HVAC Resiliency in Military Housing
Best Practices in Preventative Maintenance, Capital Planning, & Remote Monitoring

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Motili is designed to work directly with end users to provide quality installation on quality products.

Simplicity, savings, & strategic insights for clients

- Preventative Maintenance
- Reactive Repair Services
- Planned Replacement Projects

Focus on skilled trades
- HVAC
- Plumbing
- Asset Management

National Network
- 1,000+ Distribution Points
- 2,500+ Contractors in various trades

Acquired by Daikin Goodman
July 2017
Leveraging Local Labor

Authorized contractors are trained, licensed, insured and continually rated on job site performance.

Technicians on project sites are branded as ‘authorized technicians’.

They all must abide by code of conduct, and job-site work zones.

Photos are required in the mobile-app, and motili validates project quality with in-house QA HVAC technicians.

Motili project management staff are PMP and OSHA 30 certified.
PREVENTATIVE MAINTENANCE

The motili platform provides robust, customizable PM work orders, checklists, asset data, & photo records.

Various Standard Scopes:

Filter Change
- 1x, 2x, 4x Annual

Clean & Check

Spring Readiness

Fall Readiness

Extended Annual Service

HVAC and Hot Water

- Asset Tagging
- Onsite, Standard Repairs
- System Replacement Recommendation

- Indoor and Outdoor unit visual inspection
- Wear Items – capacitors, contactor, ignitors
- Gauge Readings – Charge, Compressor, Leaks
- Filter Change
- Evaporator and Condenser coil cleaning
- Condensate pan and line cleaning
- Gas line inspection, leak check
- Electrical system – high voltage
- Circulating pumps
- Reversing valves
- Duct work and plenum inspection
- Motor cleaning
- Cabinet cleaning
- Thermostat check
- System startup
**ASSET DATA COLLECTION**

1. **Attach QR Sticker**
   - near other labels on unit

2. **Take nameplate photo**

3. **Take photo(s) of unit**
   - Condition, Placement, installation methods & parts, visible issues.

4. **Capture details**
   - Make, Model, Serial, SEER, Refrigerant, MFG Date, Condition

Using Motili Onsite
- take photo of QR

Using Motili Onsite
- take photo of QR
Residential HVAC Monitoring

Michael Morey – Sr. Product Manager – Goodman Controls
Why remote HVAC monitoring?

**Customer Experience**
1. Enable us to manage and improve the consumers’ experience over the life of the system
2. Recurring revenue stream for monitoring services
3. Increased trust with brand improves likelihood of replacing with incumbent brand

**Dealer Efficiency**
1. Safely diagnose equipment without entering consumers home – social distancing
2. More efficient use of labor during shoulder seasons
3. Quicker diagnosis time in-field with error codes
4. Greater business predictability for planning demand and supply
5. Data supports increased business valuation

**Peace of Mind**
1. Worry-free solution to expensive HVAC problems, increasing uptime
2. Increased trust with brand
3. Early detection of sub-optimal performance enables high-efficiency performance
4. Integration with smart home technology (IoT) devices
Forward Thinking Product Roadmap

- Advanced HVAC controls platform
- Consumer-driven product integrations furthering internal AI/ML capabilities
- More factory-installed sensors
- Enhanced dealer tools with increased cloud connectivity
- Residential HVAC monitoring
Monitoring Dashboard & Predicative Alerts

**HVAC Info (Leased)**

- **Board Serial No.**
  - CM-MW51-K40429-01-0000091
- **HVAC Serial No.**
  - 1234567890
- **Make:**
  - Goodman
- **Model No.:**
  - GMV19Y0400BNA
- **Type:**
  - Furnace
- **Furnace Link:**
  - View PDF

**Images:**

- Picture of HVAC equipment dated 05/22/20

**Overview:**

- **Date:** 2020-04-15 12:27:12 AM
- **Value:** 77.2°F

**Temperature Graph:**

- **Date Range:** 2020-04-14 to 2020-04-16
- **Graph Data:**
  - Section Line Temp
  - Discharge Air Temp
  - Return Air Temp
  - Liquid
## Current Alerts

<table>
<thead>
<tr>
<th>Alert</th>
<th>Time</th>
<th>Technician</th>
<th>Assign / Re-Assign Technician</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return Air Temp Sensor Out of Range</td>
<td>2 mins ago</td>
<td>Carlos</td>
<td>Re-Assign</td>
</tr>
<tr>
<td>AC Not Cooling</td>
<td>30 mins ago</td>
<td>John Doe</td>
<td>Re-Assign</td>
</tr>
<tr>
<td>Discharge Air Temp Sensor Out of Range</td>
<td>1 hour ago</td>
<td>Will Smith</td>
<td>Re-Assign</td>
</tr>
</tbody>
</table>

## Past Alerts

<table>
<thead>
<tr>
<th>Alert</th>
<th>Time</th>
<th>Resolved Time</th>
<th>Technician</th>
<th>Technician Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC Not Cooling</td>
<td>2 mins ago</td>
<td>16-Jan-2020 10:05:36 AM</td>
<td>Carlos</td>
<td>This is just a remark.</td>
</tr>
<tr>
<td>AC Not Cooling</td>
<td>30 mins ago</td>
<td>16-Jan-2020 10:05:36 AM</td>
<td>John Doe</td>
<td>This is just a remark.</td>
</tr>
<tr>
<td>Discharge Air Temp Sensor Out of Range</td>
<td>1 hour ago</td>
<td>16-Jan-2020 10:05:36 AM</td>
<td>Will Smith</td>
<td>This is just a remark.</td>
</tr>
<tr>
<td>AC Not Cooling</td>
<td>2 hours ago</td>
<td>16-Jan-2020 10:05:36 AM</td>
<td>John Doe</td>
<td>This is just a remark.</td>
</tr>
<tr>
<td>Return Air Temp Sensor Out of Range</td>
<td>18 hours ago</td>
<td>16-Jan-2020 10:05:36 AM</td>
<td>John Doe</td>
<td>This is just a remark.</td>
</tr>
</tbody>
</table>
THANK YOU

Goodman & Balfour Beatty