for module key code recovery even after module is re-flashed and a factory reset is been performed.
- RX/TX inversion detection and protection
- Installation mode, firmware, hardware informations
- Advanced recording routine for emergency key code cracking
- Complete encryption recording and advanced anti-collision protection

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THE ADVANTAGES:

The FM Firmware is the most advanced TI solution available yet. The module EEPROM protected area ensure you will never use more than one key memory bank in the vehicle ECU. If it's ever needed to reset and reprogram a module due to a system upgrade, the FM Firmware will give you the ability to proceed without the need of two vehicle keys.

The **ADVANCED DIAGNOSTIC** feature is a real install asset as it permit any technical support staff to see exactly what happens in the vehicle. The information retrieved is an undisputed time saver and the quickest solution finder available in the industry.

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TYPE 1 - WIRE CROSS REFERENCE CHART - 1 OF 3

MAKE	MODEL	YEAR	TX		RX		CONNECTOR
			POSITION	WIRE COLOR	POSITION	WIRE COLOR	LOCATION
FORD	Contour	98-00	3	Gray/Orange	4	White/LtGreen	B
	Crown Victoria	98-02	4	White/LtGreen	3	Gray/Orange	A
	Crown Victoria	03-04	4	White/LtGreen	3	Gray/Orange	C
	Crown Victoria	05-09	3	White/LtGreen	4	Gray/Orange	E
	E-Series	08	4	White/LtGreen	3	Gray/Orange	C
	E-Series	09-13	4	Yellow/Orange	3	Violet/Gray	C
	Edge	07-10	3	Violet/Gray	4	Yellow/Orange	E
	Escape / Hybrid	01-07	3	Brown/Orange	4	Red/Black	B
	Escape / Hybrid	08-12	3	Yellow/Orange	4	Violet/Gray	E
	Excursion	00-02/03*	4	White/LtGreen	3	Gray/Orange	A
	Excursion	03**/04-05	4	White/LtGreen	3	Gray/Orange	C
	Expedition	99-02	4	White/LtGreen	3	Gray/Orange	A
	Expedition	03-06	3	White/LtGreen	4	Gray/Orange	B
	Expedition	07-13	3	Violet/Brown	4	Blue/Gray	E
	Explorer	98-00/01*	4	White/LtGreen	3	Gray/Orange	A
	Explorer (2dr)	01**/02-03	4	White/LtGreen	3	Gray/Orange	C
	Explorer	02-05	3	White/LtGreen	4	Gray/Orange	B
	Explorer	06-10	3	Yellow/Orange	4	Violet/Gray	E
	Explorer Sport Trac	01*	4	White/LtGreen	3	Gray/Orange	A
	Explorer Sport Trac	01**/02-05	4	White/LtGreen	3	Gray/Orange	C
	Explorer Sport Trac	07-10	3	Yellow/Orange	4	Violet/Gray	E
	F-150	99-02	4	White/LtGreen	3	Gray/Orange	A
	F-150	03	4	White/LtGreen	3	Gray/Orange	C
	F-150	04-08	3	White/LtGreen	4	Gray/Orange	B
	F-150	09-11	3	Violet/Gray***	4	Yellow/Orange***	E
	F-Series Super Duty	08-10	3	Yellow/Orange	4	Violet/Gray	E
	Fiesta	11-13	3	Yellow/Orange	4	Violet/Gray	E
	Five Hundred	05-07	3	White/LtGreen	4	Gray/Orange	E
	Flex	09-12	3	Yellow/Orange	4	Violet/Gray	E
	Focus	00-07	3	Gray/Orange	4	White/Green	B
	Focus	08-11	4	Violet/Gray***	3	Yellow/Orange***	E
	Freestar	04-07	4	White/LtGreen	3	Gray/Orange	C
	Freestyle	05-07	3	White/LtGreen	4	Gray/Orange	E
	Fusion	06/07*	3	Violet/Gray	4	Yellow/Orange	E
	Fusion	07**/08-12	3	Yellow/Orange	4	Violet/Gray	E
	GT	05-06	3	White/Orange	4	Brown/Orange	B
	Mustang	99-02	4	White/LtGreen	3	Gray/Orange	A
	Mustang	03-04	4	White/LtGreen	3	Gray/Orange	C
	Mustang	05-09	3	White/LtGreen	4	Gray/Orange	E
	Mustang	10-13	3	Violet/Gray	4	Yellow/Red	E
	Ranger	99-00	4	White/LtGreen	3	Gray/Orange	A
	Ranger	01-06	4	White/LtGreen	3	Gray/Orange	C
	Ranger	07-10	4	Violet/Brown	3	Blue/Gray	C
	Taurus	98-01	4	Brown/Orange	3	Red/Black	A
	Taurus	02	4	Gray/Red	3	Brown/Yellow	A
	Taurus	03	4	Brown/Yellow	3	Gray/Red	C

*** EARLY PRODUCTION**
**** LATE PRODUCTION**
***** COLORS MAY VARY BUT PIN OUT IS CORRECT**

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TYPE 1 - WIRE CROSS REFERENCE CHART - 2 OF 3

MAKE	MODEL	YEAR	TX		RX		CONNECTOR
			POSITION	WIRE COLOR	POSITION	WIRE COLOR	LOCATION
FORD	Taurus	04-07	4	White/LtGreen	3	Gray/Orange	C
	Taurus	08-12	3	Yellow/Orange	4	Violet/Gray	E
	Taurus X	08-10	3	Yellow/Orange	4	Violet/Gray	E
	Transit Connect	10	4	White/Green	3	Gray/Orange	A
	Transit Connect	11-13	3	White/Green	4	Gray/Orange	A
	Windstar	99-02	4	White/LtGreen	3	Gray/Orange	A
	Windstar	03	4	White/LtGreen	3	Gray/Orange	C
LINCOLN	Aviator	03-05	3	White/LtGreen	4	Gray/Orange	B
	Blackwood	02	4	White/LtGreen	3	Gray/Orange	A
	Blackwood	03	4	White/LtGreen	3	Gray/Orange	C
	Continental	98*	3	White/LtGreen	4	Gray/Orange	A
	Continental	98**/99-02	4	White/LtGreen	3	Gray/Orange	A
	Mark LT	06-08	3	White/LtGreen	4	Gray/Orange	B
	MKS (w/o smartkey)	09-12	3	Yellow/Orange	4	Violet/Gray	E
	MKX	07-10	3	Violet/Gray	4	Yellow/Orange	E
	MKZ	07*	3	Violet/Gray	4	Yellow/Orange	E
	MKZ	07**/08-12	3	Yellow/Orange	4	Violet/Gray	E
	Navigator	99-02	4	White/LtGreen	3	Gray/Orange	A
	Navigator	03-06	3	White/LtGreen	4	Gray/Orange	B
	Navigator	07-13	3	Violet/Brown	4	Blue/Gray	E
	Town Car	98-02	4	White/LtGreen	3	Gray/Orange	A
	Town Car	03-04	4	White/LtGreen	3	Gray/Orange	C
	Town Car	05-11	3	White/LtGreen	4	Gray/Orange	E
	Zephyr	06	3	Violet/Gray	4	Yellow/Orange	E
MAZDA	2	11-13	4	Gray	3	Green	H
	B-Series	99-00	4	White/LtGreen	3	Gray/Orange	A
	B-Series	01-06	4	White/LtGreen	3	Gray/Orange	C
	B-Series	07-10	4	Violet/Brown	3	Blue/Gray	C
	Tribute	01-07	3	Brown/Orange	4	Red/Black	B
	Tribute	08-11	3	Yellow/Orange	4	Violet/Gray	E
MERCURY	Cougar	99-02	3	Gray/Orange	4	White/Green	B
	Grand Marquis	98-02	4	White/LtGreen	3	Gray/Orange	A
	Grand Marquis	03-04	4	White/LtGreen	3	Gray/Orange	C
	Grand Marquis	05-10	3	White/LtGreen	4	Gray/Orange	E
	Marauder	03-04	4	White/LtGreen	3	Gray/Orange	C
	Mariner / Hybrid	05-07	3	Brown/Orange	4	Red/Black	B
	Mariner / Hybrid	08-10	3	Yellow/Orange	4	Violet/Gray	E
	Milan	06/07*	3	Violet/Gray	4	Yellow/Orange	E
	Milan	07**/08-10	3	Yellow/Orange	4	Violet/Gray	E
	Montego	05-07	3	White/LtGreen	4	Gray/Orange	E
	Monterey	04-07	4	White/LtGreen	3	Gray/Orange	C
	Mountaineer	98-01	4	White/LtGreen	3	Gray/Orange	A
	Mountaineer	02-05	3	White/LtGreen	4	Gray/Orange	B
	Mountaineer	06-10	3	Yellow/Orange	4	Violet/Gray	E
	Mystique	98-00	3	Gray/Orange	4	White/LtGreen	B
	Sable	98-01	4	Brown/Orange	3	Red/Black	A

* EARLY PRODUCTION
** LATE PRODUCTION

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TYPE 1 - WIRE CROSS REFERENCE CHART - 3 OF 3

MAKE	MODEL	YEAR	TX		RX		CONNECTOR
			POSITION	WIRE COLOR	POSITION	WIRE COLOR	LOCATION
MERCURY	Sable	02	4	Gray/Red	3	Brown/Yellow	A
	Sable	03	4	Brown/Yellow	3	Gray/Red	C
	Sable	04-05	4	White/LtGreen	3	Gray/Orange	C
	Sable	08-09	3	Yellow/Orange	4	Violet/Gray	E
VPG	MV-1	12-13	4	Yellow/Orange	3	Violet/Gray	C

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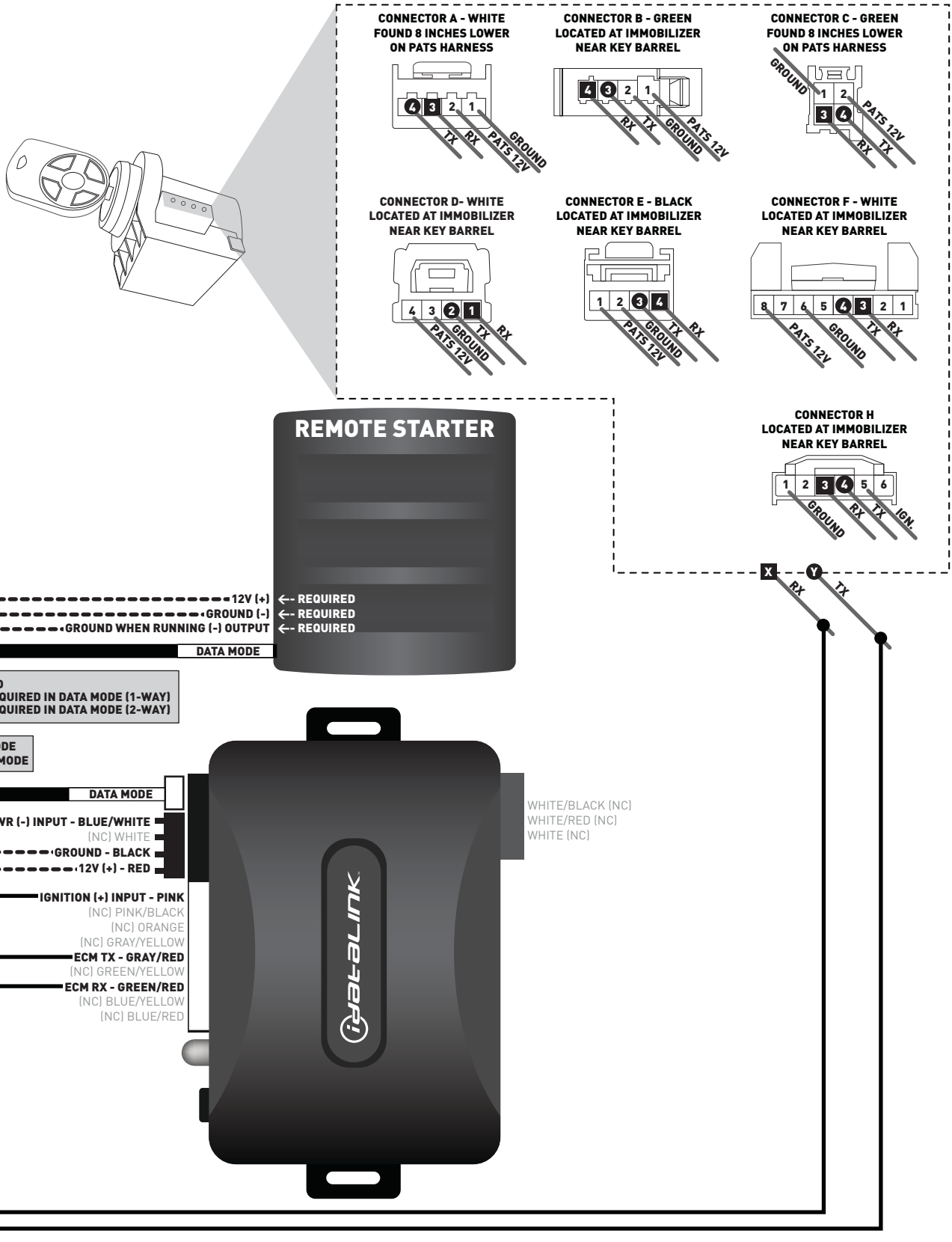
TYPE 1 - WIRING DIAGRAM



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TYPE 2 - WIRE CROSS REFERENCE CHART - 1 OF 1

MAKE	MODEL	YEAR	TX		RX		CONNECTOR
			POSITION	WIRE COLOR	POSITION	WIRE COLOR	LOCATION
MAZDA	3	04-09	2	Gray/Orange	1	White/LtGreen	D
	3 (w/o smartkey)	10-13	2	LtBlue	1	Blue	D
	5	06-10	2	Green	1	Pink/Black	D
	5	11-13	2	LtBlue/Orange	1	Gray	D
	6 (w/o smartkey)	03-08	2	Green	1	Orange/LtBlue	D
	6 (with smartkey)	06-08	2	Yellow/Green	1	Gray	D
	6 (w/o smartkey)	09-13	4	Gray/Orange	3	White/LtGreen	F
	CX7	07-12	2	Gray/Orange	1	White/LtGreen	D
	CX9	07-13	2	Blue/Yellow	1	Blue/Orange	D
	MX-5 (w/o smartkey)	06-13	2	Yellow/Black	1	LtBlue/Orange	D
	MX-5 (with smartkey)	06-13	2	Gray/LtBlue	1	Violet	D
	RX-8	04-11	2	LtBlue/Orange	1	Yellow/Black	D

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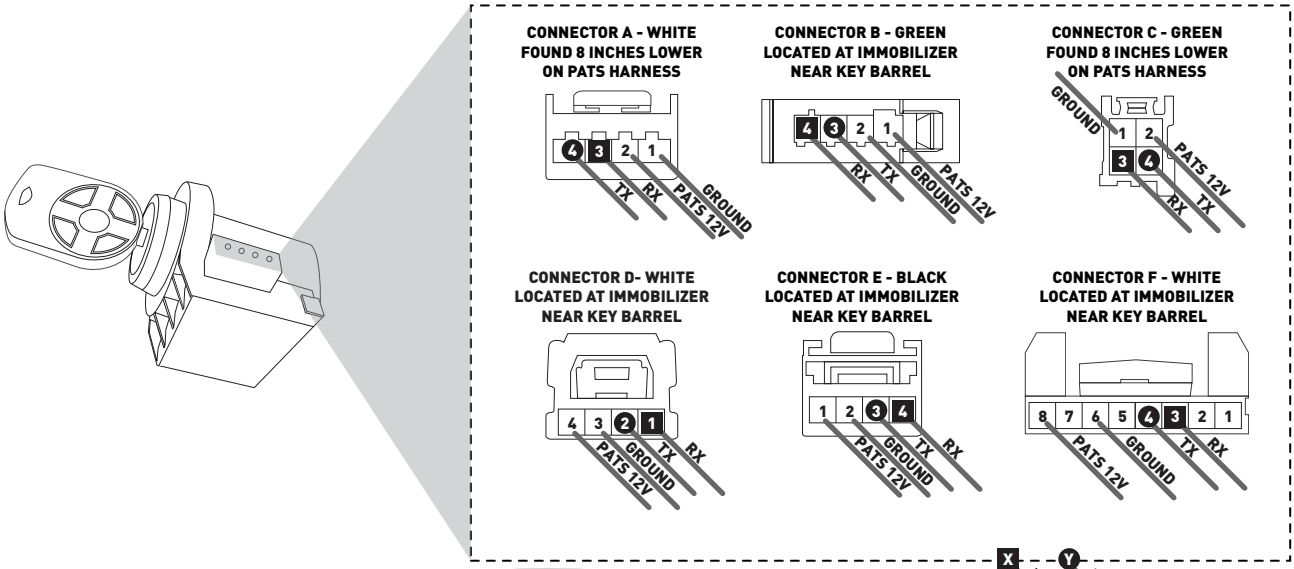
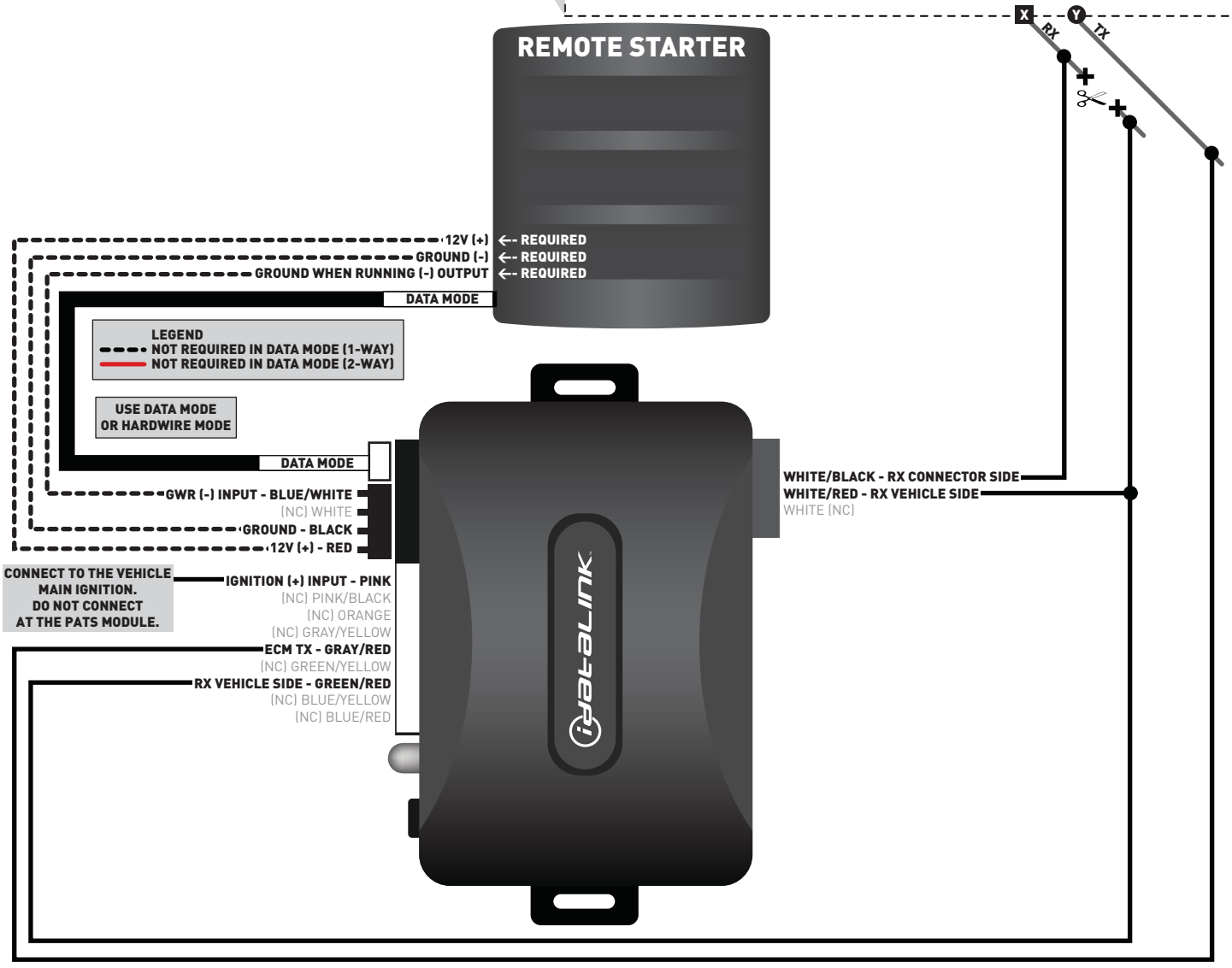
TYPE 2 - WIRING DIAGRAM





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TYPE 3 - WIRE CROSS REFERENCE CHART - 1 OF 1

MAKE	MODEL	YEAR	TX		RX		PATS POWER		CONNECTOR
			POSITION	WIRE COLOR	POSITION	WIRE COLOR	POSITION	WIRE COLOR	LOCATION
FORD	Thunderbird	02-05	3	White/Red	4	Gray/Red	1	Orange/Blue	B
JAGUAR	S-Type	99-02	3	White/Red	4	Gray/Red	1	Orange/Blue	B
	S-Type	03-08	3	White/Red	4	Yellow/Red	1	Brown/Green	B
	X-Type	02-09	3	White/Green	4	Orange	1	Green	B
LINCOLN	LS	00-06	3	White/Red	4	Gray/Red	1	Orange/Blue	B

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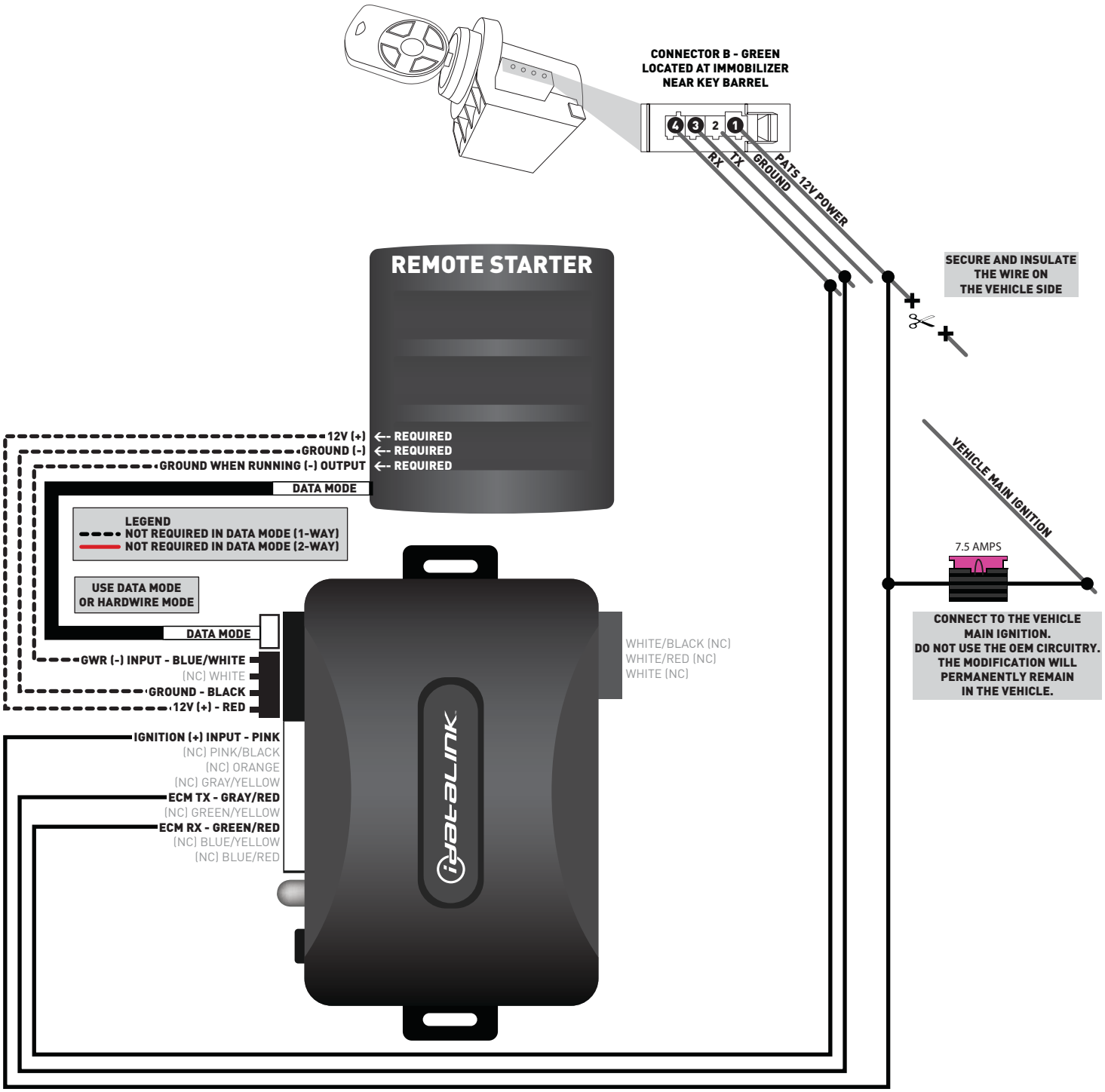
TYPE 3 - WIRING DIAGRAM



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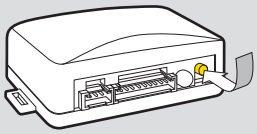
INSTALLATION MODE SELECTION

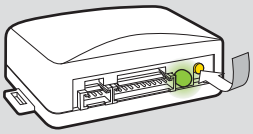
1



Press and release programming button to select installation mode.

LED flashes (1X) once = DATA MODE
LED flashes (2X) twice = STANDARD HARDWIRE MODE

2



Press and hold programming button until LED turns solid GREEN to register selection.

! After registration, follow Factory Reset Procedure to change installation mode and restart this procedure.

WARNING: READ CAREFULLY

IMPORTANT

I This firmware solution offers two different module programming procedures.
The first module programming procedure uses two OEM keys.
The second module programming procedure uses only one OEM key and the KLON technology.

PERFORM ONLY ONE OF THE TWO MODULE PROGRAMMING PROCEDURES

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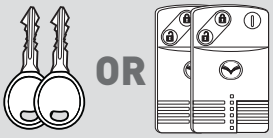
MODULE PROGRAMMING PROCEDURE - WITH TWO OEM KEYS

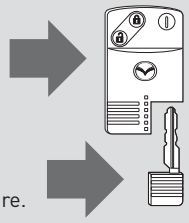
NOTE

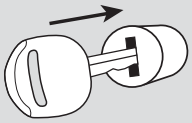
I To complete this procedure, both OEM keys are required.



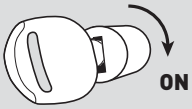
II Keep both OEM remotes at least 10 feet away from the vehicule.

Use both valet keys for the module programming procedure.



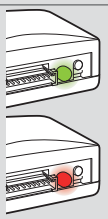
1 

Insert key 1 into ignition.

2 

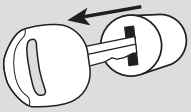
Turn key 1 to ON position.

! If the LED begins to flash RED, verify the RX and TX connections between the module and the vehicle.

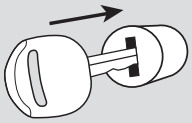
3 

If LED turns solid GREEN for **2 seconds**. Module Programming Procedure completed.

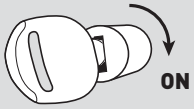
If LED turns solid RED, proceed with following step within **5 seconds,** after LED turns OFF.

4 

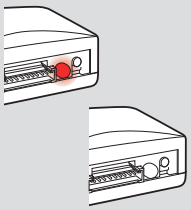
Remove key.

5 

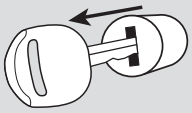
Insert key 2 into ignition.

6 

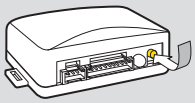
Turn key 2 to ON position.

7 

Wait, LED will turn solid RED then will turn OFF.

8 

Remove key.

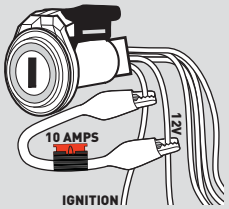
9 

Press and release programming button.

10

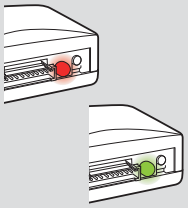
Remote start vehicle.

OR



Jump the igntion to 12volts.

! If the LED begins to flash RED, you are using a cloned key or used the same key twice.

11 

Wait, LED will turn solid RED then will turn solid GREEN.

12 Module Programming Procedure completed.

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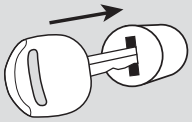
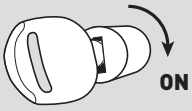
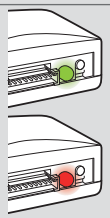
MODULE PROGRAMMING PROCEDURE - WITH ONE OEM KEY & KLON

1 

Insert key into ignition.

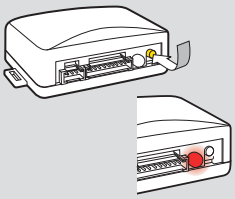
2 

Turn key to ON position.

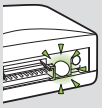
3 

If LED turns solid GREEN for **2 seconds**. Module Programming Procedure completed.

If LED turns solid RED, proceed with following step within **5 seconds,** after LED turns OFF.

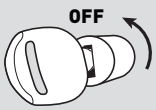
4 

Press and hold programming button until LED truns solid RED, then release.

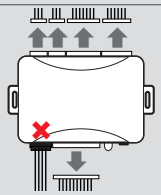
5 

Wait, LED will flash GREEN.

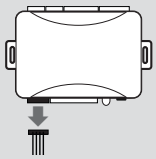
! If the LED begins to flash RED/GREEN, the key has an 80-bit encryption that is not covered by KLON.

6 

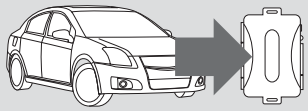
Turn key to OFF position.

7 

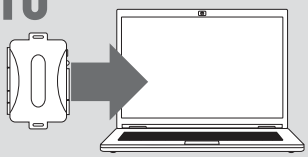
Disconnect all connectors from module except the black 4-PIN standard or optional data connector.

8 

Disconnect the black 4-PIN standard or optional data connector.

9 

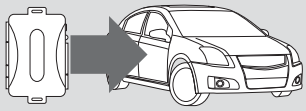
Remove module from vehicle.

10 

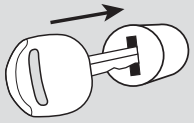
Connect module to computer.

11

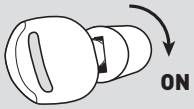
Proceed with extended programming.

12 

Connect module to vehicle.

13 

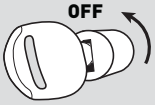
Insert key into ignition.

14 

Turn key to ON position.

15

Wait, LED will turn solid GREEN for **2 seconds**.

16 

Turn key to OFF position.

17 Module Programming Procedure completed.

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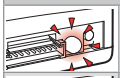
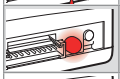
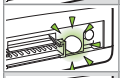
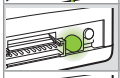
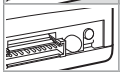
IDENTIFY VEHICLE YEAR

1 Locate the Vehicle Identification Number (VIN) and identify the 10th character.

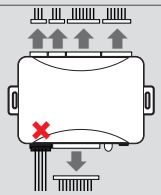
2 Match the VIN's 10th character to its corresponding year.

L → 1990	**S** → 1995	**Y** → 2000	**5** → 2005	**A** → 2010
M → 1991	**T** → 1996	**1** → 2001	**6** → 2006	**B** → 2011
N → 1992	**V** → 1997	**2** → 2002	**7** → 2007	**C** → 2012
P → 1993	**W** → 1998	**3** → 2003	**8** → 2008	**D** → 2013
R → 1994	**X** → 1999	**4** → 2004	**9** → 2009	**E** → 2014

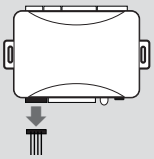
MODULE DIAGNOSTICS

LED STATUS		DIAGNOSTICS		
		DURING PROGRAMMING	**DURING REMOTE START**	**WITH IGNITION OFF**
	Flashing RED	Missing/wrong information from firmware or vehicle	Incorrectly programmed	Incorrectly programmed or connected
	Solid RED	Waiting for more vehicle information	Incorrectly programmed	Not programmed waiting for more vehicle information
	Flashing GREEN	Additional steps required to complete programming	Correctly programmed and operational	False ground when running status from remote starter
	Solid GREEN then OFF	Correctly programmed	Reset in progress	Reset in progress
	OFF	No activity or already programmed	Invalid ground when running status from remote starter	At rest and ready for a remote start sequence

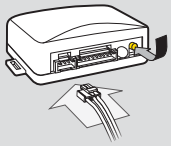
FACTORY RESET PROCEDURE

1 

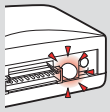
DISCONNECT all connectors from module **EXCEPT** the black 4-PIN standard or optional data connector.

2 

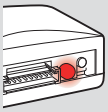
DISCONNECT black 4-PIN standard or optional data connector.

3 

PRESS AND HOLD programming button while connecting either 4-PIN standard or optional data connector.

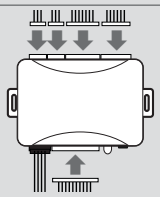
4 

When LED flashes red, **RELEASE** programming button.

5 

LED will turn solid red for 2 seconds.

RESET COMPLETED.

6 

RECONNECT all connectors.

7 Repeat programming procedure.

! Failure to follow procedure may result with a DTC or a CHECK ENGINE error message.

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