

**ELECTRIC BRAKE FORCE METER WITH
DYNAMIC LOAD SIMULATION AND CIRCUIT TESTING**

OPERATOR'S MANUAL



**For 7-Spade Equipped Vehicles with
Integrated and Aftermarket Brake Controllers**

LETTER FROM THE PRESIDENT OF IPA®

My name is Peter Vinci and I am the president of IPA®. I would like to thank you for your interest in IPA®'s product line and share my commitment to you, our products and our policies. In today's world, we have all experienced the lack of service and consideration demonstrated by many companies after you buy their products. They say whatever they can to make the sale, and then it's like pulling teeth to get any service response out of them. I know this myself first hand and because of this, I want to be sure that your experience with IPA® meets your expectations and that IPA® never disappoints you with our service or customer response.

With that said, please take a look at our product line. You will see innovative first time products that were created to help you do your job faster and better than before.

I would also like to invite you to critique our products. If you can think of a better way to make them or changes that will make them work better, please contact me directly and I will be sure to look into it. If you have an innovation and would like some feedback, give me a call.

From all of us at IPA®, we thank you for taking the time to review our product line and wish you and your family the very best of everything.

Peter Vinci
President
IPA®

CONTINUED CHART

Reverse Lights	No power indication when energized	Check for wiring, fuse or connection faults.
	Intermittent or erratic illumination	
(RED) Power	No power indication when energized	Check for wiring, fuse or connection faults.
	Intermittent or erratic output	
Trailer Not Detected	Vehicle does not recognize the Brake Force Meter as a trailer	Check Setup Procedure.
		For 2016 and 2017 Ford models - follow Alternative Setup Procedure (Below).

STATUS LIGHTS

(Yellow ECU Detected)	Blinking	Determining if ECU is present.
	Steady	ECU detected, dynamic load is active.
	Not illuminated	No ECU detected. Static load is available.
(RED) Power	Steady	E. Brake Circuit has power and continuity.
	Not illuminated	No power or continuity detected
	Intermittent blink	Indicates search signal from vehicle. This is typical and expected from vehicles with an established ECU connection.
ECU and Power Light	Blinking	Fault in wiring—check connections and trouble codes.
(Blue) Gain 1-10	Illuminated	Indicates gain from truck. 1.0-1.5V increments.

indicators illuminate. Some vehicles or brake controllers may limit output with brake pedal pressure, unless the vehicle is moving.

- Release the brake pedal. If any abnormal results were noted, continue to the Circuit Fault Troubleshooting section below.
- Test other lighting and electrical functions such as Left and Right Turn Signals, Tail/Tag, Brake Lights etc.

To avoid over heating, DO NOT hold foot on brake for more than 15-second intervals.

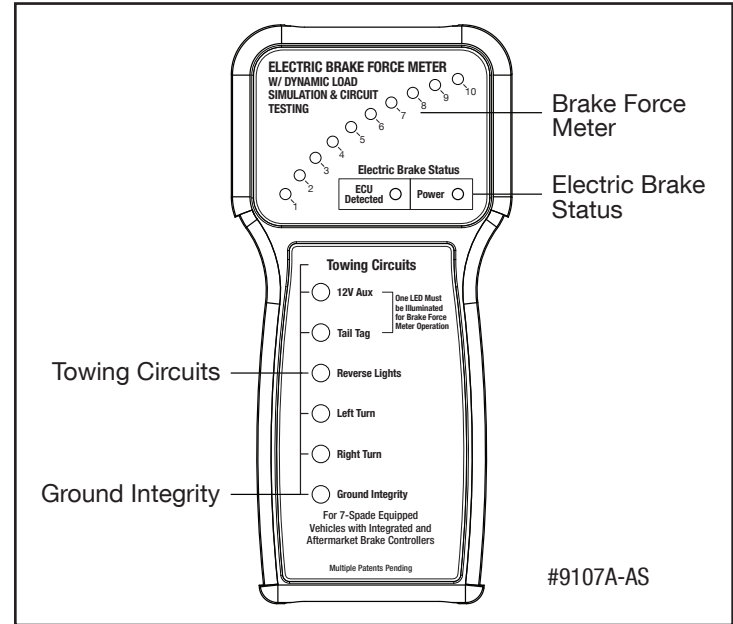
NOTE: The Ground Integrity Light will only illuminate when a circuit is completed. In other words, if you are only testing left or right directional circuits, you may notice the Ground Integrity Light flashing in sequence with the directional. This is normal and expected.

CIRCUIT FAULT TROUBLESHOOTING

When a circuit fault has been detected, the #9107A can monitor individual circuits while troubleshooting and repairing the vehicle.

Circuit	Type of Fault	Diagnostic Procedure
Electric Brake	No indication when energized	Check for faulty connection, fuse, wiring fault or controller gain too low.
	Low current output or intermittent	Check for faulty connection or controller gain too low.
Turn Signals	No power indication when energized	Check for faulty connection or controller gain too low.
	One or both stay on with no blink	Check for faulty connection, fuse or defective flasher.
	Intermittent or erratic illumination	Check for faulty connections for wiring fault.
Brake Lights	No power indication when energized	Check for wiring fault, turn signal operation or fuse if turn signals are also dead.
	Intermittent or erratic illumination	
Tail/Tag Lights	No power indication when energized	Check for wiring, fuse or connection faults.
	Intermittent or erratic illumination	

WHAT'S INCLUDED



INCLUDED PARTS AND ACCESSORIES

Soft Case
#9107-3



25 ft. 7-Flat Pin Cable
#KCBL-9107-AS



COMPATIBILITY

The **#9107A Electric Brake Force Meter with Dynamic Load Simulation and Circuit Testing** is designed to work with most all year/make/model vehicles equipped with 7-spade trailer connections.

INTRODUCTION

The **#9107A Electric Brake Force Meter** is a professional, high-quality tool that allows you to test the electric brake controller output and all tow-lighting functions without a trailer present.

PRECAUTIONARY EXPLANATION:

Before testing, it's important to note that there are several different methods utilized by OEMs for establishing connections to trailers and automatically adjusting gain. In most cases, each OEM takes their own approach to the design and function of Electric Trailer Brake Controllers. Additionally, the OEM's methods have evolved over the years. Never assume that any two makes or different year ranges will act the same way. For example, some controllers limit output gain unless the vehicle is moving. Others limit output gain unless the vehicle's sensors detect heavy braking under load while moving. Some others allow full output for a short period of time and then limit the output until the vehicle is moving. The purpose of this tool is to allow you to view the output of the vehicle in real time without a trailer present.

PRETEST SETUP (MUST FOLLOW EACH USE!)

NOTICE: *Brake Force Meter w/ Dynamic Load Simulation and Circuit Testing will not function unless Tail/Tag or 12V Aux Circuits have constant power. If your vehicle does not supply 12V Aux at the trailer connector, leave parking lights on while testing.*

WARNING: SETUP MUST BE COMPLETE BEFORE ATTACHING CABLE.

WARNING: WHEN TESTING IN CAB, DO NOT PINCH CABLE IN WINDOW OR DOOR.

SETUP

1. With meter disconnected from cable, plug 7-way connector to back of vehicle.
2. Bring other end of cable and tester into driver's compartment, leaving tester disconnected.
3. Set Emergency Brake.
4. Turn Vehicle Engine ON and let idle.
5. KEEP FOOT OFF BRAKE. ONLY AFTER engine is running, plug the 9-pin connector to the socket of the tester and lightly tighten the thumb screws.
6. Verify 12V circuit is powered or turn on Tail/Tag Circuit.
7. Wait for yellow ECU detection light to stop blinking.
8. For vehicles equipped with integrated controllers, look for the words "Trailer Connected" on your instrument panel and the ECU Detection light to remain steady within a few seconds of connecting the #9107A to a vehicle with engine running.
9. Setup is now complete.

ALTERNATIVE SETUP PROCEDURE

In 2016 and 2017 models, some OEMs changed the way the brake controllers search for a trailer signal. To establish a "Trailer Connected" message with these vehicles if the basic method described above does not work, press and hold the brake pedal during #7 of the Setup Procedure.

TESTING

1. With the #9107A connected and engine running, increase the brake force adjustment on your instrument panel to maximum output (usually #10).
2. Without applying pressure to the brake pedal, operate the manual brake lever on your controller and take note of the number of LEDs that illuminate. It is recommended to maintain application for up to 20 seconds and observe any changes.
3. Release the manual brake lever and apply moderate pressure to the brake pedal. Observe the series of 10 LEDs at the top of your tester as they sequentially illuminate. This indicates the extent of 12V power available at the connector to actuate trailer brakes.
4. While increasing brake pressure, you should see more of the 10 LED