

# Application Note: Automotive Clutch

## IMPACT Software Suite Information:

Software Version: 8.1

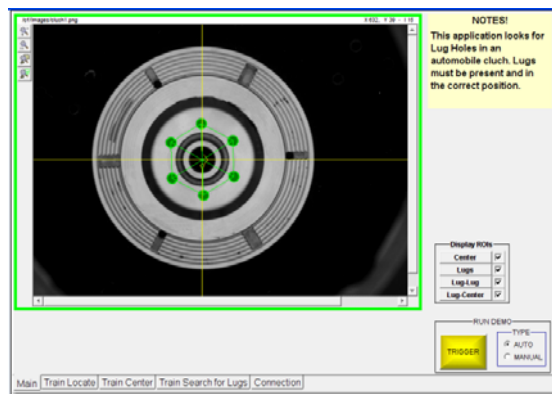
Files Included:  Images  VPM Program  CP Program

Others:

## Application:

Inspection of automotive clutch plate to ensure that all bolt holes are present, and that they are located at the correct position.

## Image Example(s):



## Lighting:

## Optics:

## VPM Tools:

1. Data Set Tool; used to set the measurement point list to zero points. The measurement point list is generated each time the inspection is run and needs to be cleared.
2. Origin Tool; used to find the edges of the clutch. This X, and Y information is then shared with the Circle Gauge tool to optimize its search pattern.
3. Circle Gauge Tool; used to locate the center hole of the clutch plate. Bolt holes will be measured from the center of this hole.
4. Blob Tool; used to locate the bolt holes in the clutch plate. The centroid (center) of each hole is also calculated and will be used later in the inspection for measuring the distance from hole center to hole center and hole center to clutch hole center.

5. Sort List Tool; used to sort the clutch hole positions and clutch hole center point positions.
6. List Loop Tool; this tool runs the number of times as the number of items in the list it uses. In this case it creates a point list from the clutch center hole to each bolt hole.
7. Multi Point to Point Tool; one used to measure between each Clutch bolt hole and the next clutch bolt hole and one to measure between each clutch bolt hole and the clutch center hole
8. Basic Tool; used to calculate the pass/fail of each clutch bolt hole if it failed the clutch bolt hole to clutch bolt hole or clutch bolt holt to clutch center measurements.
9. Pass Fail Tool; used to make a global decision whether the part passed or failed, based on the current state of those Tools being monitored. In this case it monitors the two Multi Point to Point tools.
10. Discrete Output Tools; used to toggle the various Outputs On/Off to allow the machine to reject failing parts accordingly. Here the Discrete Output 1 is turned on for a pass condition and Discrete Output 2 is turned on for a fail condition.

Notes: