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Using Renishaw GoProbe cycles with imperial units

9901

9921

9931
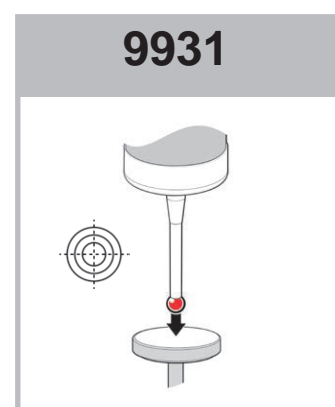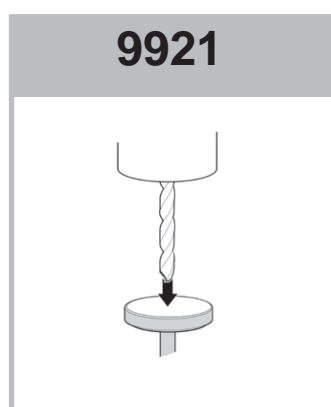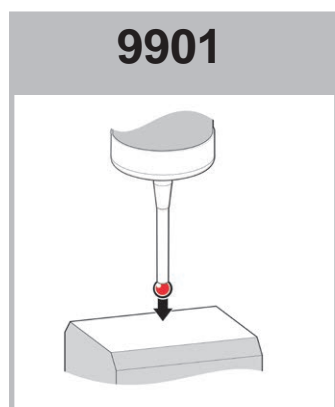
For use with Fanuc and Meldas controllers

Disclaimer

THIS DOCUMENT IS SUPPLIED AS AN AID FOR USING GOPROBE CYCLES WITH A RENISHAW MACHINE TOOL PROBE. IT IS PROVIDED FREE OF CHARGE OR AT A NOMINAL COST. YOU MUST ENSURE THAT YOUR PROBE IS SET UP CORRECTLY IN ACCORDANCE WITH RENISHAW INSTRUCTIONS AND THAT DATA IS ENTERED ACCURATELY INTO THE MACHINE TOOL CONTROL. RENISHAW PLC MAKES NO WARRANTIES OR REPRESENTATIONS, AND EXCLUDES LIABILITY HOWSOEVER ARISING, REGARDING THE USE OF THIS DOCUMENT.

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The GoProbe training part is protected by Registered Community Design No. 2445510.

Renishaw part no: H-5990-8103-01-A

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Contents

Introduction

GoProbe training materials and the GoProbe app use metric values throughout. This document has been created for those users who use imperial values in their manufacturing environment. This document should be used in conjunction with the GoProbe training kit and the GoProbe app.

The aim of this document is to provide examples of GoProbe cycles using imperial values so that those customers using imperial values can also benefit from using GoProbe. Some of the examples in this document include both metric and imperial values for comparison purposes.

The principles used in these examples can then be applied to all other GoProbe cycles.

This document refers to Fanuc/Meldas controls only.

User inputs

If the user input value is not a whole number, which is typical when operating in imperial mode, the decimal point in the single-line command moves. The decimal point is used to identify the value. See examples below.

D=1

G65P9901M2.D1.S54.;

D=0.5

G65P9901M2.D0.5S54.;

D=0.25

G65P9901M2.D0.25S54.;

If the decimal point is input twice for the D input (for example, D=0.25.S54.;), alarm 7 ILLEGAL USE OF DECIMAL POINT will be raised.

Metric to imperial conversions

25 mm is approximately equal to 1 in
10 mm is approximately equal to 0.4 in
3 mm is approximately equal to 0.12 in
1 mm is approximately equal to 0.04 in

User settings macros

These are always listed and set using metric values.

Part setting cycles

The probe is typically positioned ~0.4 in (10 mm) away from the part before running a GoProbe part setting cycle.

M1

G65P9901M1.A☐.S54.;

A-1=-X   A1=X

Cycle start position, probe positioned ~0.4 in (10 mm) from the part.

M7

G65P9901M7.D☐.E☐.S54.;

D	#100	
△	#101	
∡ X	#102	✓
∡ Y	#103	✓

For cycles M6 (internal corner) and M7 (external corner) the probe start position is ~0.4 in (10 mm) from the corner. The first touch point in the X and Y axes will then be ~0.4 in (10 mm) from the corner.

The example below shows the completed single-line command for cycle M7 using imperial values.

G65P9901M7.D0.4E0.4S54.;

Tool setting cycles

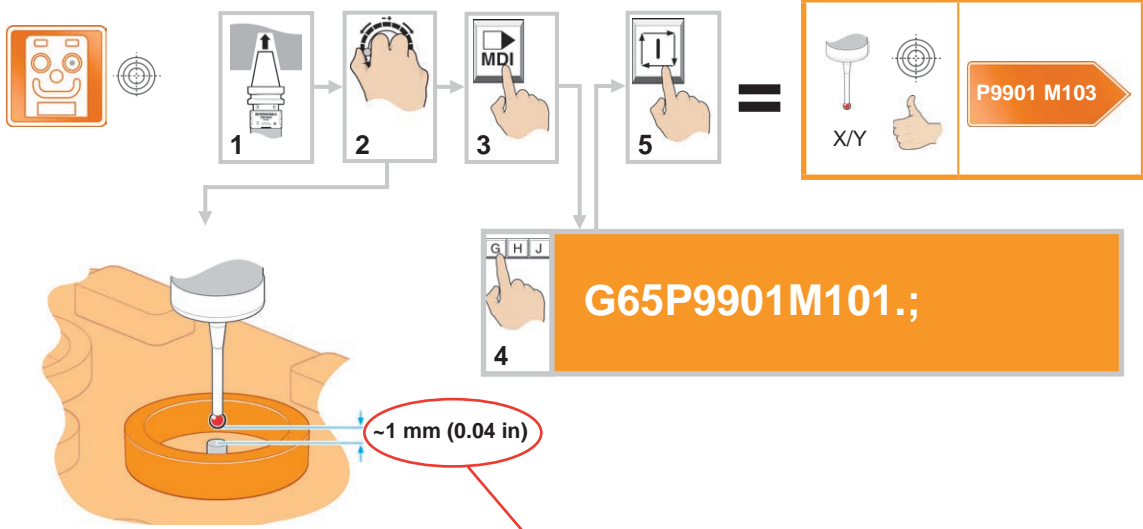The tool is typically positioned ~0.4 in (10 mm) above the tool setter for a tool setting cycle.

Cycle start position, tool positioned ~0.4 in (10 mm) above the tool setter stylus.

Set-up and calibration cycles

The probe or tool start position varies for the set-up and calibration cycles. The following examples indicate some of the probe and tool starting positions.
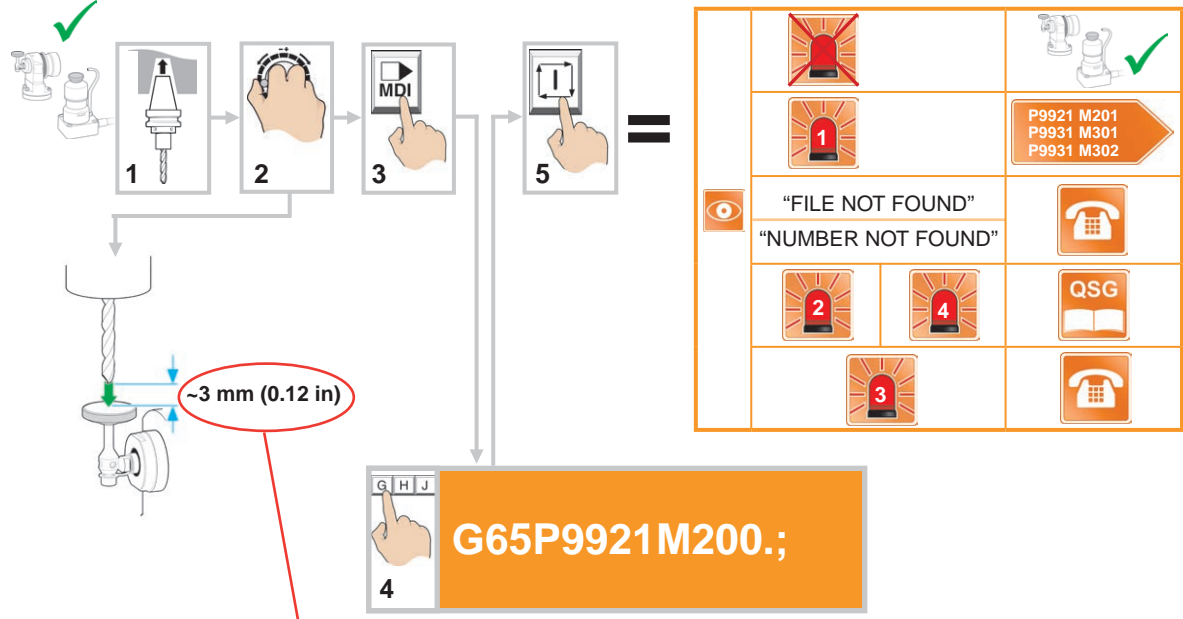

M101

G65P9901M101.;

Cycle start position, probe positioned ~0.04 in (1 mm) above the calibration pin.

~1 mm (0.04 in)

P9901 M103

X/Y

M200

P9921 M201
P9931 M301
P9931 M302

"FILE NOT FOUND"
"NUMBER NOT FOUND"

QSG

G65P9921M200.;

~3 mm (0.12 in)

Cycle start position, tool positioned ~0.12 in (3 mm) above the tool setter stylus.

Probe-on-probe calibration (M301)

The probe-on-probe calibration cycle M301 uses a metric-only input for the "E" input, even if the controller is configured for imperial. Acceptable "E" inputs are E50 for a 50 mm stylus and E100 for a 100 mm stylus length.

E

~0.4 in (10 mm)

G65P9931M301.E□.;

50 mm/100 mm

Acceptable inputs are 50 mm or 100 mm.
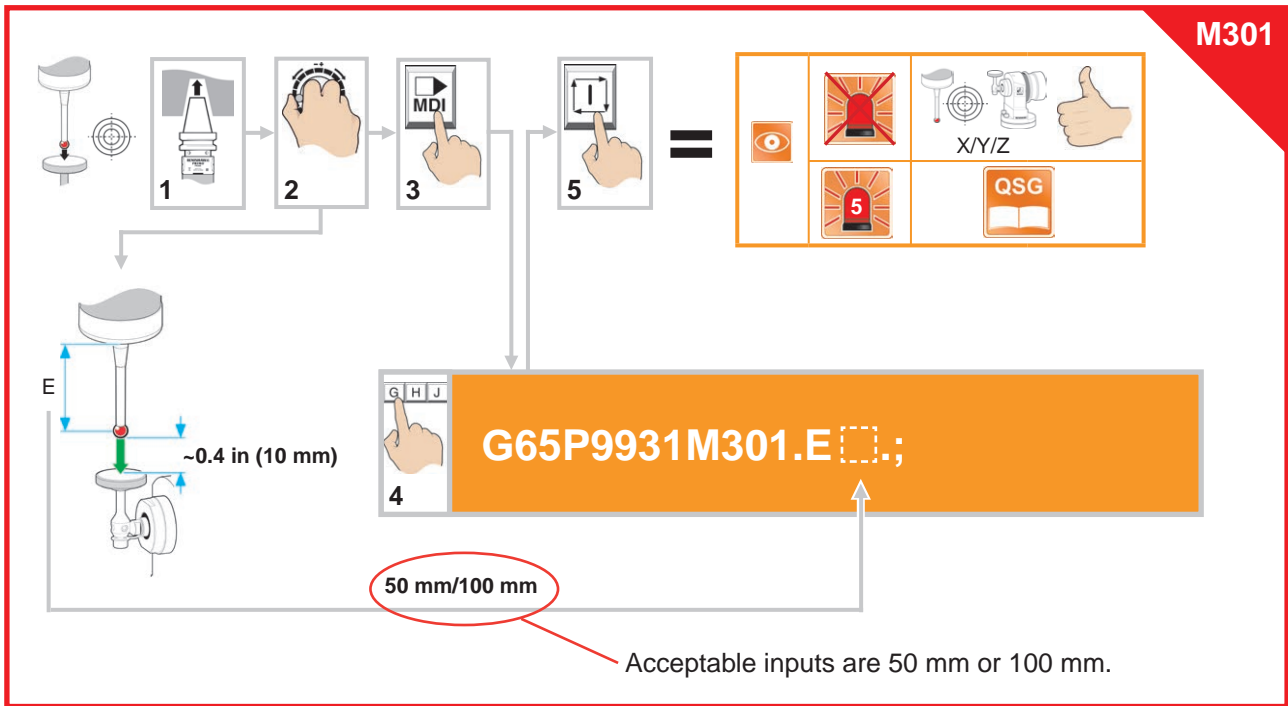
The example below shows the completed single-line command for cycle M301 using a 50 mm stylus.

G65P9931M301.E50.;

Practical exercises

The GoProbe e-learning practical exercises use metric values throughout. The examples below show some of the practical exercises with imperial values.
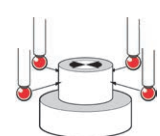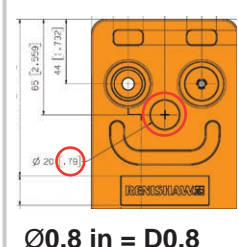
M3: Boss

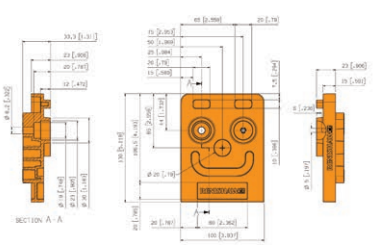|	
1	
2	~10 mm (0.4 in), W-, D
3	MDI
4	G H J — **G65P9901M3.D0.8W-0.6S55.;**
5	=
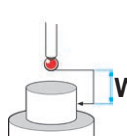
G55 X ✓ Y ✓ Z ⬤
D #100 ✓
👁 △ #101
∡ #102

M3	∅0.8 in = D0.8	W-0.6	S55

M7: Corner (external)

1	
2	~10 mm (0.4 in), ~10 mm (0.4 in), ~10 mm (0.4 in), ~10 mm (0.4 in), E, D
3	MDI
4	G H J — **G65P9901M7.D0.8E0.8S55.;**
5	=

G55 X ✓ ⬤ Y ✓ Z
D #100
👁 △ #101
∡ x #102 ✓
∡ Y #103 ✓

M7	D=0.8 in = D0.8 E=0.8 in = E0.8	S55

Alarms

ALARM*4*DISC*STYLUS*NOT*LEVEL

Disc stylus not level (> 15 µm [0.006 in])

ALARM*5*STYLUS*RUNOUT*EXCESSIVE

Stylus run-out excessive (> 0.2 mm [0.0079 in])

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**For more information on GoProbe, please
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