Thank you for viewing the September edition of General Air’s company and economic news. In this edition we invite you to join us at the Boulder Open House on October 21st, provide some educational information about over welding in this month’s Tech Talk, invite you to join us in our Thanksgiving Food Drive, and of course attached is the always informative economic report from Eco Trends.

If you are currently not a subscriber of our newsletter and would like to be, please email events@generalair.com and we will add you to our mailing list!

**What’s Happening at General Air**

**Boulder Open House**

Come join us Wednesday, October 21st at our Boulder store location for our open house! Productivity is the theme and we will be showcasing productivity enhancing products from Miller, Lincoln, Scotchman, Honda, Victor, Kimberly-Clark, and more! Come on by, have some food and drink, and check it out!

**Featured Products:**

- **Lincoln C300**
  “Use pulse welding for higher travel speeds (increase production) and higher deposition rates than conventional GMAW processes.”

- **Miller Pipewrox**
  “RMD Pro and Pro-Pulse processes that deliver superior quality welds, increase productivity, and reduce rework and training.”

- **Miller Powered Air Purifying Respirator**
  “Breathe easy in tough environments.”

- **Miller Steel Runner 650**
  “All-in-one solution for structural steel fabrication.”

- **Victor Edge Regulators**
  “Color coded, easy to adjust, durable and compact.”

- **Honda EU2000 Generator**
  “Super quiet, easy to carry, and very fuel efficient.”

- **Scotchman Tigerstop Advanced Feed System**
  “Increases productivity by decreasing set-up time, reducing operator error, and eliminating waste.”

- **Scotchman Advanced Measuring System**
  “Increase accuracy, reduce set-up time, and eliminate waste.”

- **Kimberly-Clark Kleenguard Safety Products**
  “Clean, green, comfort and protection.”

**Did you know?** General Air offers Saturday welding classes. Visit www.generalair.com/saturday.htm or call 720-359-3235 for details.

**Company and Economic News**

**Sept 2009**
Tech Talk

with Steve Duren
Over Welding: Stronger Welds or Weaker Wallet?

Countless times throughout my career I have heard people say “I know the print calls for a 3/16” fillet, but I know it is not enough.” As a result, the welds end up being a 5/16” fillet. And while there are times when extra reinforcement is necessary, have you ever stopped to ponder the trade offs for adding the extra weld metal?

On the surface, increasing the weld size from 3/16” to 5/16” doesn’t seem like that big of a deal; all the welder has to do is increase his oscillation while performing the weld. The welder is much more comfortable making the larger weld. Besides, it doesn’t take that much more time or money. Or does it?

Suppose a job is bid based on prints calling for a 3/16” fillet and there is approximately 5,000ft of weld. The job will be welded using an 0.045, gas shielded, flux-core wire. The shielding gas is C25 set at a flow rate of 35 cfh. Typical welding procedures are 350 ipm wire feed speed and 25 volts.

Using the above procedures, 5,000 ft of a 3/16” fillet weld would require about 465 pounds of weld metal or about 535 pounds of flux-core wire to be purchased (based on 87% wire efficiency). A 5/16” fillet requires a staggering 1,290 pounds of weld metal or about 1,483 pounds of wire to be purchased. That is nearly three times more wire that needs to be purchased. Ouch!

Likewise, the 3/16” fillet requires approximately 71 hours of arc time (just arc time - not including breaks or pauses in the process). The 5/16” fillet requires approximately 196 hours of arc time. Again, nearly three times longer to complete the required welding. These extra hours of welding require a minimum of 13 extra cylinders of gas.

During these tough economic times we are all looking for ways to stretch our dollar and make every penny count. Over welding by just 1/8” costs nearly three times more in labor and materials. Take the time to evaluate weld sizes on your next job. A little extra training could add up to big savings.

Did you know? General Air can save you money by implementing fabrication solutions that increase output and reduce labor costs. Contact our Productivity Enhancement Team at 303.892.7003 for more information.

Thanksgiving Food Drive

General Air has begun our annual Thanksgiving Food Drive. Each year our employees raise money and food donations in order to provide deserving families with a traditional Thanksgiving meal. Through fundraisers within the organization and the generous donations of food and money from our employees and customers we hope to make this holiday a great one for over 100 families.

We will be accepting donations of traditional Thanksgiving food or monetary donations from now until November 24th. If you would like more information or would like to make a donation please contact Bonnie Blakesley at bblakesley@generalair.com. Thank you in advance for your generosity.

www.generalair.com Gas Products|Welding Equipment|Cryogenics 877.782.8434
This is an example of one of the many success stories that result from General Air’s Productivity Enhancement program. Contact our Productivity Enhancement team for more information! (877) 782-8434

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**Success Story**

**Conversion to Metal-Cored Wire**

**Challenge**
- Reduce clean-up
- Raise operating factor
- Improve electrode efficiency
- Maximize deposition rate

**Solution**
- Metal cored wire

**Results**
- 20% increase in deposition rate
- 11% increase in electrode efficiency
- 17% increase in arc on time by eliminating spatter and slag

**Savings**
$123,576 annually

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**PE Solution**

The solution, metalcored wire, was clear. Electrode efficiency was increased 11% (87 vs 98%), arc “on” time 17% and deposition rate 20% (6.5 vs 7.8 lbs/hr). Slag was removed from the new process and spatter virtually eliminated.

Price per pound of wire, while of secondary importance in reducing fabrication costs, did not change. The General Air PE solution required no additional capital equipment expenditure or shielding gas change. Implementation of the solution saved the end-user in excess of $123,000 annually (based on 22,000 lb annual wire usage). Savings of this magnitude are not uncommon to Productivity Enhancement.

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**Productivity Enhancement Menu:**

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Customer Interest</th>
<th>Est. Savings (Annually)</th>
<th>ROI (Months)</th>
<th>Required Investment</th>
<th>Comments</th>
</tr>
</thead>
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<tr>
<td>Change from gas shielded fluxcored to metalcored wire</td>
<td>High</td>
<td>$123,576</td>
<td>0</td>
<td>$0</td>
<td>• Based on 22,000 lbs annual wire usage</td>
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**Economic Spotlight**

In the following pages we have provided you with an excerpt from the Institute for Trend Research’s economic analysis report. Their experts provide General Air with a monthly report on the current state of the economy and it is tailored to the welding and gas industry. We have hand picked the most relevant pages that sum up the whole month’s report to inform and educate you on the current state of the economy, according to the people at Trend Research. We would be happy to provide you with the entire report, if you are interested please contact us at events@generalair.com.
Executive Summary: TURBULENT TIMES

We hope you bought a house over the last month as suggested in the August Executive Summary (Alan did). If you didn’t, perhaps it is because you are concerned over the possibility of a double-dip downturn in the economy. We share your concern and there are indeed factors that keep us up at night, yet they are slowly but surely fading. We vigilantly watch the leading indicators and many of them are in positive trends, however, it is difficult to tell how much of the gains being posted are sustainable and how much are the result of abnormal stimulus activity and therefore perhaps transient.

One of the tried and true ways to stimulate the economy is through monetary policy, although this Fed has taken it to a new extreme. The monetary stimulation is now showing some benefit. One of the best news items in this month’s EcoTrends® is that excess bank reserves are going down and the M1 measure of the money supply is going up. This is a very important sign in terms of seeing money flowing through the economy. The rising trends of M1 and M2 make us optimistic about credit flows going into 2010 and about the probability of a 2010 rising trend in Retail Sales. It is true that the money supply trends are consistent with the inflation forecast we cited last month, but a trade off is being made between liquidity today and inflation tomorrow.

Sometimes an attempt at stimulating the economy is more pointed and more transient, such as the ‘cash for clunkers’ program. ‘Cash for clunkers’, like fiscal stimulus spending more generally, mostly just shifts consumption spending around. Consumption spending shifts toward present goods and away from future goods (buy a car now instead of next year) and also shifts from some goods to others (buy a car instead of new furniture). It's like playing musical chairs with the economy and if you find a seat you can make some money.

Stimulus also has the effect of producing bubbles in those markets into which the spending is channeled. This is one of the fatal flaws of stimulus spending; as soon as the stimulus ends (which it must eventually) consumer spending shifts back to a pattern that more closely reflects consumer preferences and the bubbles collapse. Some consumers will default on car loans they can't really afford. Some manufacturers will find that their ramped up production goes unsold. The collapse of the bubbles reveals the real harm that stimulus spending causes. Additional resources and capital goods have been expended to produce more of the goods that were targeted by the stimulus. The collapse of the bubble will reveal that these additional investments have been largely wasted.

Instead of focusing on the possible maladjustments created by the stimulus, did you notice that the Purchasing Managers Index for August rose to 52.9? The Purchasing Managers Index and US Leading Indicator 12/12 rates-of-change are now both rising. The turnaround in these leading indicators started before government money started flowing and therefore we think the trends are noteworthy and credible. Additionally, imbedded in the Housing Starts data is the fact that the Single-Family Housing Starts 12/12 has tentatively established a low. Note also that the Stock Prices 12/12 is only a month or two away from establishing a cyclical low. We have 1/12 and 3/12 rising trends in a myriad of individual stocks with numerous upward passings of the 12/12 in effect; the situation is looking better as the months tick by. Additionally, interest rates are incredibly low. Even with these trends in place, many people are uncertain about what tomorrow holds. This all adds up to providing the perfect time to Make Your Move in preparation for the 2010 – 2011 business cycle rising trend.

We likely have two or three years of favorable business cycle conditions to make some headway. How much headway is going to be based on how you handle these turbulent times.
Phase A: 12/12 is rising and the data trend is either heading toward a low or is in the early stages of recovery. This is the first positive phase of the business cycle.

Phase B: 12/12 is rising above 0, data is accelerating in its ascent, and growth is occurring above year-ago levels. This is the second positive phase of the business cycle.

Phase C: 12/12 decline is in place, data is decelerating in its ascent or has stopped its rise, but it is still above last year. This is the first negative phase of the business cycle.

Phase D: 12/12 is below 0, data is in recession at levels below the year-earlier level. This is the final phase and second negative phase of the business cycle.

The Eco 8 status is telling us that we should be reviewing Phase A Management Objectives™ with a reminder that the recovery in 2010 is likely to be very gradual.

The Summary status is negative. The overall momentum for the economy is downward going through August and entering September. Based on the Eco 8, it is too early to break out the celebratory glasses and toast the demise of the recession. The Eco 8 say we aren’t quite out of the woods yet.

There was some good news this month with the Sales Benchmark improving from Phase D into a tentative Phase A status. The improvement was driven by the gains in Light Vehicle Retail Sales which were clearly related to the cash for clunkers program. As noted in EcoTrends®, we think the end of the program means that the automotive aspect to this benchmark is going to weaken once again. What we are waiting for is the bulk of retail sales to kick into Phase A. We seem to be a month or two away from that eventuality. While waiting, don’t be surprised if the Sales Benchmark slips back into Phase D for a couple of months.

The Construction Benchmark is hanging on in Phase C but just barely. It will likely join the majority position by declining into Phase D next month. This lagging part of the economy is going to be very slow to reflect the recovery dynamics that are now taking shape in the leading indicators. Look for the Construction Benchmark to be negative through most, if not all, of 2010.
We have an upturn in the Monthly Index to report on this month. The 0.5% month-to-month gain in production is milder than average but normal for an initial step toward recovery. We look to be on track for a 12MMA data trend low occurring around February 2010. The nascent upturn in activity may be temporary, but even if it is, this is a necessary precursor to seeing sustainable ascent develop as we approach year-end 2009 and early 2010.

Barring a more significant than usual data revision, the 1/12 trend reversal is likely to hold, which puts us on track for a 12/12 low occurring around October 2009 as projected. We are forecasting a 10.2% year-over-year decline in 2009 with a 1.4% increase in production for 2010.
HIGHLIGHTS:

Trend remains dismal ■ 12MMT decline well into 2010 ■ 3/12 ticks up - first good sign

INDICATIONS:

This market is well into the thick of the recession. This declining trend is expected to continue into 2010. One bit of good news is that the 3/12 rate-of-change ticked up in July. One month does not a trend make, but the uptick may be the first evidence of the cyclical reversal we are projecting for the 4th quarter of this year.

The New Orders 12MMT is 29.6% below the year-earlier level. The seasonal rising trend is still absent, but the July quarterly number (3MMT) at least remained level from June.

Also remaining level from June to July was the Fabricated Metals Capacity Utilization Rate at 61.9%. The Iron & Steel Products Capacity Utilization Rate is rising off an April 09 low but is still a dismal 41.7%. Both rates are way below year-ago levels at -19.9% and -53.1% respectively.

FORECAST NOTE:

We are projecting a 37.9% year-over-year drop in the 12MMT by December ’09. This will also be the cyclical low and a gradual recovery will follow.

MANAGEMENT NOTE:

Watch degrading quality and delivery performance of current suppliers and other indications of financial health. Identify alternative suppliers.

<table>
<thead>
<tr>
<th>Date</th>
<th>Actual</th>
<th>1/12</th>
<th>3MMT</th>
<th>3/12</th>
<th>12MMT</th>
<th>12/12</th>
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<tbody>
<tr>
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<tr>
<td>JUL 09</td>
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<td>-42.9</td>
<td>4.471</td>
<td>-40.7</td>
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</tbody>
</table>
HIGHLIGHTS:
1/12 rate-of-change and monthly Index rise in July ■ 1/12 trend reversal likely to hold

INDICATIONS:
There is good news this month with an upturn in Industrial Production taking place in July 2009. We need to see some additional gains before the uptick has any statistical credence. However, at the very least, the July result suggests that we are on track for seeing the economy slowly reverse direction and begin to recover going forward.

Manufacturing is the basis for the improvement. Manufacturing is down 14.3% from one year ago but its 1/12 improved. Both hi-tech and non hi-tech activity supported the gain. Utility Production and Mining are experiencing Phase D in their 1/12s.

FORECAST NOTE:
Barring a more significant than usual data revision, the 1/12 trend reversal is likely to hold, which puts us on track for a 12/12 low occurring around October 2009, as projected. Look for a 10.2% year-over-year decline in 2009 and a 1.4% increase for 2010.

MANAGEMENT NOTE:
There remains a lot of concern regarding a double-dip downturn over the next few months or even quarters. Although the June monthly data may not hold as the absolute low point for this business cycle, it would be a mistake to lay your plans for 2010 assuming but a modicum of recovery for the greater economy. Know where your markets stand relative to US Industrial Production to be sure of what this means for your specific company plans.
HIGHLIGHTS
Near term 12MMA decline ■ Inflation subdued for now but will be a problem by 2011

INDICATIONS:

The Consumer Price Index 12MMA fell further from June to July. This is the first sustained decline in the 12MMA since the mid fifties. The rates-of-change indicate that the 12MMA will continue to decline for the near term.

The raw monthly Index declined for the second month in a row, but the pace of decline is much milder than what we saw a year ago. We expect the rate-of-change descent to slow and reverse course through the end of the year.

The Producer Price Index 12/12 fell below zero as the earlier peak commodities prices dropped out of the long-term averages. The more recent (year-to-date) trend has been for prices to rise.

FORECAST NOTE:

The outlook for consumer price inflation shows the current mild 12MMA declining trend ending within the next few months. Prices will creep up through 2010. Look for inflation to take off by 2011 and into 2010.

MANAGEMENT NOTE:

Rising consumer prices in the next few years will mean more upward pressure on wages, especially as the economy enters recovery. Lock in labor costs now.

<table>
<thead>
<tr>
<th>Date</th>
<th>Actual</th>
<th>1/12</th>
<th>3MMA</th>
<th>3/12</th>
<th>12MMA</th>
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<td>211.2</td>
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<tr>
<td>MAR 09</td>
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<td>0.0</td>
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<tr>
<td>APR 09</td>
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<td>212.7</td>
<td>-0.3</td>
<td>215.1</td>
<td>2.4</td>
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<tr>
<td>MAY 09</td>
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<td>-1.3</td>
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<td>JUN 09</td>
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<td>JUL 09</td>
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<td>-2.1</td>
<td>215.0</td>
<td>-1.6</td>
<td>214.3</td>
<td>0.8</td>
</tr>
</tbody>
</table>
ITR – Four Phases of a Business Cycle

12/12 Rate-of-Change Rising

Phase A:  * Data trend is slowing in its rate of decline.
          * Data trend usually reaches a low and begins to rise before the end of this phase.

Phase B:  * Data trend is experiencing the strongest part of the business cycle rise.

12/12 Rate-of-Change Declining

Phase C:  * Data trend becomes progressively milder in the business cycle rise.
          * Data trend usually reaches a peak and begins to decline before the end of this phase.

Phase D:  * Data trend is experiencing the steepest part of the business cycle decline.

Phase Management Objectives™

Phase Late A - Recovery:
1. Positive leadership modeling (culture turns to behavior)
2. Establish goals: tactical goals which lead to strategic achievement
3. Develop a system for measurement and accountability re:#2
4. Align compensation plans with #2 and #3
5. Be keenly aware of the BE (Break Even) point and check it regularly
6. Judiciously expand credit
7. Check distributions systems for readiness to accommodate increased activity
8. Review and uncover competitive advantages
9. Invest in customer market research (know what they value)
10. Improve efficiencies with investment in technology and software
11. Start to phase out marginal opportunities
12. Add sales staff
13. Build inventories (consider lead time and turn rate)
14. Introduce new product lines
15. Capital equipment orders
16. Begin advertising and sales promotions
17. Hire "top" people
18. Implement plans for facilities expansion
19. Implement training programs

Phase Early B - Growth:
1. Accelerate training
2. Check the process flow for possible future bottlenecks
3. Continue to build inventory
4. Increase prices
5. Consider outside manufacturing sources if internal pressures becoming tight
6. Find the answer to “What next?”
7. Open distribution centers
8. Use improved cash flow to improve corporate governance  
9. Use cash to create new competitive advantages  
10. Watch your debt-to-equity ratio and ROI  
11. Maintain/pursue quality: don’t let complacency set in  

**Phase Late B - Early C - Prosperity:**

1. Stay in stock on A items, be careful with C items  
2. Consider selling the business in a climate of maximum “goodwill”  
3. Penetrate new selected accounts  
4. Develop plan for lower activity in traditional, mature markets  
5. Freeze all expansion plans (unless related to “what is next”)  
6. Spin off undesirable operations  
7. Consider taking on subcontract work if the backside of the cycle looks recessionary  
8. Stay realistic – beware of linear budgets  
9. Begin missionary efforts into new markets  
10. Communicate competitive advantages to maintain margins  

**Phase Late C - Warning:**

1. Begin work force reductions  
2. Set budget reduction goals by department  
3. Avoid long-term purchase commitments late in the price cycle  
4. Concentrate on cash and balance sheet  
5. Reduce advertising & inventories  
6. De-emphasize commodity/services in anticipation of diminishing margins  
7. Weed out inferior products (lose the losers)  
8. Encourage distributors to decrease inventory  
9. Identify and overcome any competitive disadvantages  
10. Make sure you and the management team are not in denial  
11. Cross train key people  
12. Watch Accounts Receivable aging  
13. Increase the requirements for justification of capital expenditures  
14. Evaluate vendors for strength (don’t get caught honoring their warranties with no one to accept returned goods)  
15. Manage the backlog through pricing and delivery, try to fill the funnel  

**Phase Early D - Recession:**

1. Continue force reduction  
2. Reduce advertising – be very selective  
3. Continue to avoid long-term purchase commitments  
4. Review all lease agreements  
5. Increase the requirements for justification of capital equipment  
6. Eliminate all overtime  
7. Reduce overhead labor  
8. Combine departments with like capabilities and reduce management  
9. Select targets of opportunity where price will get the business  
10. Tighten credit policies – increase scrutiny
11. Look for opportunistic purchases
12. Grab market share as your competitor dies

**Phase Late D - Recession / Early A - Early Recovery**

1. Prepare training programs
2. Negotiate union contracts if possible
3. Develop advertising & marketing programs
4. Enter or renegotiate long-term leases
5. Look for additional vendors
6. Capital expenditures & acquisitions considered in light of market-by-market potential
7. Make acquisitions – use pessimism to your advantage
8. People will be scared – lead with optimism and “can do” attitude

**Checking Points of Cyclical Progress:**

As the rate-of-change cycle moves from the beginning low point through the peak and down to the final low, it passes through several Checking Points. The progress of the rate-of-change through each checking point during the cycle helps to establish whether a cyclical trend is just beginning, is about to reverse, or is in the steepest part of the trend. A 1/12 may be substituted for a 3/12.

**Positive Checking Points**

1. 3/12 low
   - The rate-of-change is making the transition from the previous cycle's decline to rise in the current business cycle. Checking points #1 and #2 reflect this activity.
2. 3/12 passes above the 12/12
   - The onset of business cycle rise is observed.
3. 12/12 reaches a low
   - The entry of the cycle into its steepest part of the rising trend is observed.
4. 3/12 crosses above 0%
5. 12/12 crosses above 0%

**Negative Checking Points**

6. 3/12 reaches a high
   - Checking points #6 and #7 indicate that the business cycle is making the transition from rise to decline.
7. 3/12 downward passes the 12/12
   - Business cycle decline begins with checking point #8.
8. 12/12 reaches a high
9. 3/12 crosses below 0%
10. 12/12 value crosses below 0%
   - The entry of the cycle into its steepest part of the decline is with checking points #9 and #10.
Definition of Terms

Moving Totals

Moving totals are used to smooth out the volatility inherent to monthly data, particularly at the product or company level. An annual moving total goes one step further in that it also removes seasonal change from the data series under consideration. This is desirable when the objective is to discern and forecast the underlying cyclical trend for the subject data series.

A moving total is simply the total of the monthly data for the stated number of months. For example, the 3 month moving total (3MMT) for November 2008 would be the total of the September 2008, October 2008, and November 2008 monthly data. When December 2008 data becomes available, you simply drop September from the calculation and add December. The December 2008 3MMT is thus comprised of the activity recorded in October, November, and December 2008. 3MMTs are thus used to illustrate the seasonal changes inherent to the data series. They are also used when forecasting specific product activity on a quarterly basis.

Example: Housing Starts 3MMT

<table>
<thead>
<tr>
<th>Month</th>
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<th>Value</th>
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</thead>
<tbody>
<tr>
<td>September</td>
<td>2008</td>
<td>.133</td>
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<tr>
<td>October</td>
<td>2008</td>
<td>.140</td>
</tr>
<tr>
<td>November</td>
<td>2008</td>
<td>.121</td>
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</tbody>
</table>

3MMT = .394

A 12 month moving total (12MMT) is derived by adding 12 consecutive months of activity together. The 12MMT for November 2008 is the total derived when adding the Housing Starts (or bookings or sales) figures for December 2007 through November 2008. To ease the calculation process, as each new month of data becomes available, add the newest figure and drop the previous oldest figure. In our example, the November 2008 12MMT can be quickly derived by adding the November 2008 monthly figure to the October 2008 12MMT, and then subtracting the November 2007 number from the subtotal. 12MMTs are used to define the business cycle trend inherent to the subject time series. When ITR refers to a data trend, it is referring to the 12MMT trend.

Example: Housing Starts 12MMT

<table>
<thead>
<tr>
<th>Month</th>
<th>Year</th>
<th>Value</th>
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<tbody>
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</tr>
<tr>
<td>November</td>
<td>2008</td>
<td>.121</td>
</tr>
</tbody>
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3MMT = .394 12MMT = .347

3MMT = .460 12MMT = .460

3MMT = .429 12MMT = 1.595

3MMT = .414 12MMT = 1.594

3MMT = .394 12MMT = 1.598
There are times when it is desirable to calculate a 12 month moving average (12MMA). A 12MMA is calculated in the same way as the 12MMT with the additional step of the sum of the 12 months of activity will be divided by 12 to reflect the monthly average level of activity over the preceding year. A 12MMA will look exactly like a 12MMT when plotted on a chart. 12MMAs are used instead of 12MMTs when one of the following is being observed: an index; percentages (for interest rates or inflation); inventories.

**Rate-of-Change**

Rate-of-change comparisons are utilized for various purposes, all of which relate to the data trend. A 12/12 rate-of-change (discussed below) is more sensitive to changes in cyclical trends and can be used to anticipate trend reversals, often before the data trend even begins to show signs of weakening. An understanding of the timing relationship between a 12/12 rate-of-change and the particular data trend allows for the development of dependable timing estimates for data trend highs and lows. The rate of rise or decline in the rate-of-change is often indicative of the subsequent recovery or recession expected in the data series. In general, the rate-of-change provides a reflection of change in a data trend before the change becomes apparent in either the 3MMT or 12MMT.

**Calculating Rate-of-Change:**

A rate-of-change figure is simply the ratio of a number in a data series to a preceding number in that data series. The time interval between the numbers is fixed. One rate-of-change figure can tell you instantly whether activity is running below or above this time last year, and by how much. Consecutive rates-of-change will reveal whether activity levels are getting progressively better or worse compared to last year. It is the rate-of-change of a data series, which is used to illustrate and measure cyclical change and identify trends.

The most common rate-of-change is the 12/12. As is the case for all rates-of-change, the numerator denotes the data aggregation involved, the denominator indicates the time intervals. The 12 in the numerator of the 12/12 designation specifies that a 12MMT comparison is being made. The 12 in the denominator signifies that the time interval is 12 months (for all of our work represented by this text, the time interval will be fixed at 12 months). The 12/12 rate-of-change for July 2008, expressed as a percent, would be calculated as follows:

\[
\text{July 2008 12MMT} \quad 1.591 = \quad -1.7\% \quad 12/12 \\
\text{July 2007 12MMT} \quad 1.618 
\]

The July 2008 12MMT was 1.7% below the July 2007 12MMT. [Prior to the January 2009 Issue of EcoTrends®, the 12/12 amplitude would have been expressed as 98.3 (100% - 1.7% = 98.3 amplitude).] What we would next want to see is if this figure were trending upward or downward. By doing so, we could begin to give definition to change specifically relating to the *business cycle*.

Of course it is possible that when a 12/12 calculation is made the result will be positive.

\[
\text{November 2008 12MMT} \quad 1.599 = \quad +1.1\% \quad 12/12 \\
\text{November 2007 12MMT} \quad 1.582
\]

[Prior to the January 2009 Issue of EcoTrends®, this would have been expressed as a 12/12 amplitude of 101.1].
The 1.1% rate-of-change figure reflects the fact that activity for the 12 months ending November 2008 was 1.1% above the level of activity posted for the 12 months ending November 2007. The 12/12 is providing a snapshot of a given month. It shows where business stands today in relation to the annual total of one year ago. What becomes paramount to anticipating future change is whether this figure is moving upward (i.e. 3.0%) or downward (i.e. -1.7%).

The 12/12 is used to define business cycle change for the subject data series. ITR research has shown that business cycle change for any given data series is going to be most measurable and forecastable when using the rate-of-change for the series as opposed to the actual data. Repetitive trend characteristics (timing and dynamics) can more easily be observed, measured, and utilized for anticipating change when using the 12/12 rate-of-change.

Another rate-of-change frequently used in measuring cyclical change is the 3/12. As the numerator indicates, the figures being compared are 3MMTs. The time interval is fixed at 12 months. The 3MMT is not used to define the business cycle of the data series per se, but rather is utilized as a tool to better enable us to anticipate shifts in the business cycle trend (changes in the cyclical momentum). The 3MMT is calculated as follows:

\[
\text{3MMT January 2008} = 0.324 \quad \text{3MMT January 2007} = 0.345
\]

Sales for the 3 months ending January 2008 were down 6.1% from the year before. Monitor to see if this figure is improving (approaching 0.0%) or decreasing (falling further below -6.0%) to gauge what the business cycle momentum is for the subject data series. The 3/12 and the 12/12 are the two most frequently used rates-of-change when analyzing company or market data.

There are times when a 1/12 rate-of-change will be employed. Dividing the most recent monthly figure by the monthly figure of one year ago derives the 1/12. The 1/12 is frequently too volatile for use at the company level. It is used primarily for aggregate, macroeconomic data series, which are not prone to significant swings from one month to the next. The 1/12 is calculated as follows:

\[
\text{actual monthly data February 2008} = 0.108 \quad \text{actual monthly data February 2007} = 0.120
\]

Business is down 9.6% from this same time one year ago. [Prior to the January 2009 Issue of EcoTrends® the 1/12 amplitude would have been expressed as 90.0]. What we need to know next is whether this figure is part of an upward trend or downward trend. We can also observe if the February 2008 1/12 rate-of-change is higher or lower than the February 2008 3/12. If it were higher and part of a sustainable trend, then we would have empirical evidence that the 3/12 trend is approaching a cyclical low. If the 3/12 is approaching a low, the 12/12 trend is also moving closer and closer to the low. In other words, we would have our first empirical indication of impending business cycle rise. All this refers to a system of Checking Points developed by ITR, which provides for the orderly observation and anticipation of relatively near-term reversals in predominant business cycle trends.