

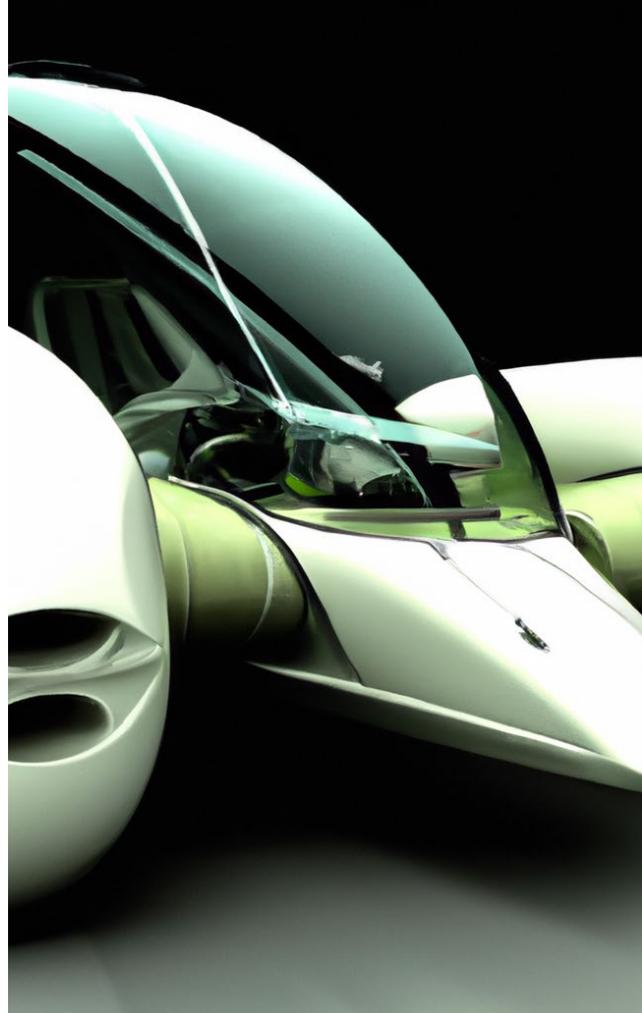
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MEMA OE Suppliers Automotive Supplier Barometer Q1 2023

Production, Planning & Electrification

March 24, 2023



MEMA OE Supplier Barometer: Executive Summary

Supplier Barometer Index (SBI)

SBI Score = 46;
up from Q4 level of 36



The outlook for the first quarter of 2023 continued to deteriorate from the end of 2022, for the fourth straight quarter of building pessimism on net. Firms with revenue less than \$50 mils. were the only cohort that showed net optimism, while the outlook continued to deteriorate for larger firms.



Concerns related to weakness in the U.S. economy remained unchanged sequentially but became the leading threat to the industry in the coming 12-months.

Risks of production shutdowns due to supply chain shortages and issues, and labor availability constraints, eased from the end of 2022. Suppliers are preparing for the unexpected, however.

Suppliers indicate growing risks from rising interest rates and the consequent deterioration in sales of the programs that they supply.

Continued issues related to the COVID pandemic has fallen to the bottom of the top threats to the industry but the threat from additional China lockdowns remains.



New orders and production increased moderately from a year ago but have steadied over the past month.

Employment and supplier deliveries improved from a year ago, and have continued growing over the past month.

Costs continue to rise, with 84% and 60% of suppliers, on net, indicating increased costs over the past 12-months and 1-month, respectively.

MEMA OE Supplier Barometer: Executive Summary



The industry is expected to again exceed breakeven this year, after marginally outperforming breakeven in 2022.

Suppliers continue to expect slim production volume margins in 2023 and note that their breakeven point is largely dependent on program performance. Risks associated with affordability challenges of high-priced vehicle programs were also highlighted.



The top internal production issue is labor related. External issues are related to supply chain risks and sub-tier supplier financial distress.

Shortages of hourly production and skilled trades workers are the top internal threats to meeting production in the next 12-months, however there was some improvement in comparison to last year.

Supply-chain constraints and disruptions remains the top external issue but showed substantial improvement from last year. There is increased concern of sub-tier financial distress.



Inventories increased substantially again in 2022.

Inventories increased on net across the supply base, with the percentage of suppliers reporting an increase at 62%, down 4 pts. from 2021.



R&D spending is expected to be down slightly from last year, at 3% of total sales on average.

From the R&D budget, approximately one-third goes to research while two-thirds is allocated to development as suppliers are planning to allocate this year's budget more towards researching future technologies.

Advanced materials and powertrain technologies continue to be the most desirable investment pursuits while ADAS and autonomous technologies continue to lose their desirability.

Despite economic and political uncertainty, suppliers feel very committed to R&D investment in the near-term.



Suppliers continue to benefit from the drive to a Battery Electric Vehicle future.

Innovation is being driven by new customers and technologies despite overwhelming skepticism that OEMs will achieve quoted BEV volumes and rising cost pressures.

Suppliers expect it will still take 5-10 years for BEV production to reach 20% of global vehicle output.

Regionally speaking, suppliers expect a 20% share of BEV production to occur first in China, followed by closely by Europe, with North America taking an estimated 7 years to reach that threshold.

Suppliers interest in pursuing funds from the Inflation Reduction Act credits and programs is minimal to moderate, on average.

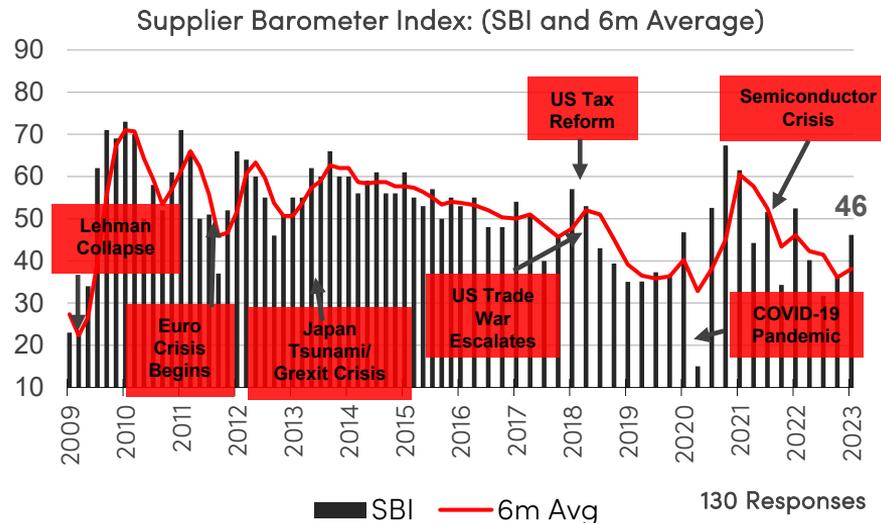
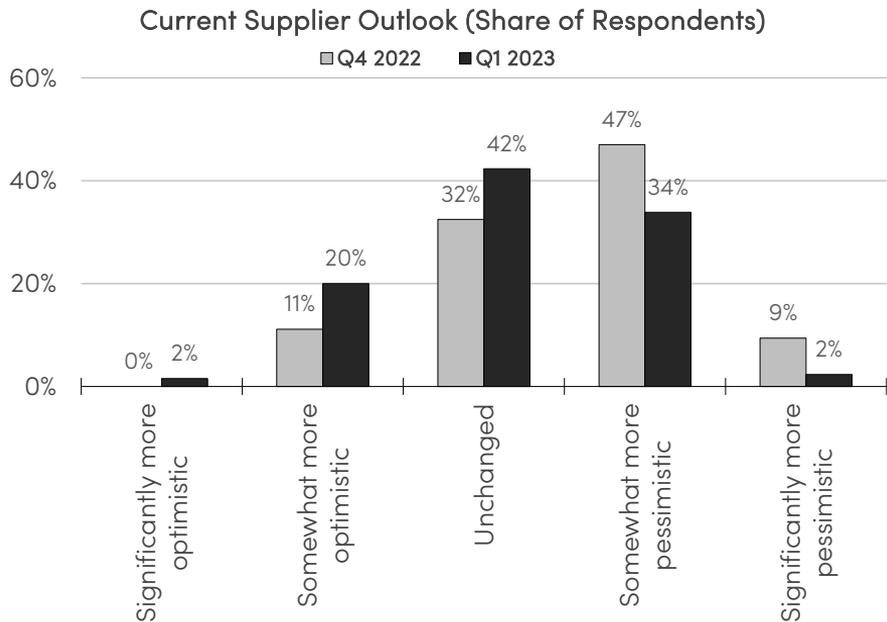


Supplier Outlook

Q1 2023 Automotive Supplier Barometer

MEMA OE Supplier Barometer: Q1 2023 Results

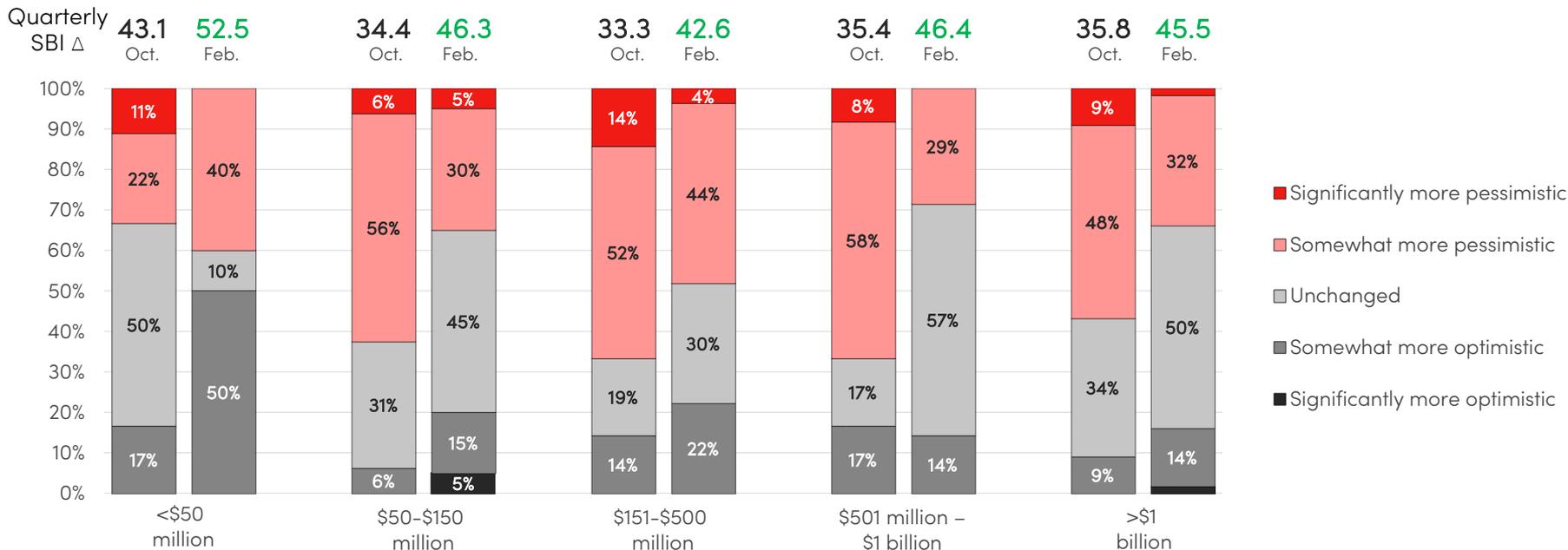
Describe the general twelve-month outlook for your business. Over the past three months, has your opinion become...?



The 12-month outlook for the first quarter reflects continued pessimism as concerns persist over weakness in the U.S. economy and production shutdowns due to supply chain issues and shortages.

MEMA OE Supplier Barometer: Q1 2023 Results by Revenue

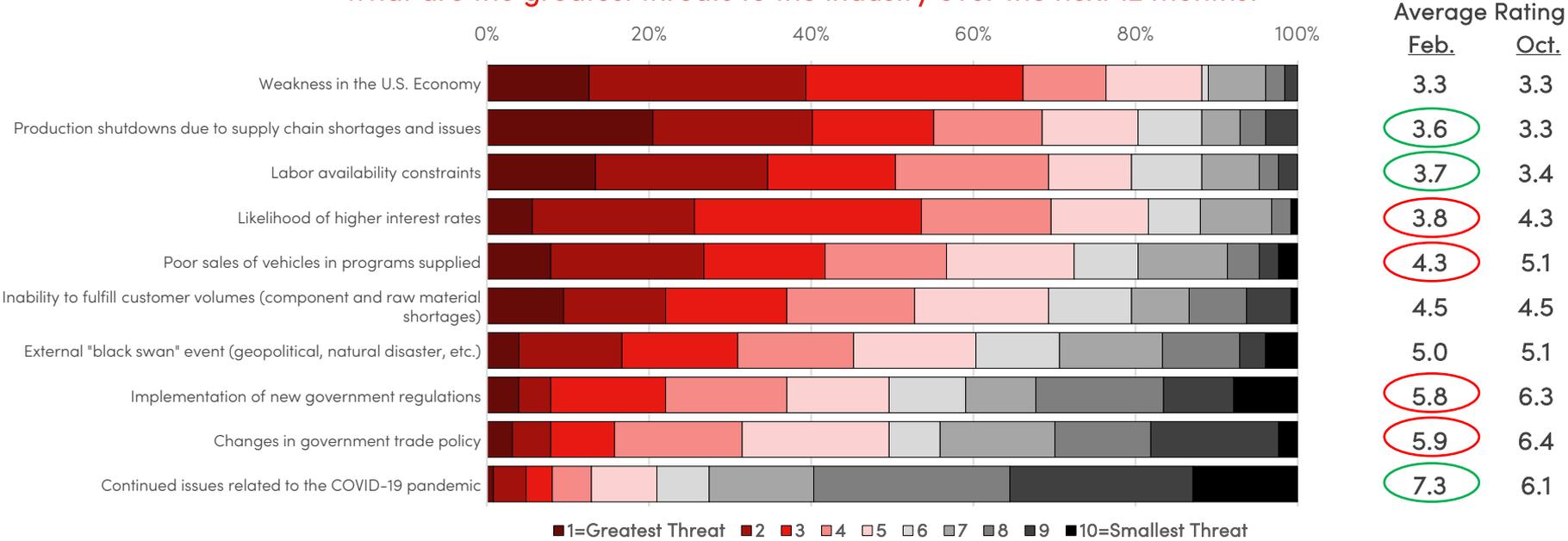
Describe the general twelve-month outlook for your business. Over the past three months, has your opinion become...?



The outlook reflects sequential deterioration in optimism for suppliers with greater than \$50 mils. in revenue. The smallest suppliers, less than \$50 mils. in revenue, improved into weak optimistic territory.

MEMA OE Supplier Barometer: Industry Threats

What are the greatest threats to the industry over the next 12 months?



Weakness in the U.S. economy overtook production shutdowns due to supply chain issues as the greatest threat to the industry over the next 12 months.

MEMA OE Supplier Barometer: Industry Indicators

For the following indicators, please indicate what change, if any, your company has experienced over the following time frames.

	Total		Less than \$500 Mils.		Greater than \$500 Mils.	
	12-month Chg.	1-month Chg.	12-month Chg.	1-month Chg.	12-month Chg.	1-month Chg.
New orders	136	102	130	98	140	106
Production	129	99	127	91	131	106
Employment	137	121	132	121	140	120
Supplier Deliveries	121	102	117	102	125	102
Inventories	130	120	135	115	126	125
Customers' Inventories	140	126	133	120	146	131
Costs	184	160	188	162	181	158
Backlog of Orders	105	101	104	98	106	103
New Export Orders	95	95	98	98	93	92
Imports	99	100	102	104	97	97

Diffusion Index = ((Pct. Increasing – Pct. Decreasing)+1) x 100

Lower Limit = 0

Neutral = 100

Upper Limit = 200

New orders and production increased moderately from a year ago but have steadied over the past month. On net, 84% and 60% of suppliers indicated increased costs over the past 12-months and 1-month, respectively.

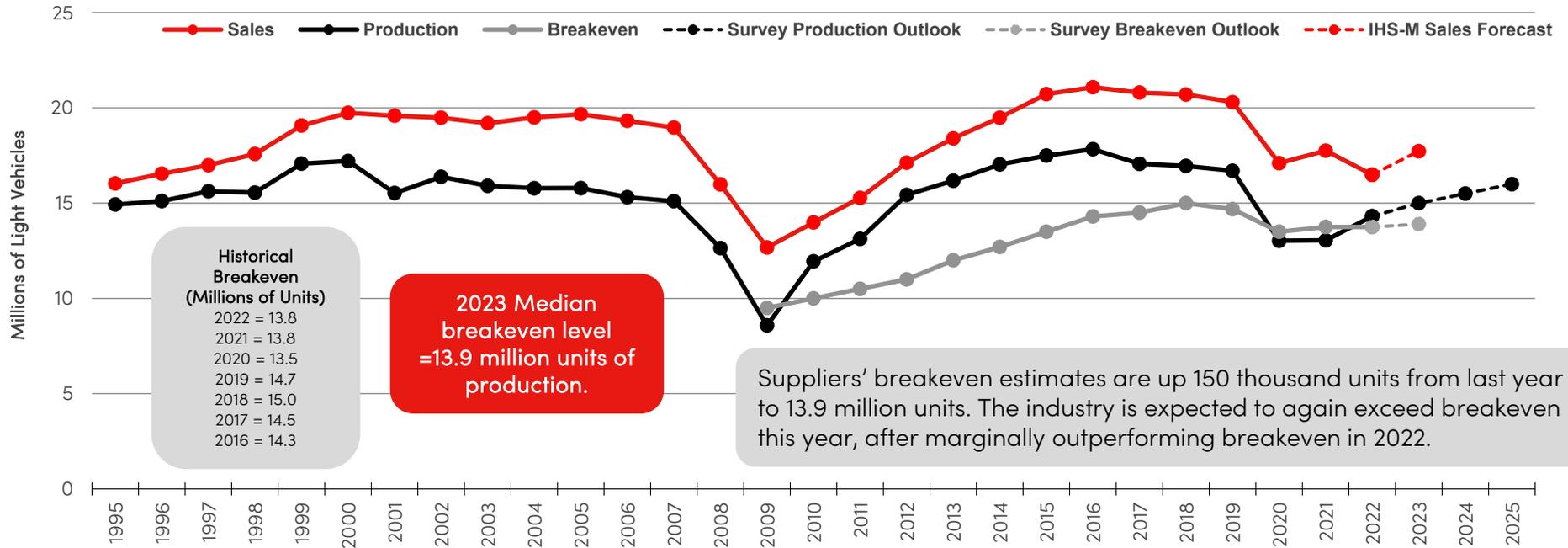


Production, Planning & Electrification

Q1 2023 Automotive Supplier Barometer

MEMA OE Supplier Barometer: Industry Outlook and Breakeven

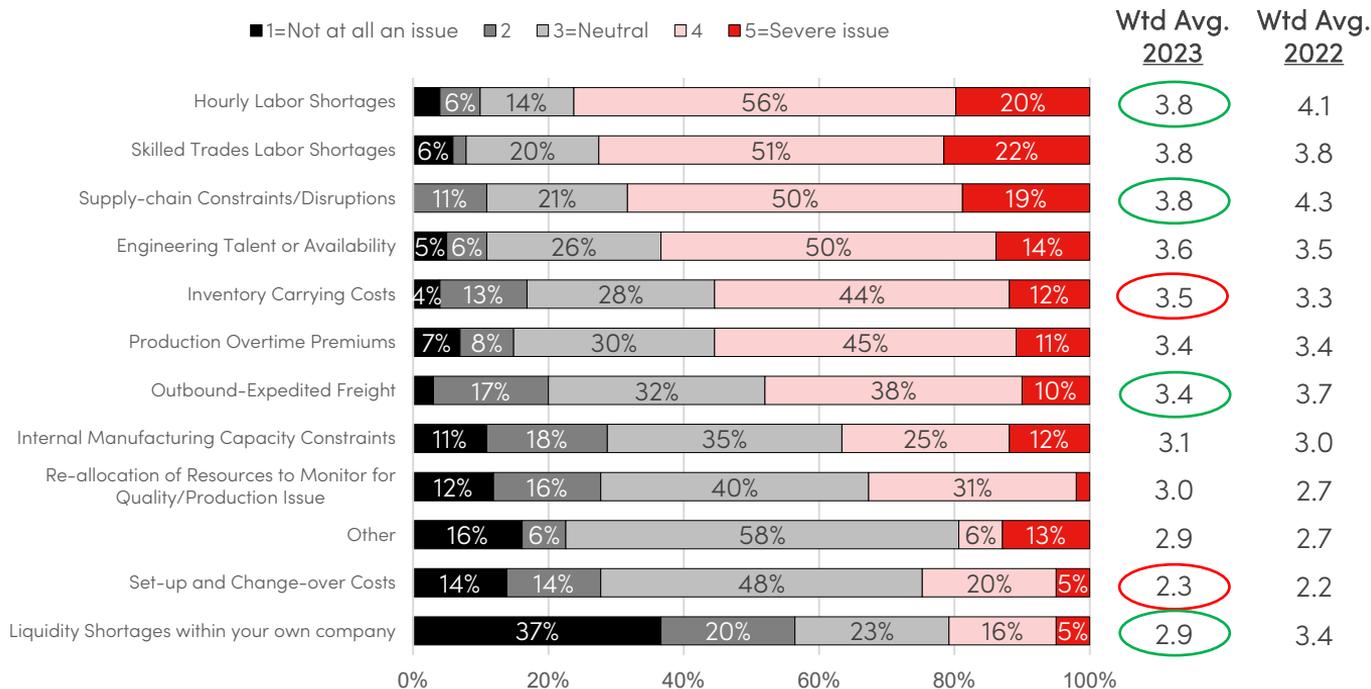
Considering North America light duty vehicle production, estimate the required 2023 industry volume needed to achieve breakeven in your North American operations?



Source: S&P Global Mobility (History, Sales and Production); S&P Global Mobility (Sales Forecast)

MEMA OE Supplier Barometer: Production Planning: Internal Issues

Over the next 12 months, identify which of the following internal issues you will face as you meet required levels of production?

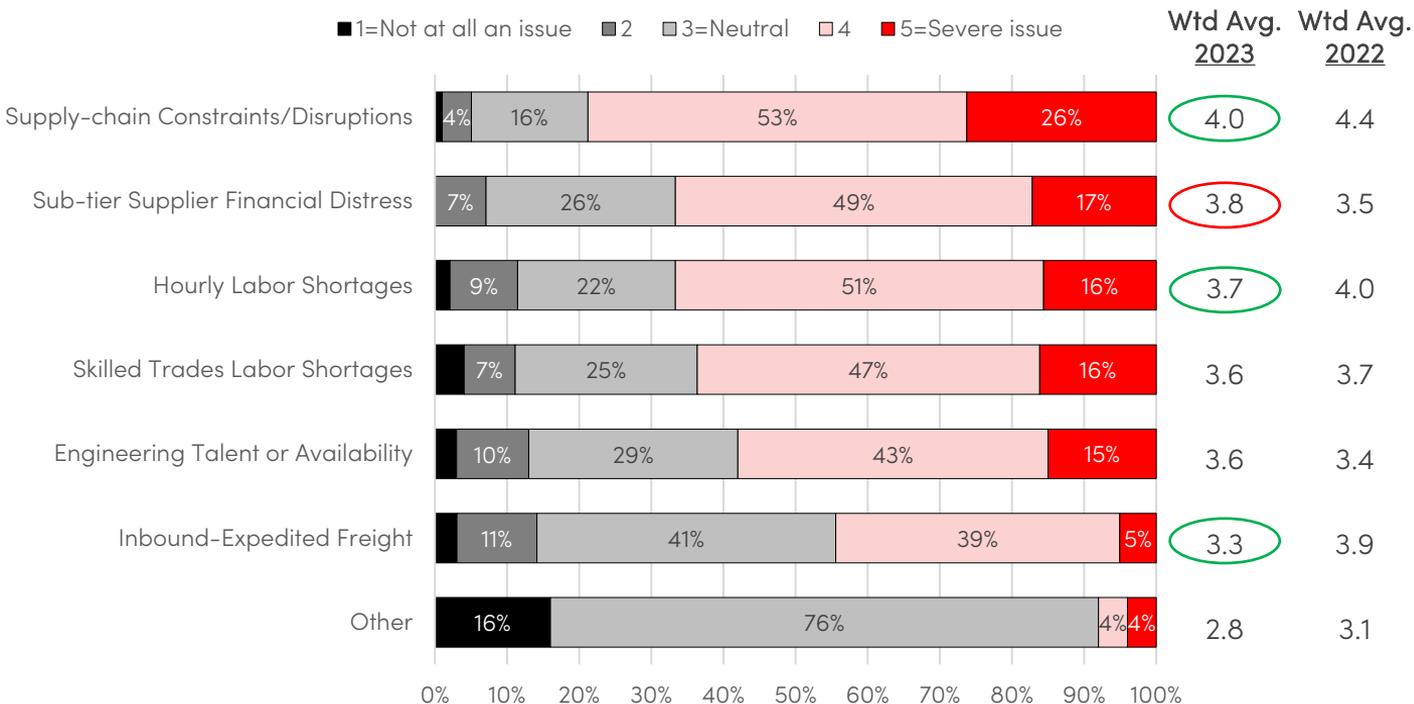


Other Issues and Comments:

- Schedules continue to be erratic
- Labor lay off due to program low volume or cancellation.
- Shortage of knowledge capital due to attrition.
- Instability of orders/demand from OEM customers leading to increased freight demurrage and holding costs.
- Black swan events. ie: supplier plant fires
- Commercial recovery of inflation. OEM's are typically giving partial relief. Real costs have been experienced for 2021, 2022 and now 2023 without full recovery. This is causing profitability and cash constraints.
- Division of attention towards electric vehicle development
- Schedule volatility

MEMA OE Supplier Barometer: Production Planning: External Issues

Over the next 12 months, identify which of the following external issues you will face as you meet required levels of production?



Other Issues and Comments:

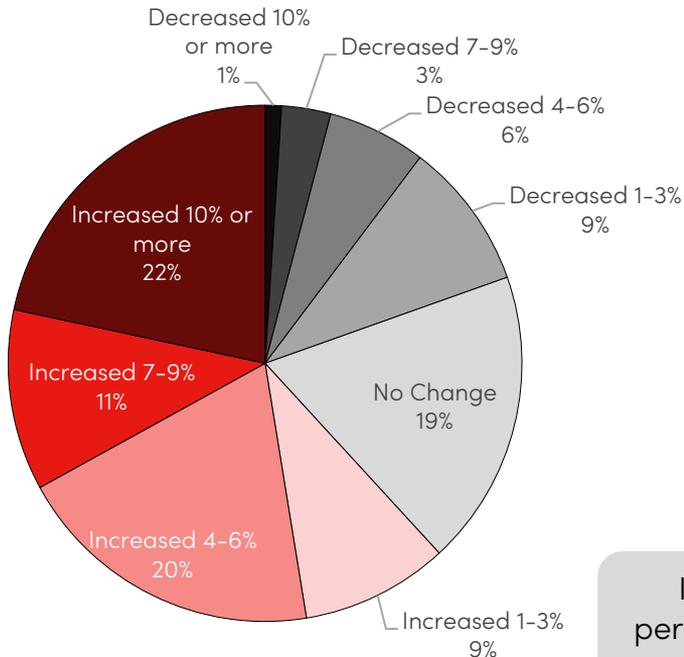
- Labor lay off due to program low volume or cancellation.
- Customer order dynamics

MEMA OE Supplier Barometer: Production Planning: Finished Goods Inventory

Compared to average 2021 levels, how did your average 2022 finished goods inventory levels change?

Percent of suppliers with increased inventory...

Through CY:
2022 = 62%
2021 = 66%
2020 = 27%
2019 = 42%
2018 = 48%
2017 = 32%
2016 = 38%
2015 = 34%



Comments:

Decreased

- This was a purposeful action on our part.
- COVID and chip shortages at OEMs cause supply inventories to increase. In 2022 OEM orders increased and were more consistent compared to 2021

Unchanged

- Depends on the product. EDI fluctuations caused issues. Managed. Required lay-offs and re-hiring, not ideal in constrained labor market.
- We are a made-to-order firm

Increased

- Inflation (2)
- Customer order dynamics at year end 2022

Inventories increased on net across the supply base, with the percentage of suppliers reporting an increase at 62%, down 4 ppts. from 2021.

MEMA OE Supplier Barometer: Research & Development Spending

For 2023, estimate your R&D spending as a percent of total sales.

	Lower Quartile	Median Value	Upper Quartile
R&D Share of Total Sales			
2023	2%	3%	5%
2022	2%	4%	5%
2021	2%	4%	6%
2020	2%	4%	7%
2019	2%	4%	6%
2018	3%	4%	5%
2017	2%	4%	6%
2015	2%	3%	5%

R&D spending is expected to be down slightly from last year, at 3% of total sales, while increased emphasis is expected to be placed on the research budget.

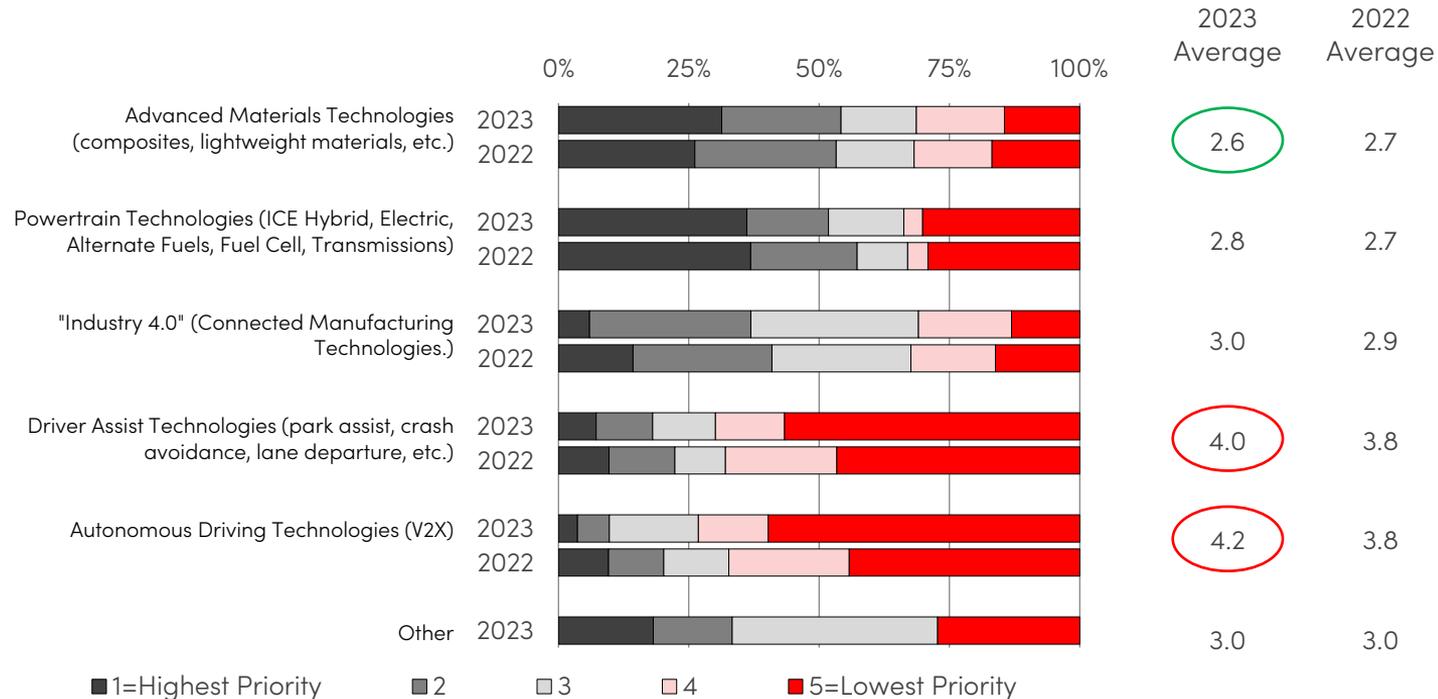
For 2023 R&D budget, estimate the percent allocated to research and percent allocated to development.

	Lower Quartile	Median Value	Upper Quartile
Research budget (for future technologies)			
2023	18%	33%	50%
2022	20%	25%	40%
2021	20%	25%	38%
2020	10%	25%	40%
2019	10%	20%	30%
2018	20%	32%	44%
2017	10%	20%	40%

	Lower Quartile	Median Value	Upper Quartile
Development budget (for specific programs)			
2023	50%	67%	83%
2022	60%	75%	80%
2021	63%	75%	80%
2020	60%	78%	90%
2019	70%	80%	90%
2018	50%	67%	80%
2017	58%	75%	85%

MEMA OE Supplier Barometer: Research & Development Technology Investments

If you had additional dollars for R&D investment, rating in terms of importance, how would you allocate it across the following technology areas?

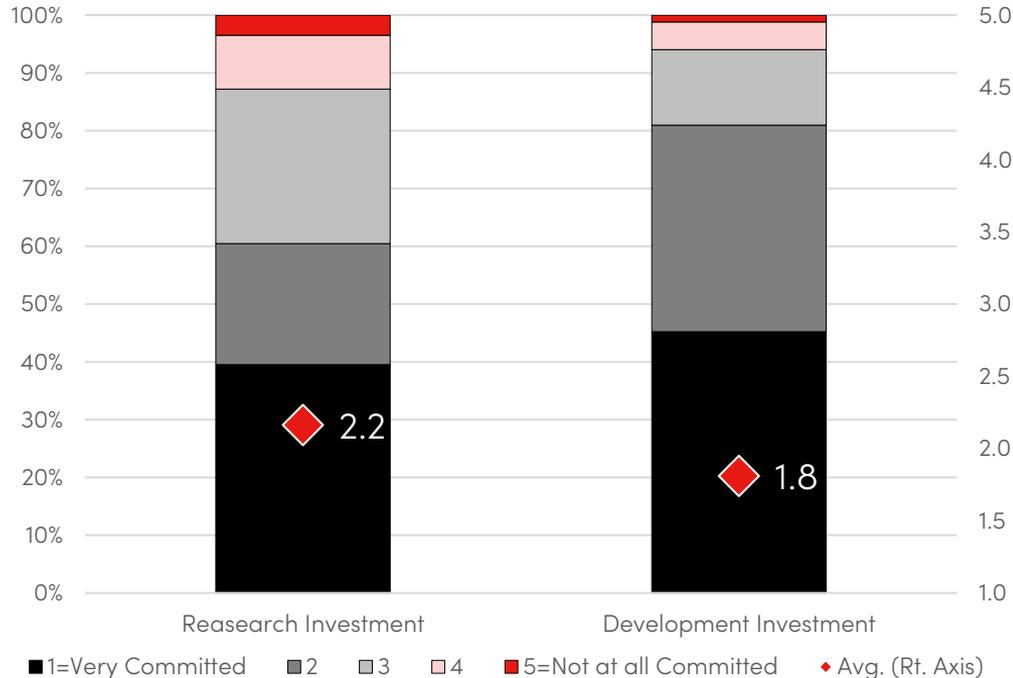


Advanced materials and powertrain technologies are the top investment priorities.

The industry continues to focus less on driver assist and autonomous technologies extending last year's trend

MEMA OE Supplier Barometer: Research & Development Technology Investments

How committed is your organization to its R&D spending over a 2-3 year time horizon in the face of economic uncertainty?



Comments:

- Less committed with the loss of 100% credit in year incurred.
- When the funds are available
- Innovation is our DNA
- Without investment in the appropriate technologies, we place ourselves in an untenable position to grow our business. If we are not replacing our own products, somebody else will be.

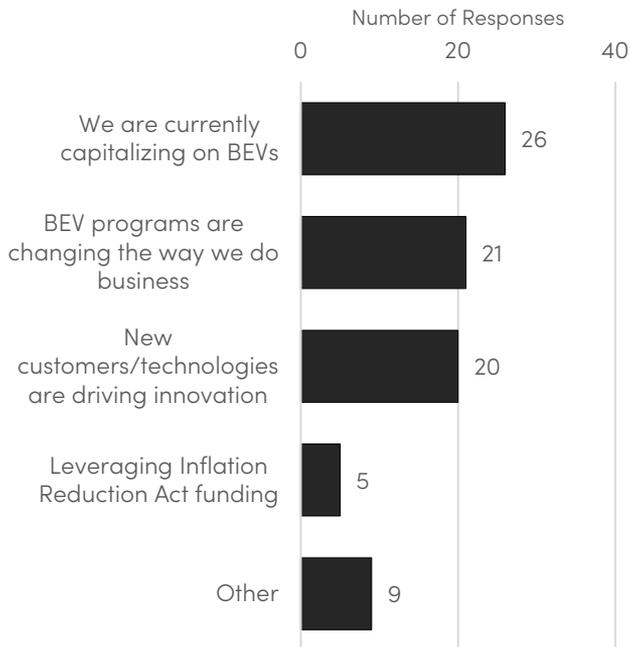
MEMA OE Supplier Barometer: Research & Development Spending

What are your biggest challenges/opportunities as the industry prepares for a Battery Electric Vehicle (BEV) future?

Challenges



Opportunities

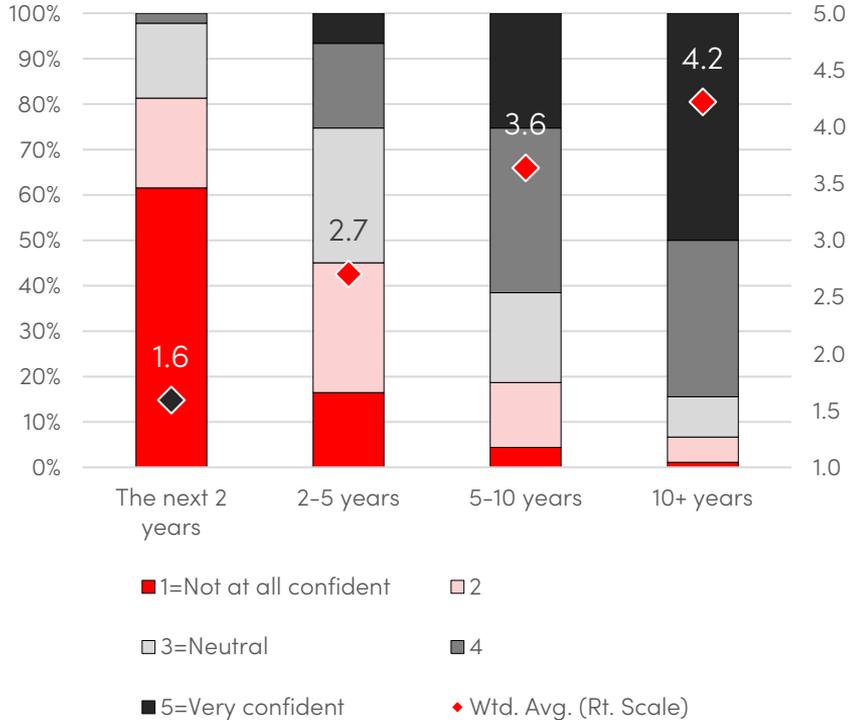


Other Issues and Comments:

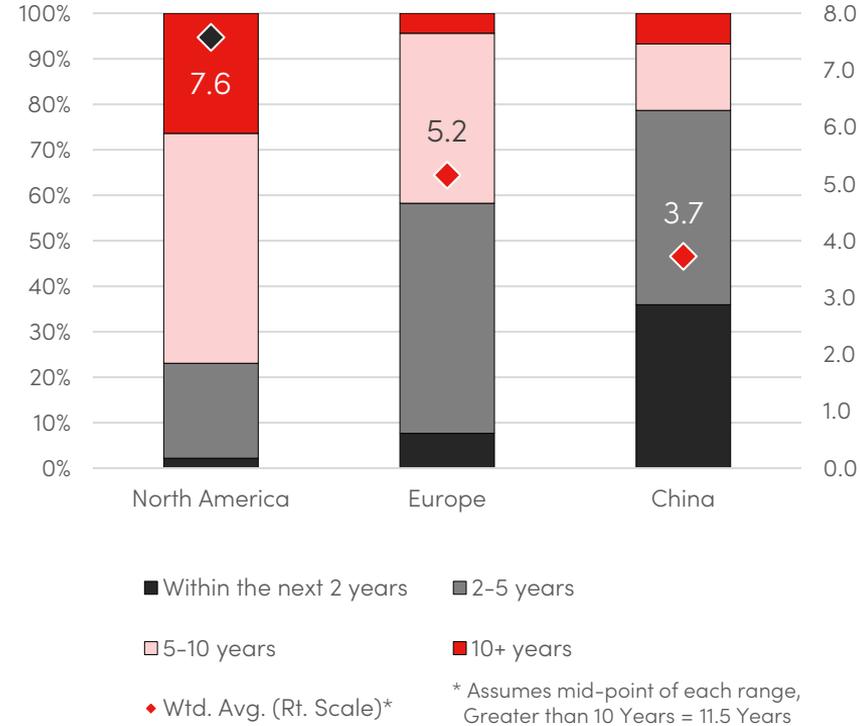
- Agnostic
- Program delays
- Transition from ICE components to electric
- Too late to market. Customer responsiveness/network
- BEV phase-in timeline is extremely unrealistic, government is pushing a political agenda vs. a methodical approach to the transition
- Time to market
- There is less supplier value available on BEV programs
- Concern over lithium supply in coming years. US can only provide 30% of 2030 requirements on battery production
- Limited impact for our product lines (interiors/Exteriors space)

MEMA OE Supplier Barometer: Electrification: Supplier Volume Outlook

How confident are you that global BEV production will reach a substantial portion (20% of total production) within...

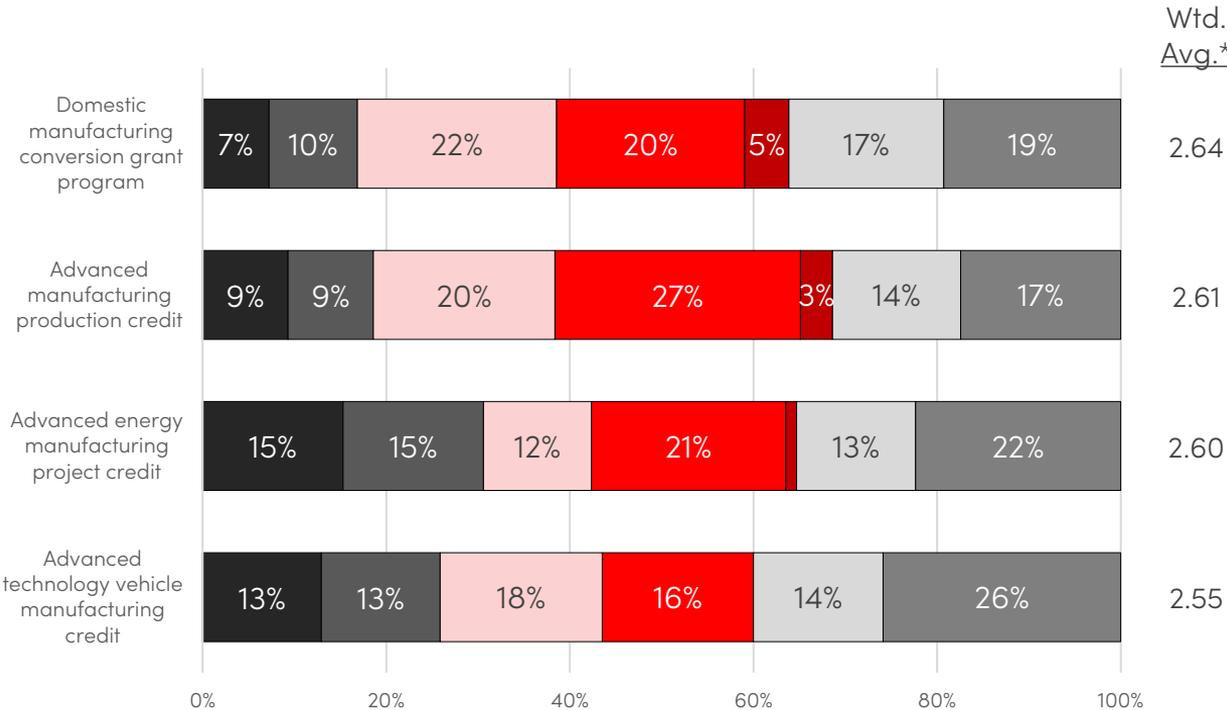


In what time frame do you believe a substantial level of BEV production (20% of total production) will occur?



MEMA OE Supplier Barometer: Electrification: Risks and Opportunities

Please rate your company's interest in pursuing funds from the following Inflation Reduction Act credits and programs.



Comments:

- Our focus is on battery tray structures.
- Interest is there, but unlikely to be substantial based on product line being inapplicable

■ 1=No interest ■ 2=Minimal interest ■ 3=Moderate interest ■ 4=Very interested ■ 5=Utmost priority □ Not aware ■ N/A * Excludes not aware and N/A responses

MEMA OE Supplier Barometer: Appendix



MEMA OE Automotive Supplier Barometer is a survey of the top executives of MEMA regular member companies. The MEMA OE Automotive Supplier Barometer takes the pulse of the suppliers' twelve-month business sentiment. In addition, it provides a snapshot of the industry commercial issues, business environment and business strategies that influence the supplier industry. [mema.org](https://www.mema.org)

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Survey Methodology

- Data collected February 10 – March 2 via invitation to online survey.
- Executives of OESA supplier companies.
- 101 complete survey responses were received, with 130 responses total.

The information and opinions contained in this report are for general information purposes. Comments are edited only for spelling and may contain grammatical errors due to their verbatim nature. Responses to this survey are confidential. Therefore, only aggregated results will be reported, and individual responses will not be released or shared.

Antitrust Statement:

Respondents/participants should not contact competitors to discuss responses, or to discuss the issues dealt with in the survey. It is an absolute imperative to consult legal counsel about any contacts with competitors. All pricing and other terms of sale decisions and negotiating strategies should be handled on an individual company basis.

Contacts

Mike Jackson
Executive Director
Strategy and Research
248.430.5954
mjackson@mema.org

Joe Zaciek
Senior Manager
Research and Industry Analysis
248.430.5960
jzaciek@mema.org

Jason Coffman
Deloitte Consulting LLP
Automotive & Off-Highway Sub-Sector Leader
jasoncoffman@deloitte.com

MEMA Original Equipment Suppliers
25925 Telegraph Road
Suite 350
Southfield, Michigan 48033