Fig. 1.6.2(a) Case I, DTRC48421, With Hub, Devised Wake
KT Without Viscous Correction

Fig. 1.6.2(b) Case I, DTRC48421, With Hub, Devised Wake
KT With Viscous Correction
Fig.1.6.2(c) Case I, DTDC4842I, With Hub, Devised Wake
KQ Without Viscous Correction

Fig.1.6.2(d) Case I, DTDC4842I, With Hub, Devised Wake
KQ With Viscous Correction
Fig. 2.1.1(a) CP for Case A (DTRC4119, J=0.833, Without Hub, Linear Wake) on 0.3R Back

Fig. 2.1.1(d) CP for Case A (DTRC4119, J=0.833, Without Hub, Linear Wake) on 0.3R Face
Fig. 2.1.1(b) CP for Case A (DTRC4119, J=0.833, Without Hub, Linear Wake) on 0.7R Back

Fig. 2.1.1(e) CP for Case A (DTRC4119, J=0.833, Without Hub, Linear Wake) on 0.7R Face
Fig. 2.1.1(c) CP for Case A (DTRC4119, J=0.833, Without Hub, Linear Wake) on 0.9R Back

Fig. 2.1.1(f) CP for Case A (DTRC4119, J=0.833, Without Hub, Linear Wake) on 0.9R Face
Fig. 2.2.1(a) CP for Case C (DTRC4119, J=0.833, With Hub, Linear Wake) on 0.3R Back

Fig. 2.2.1(d) CP for Case C (DTRC4119, J=0.833, With Hub, Linear Wake) on 0.3R Face
Fig.2.2.1(b) CP for Case C (DTRC4119, J=0.833, With Hub, Linear Wake) on 0.7R Back

Fig.2.2.1(e) CP for Case C (DTRC4119, J=0.833, With Hub, Linear Wake) on 0.7R Face
Fig. 2.2.1(c) CP for Case C (DTRC4119, J=0.833, With Hub, Linear Wake) on 0.9R Back

Fig. 2.2.1(f) CP for Case C (DTRC4119, J=0.833, With Hub, Linear Wake) on 0.9R Face
Fig. 2.3.1(a) CP for Case D (DTRC4119, J=0.833, Without Hub, Devised Wake) on 0.3R Back

Fig. 2.3.1(d) CP for Case D (DTRC4119, J=0.833, Without Hub, Devised Wake) on 0.3R Face
Fig. 2.3.1(b) CP for Case D (DTDC4119, J=0.833, Without Hub, Devised Wake) on 0.7R Back

Fig. 2.3.1(e) CP for Case D (DTDC4119, J=0.833, Without Hub, Devised Wake) on 0.7R Face
Fig.2.3.1(c) CP for Case D (DTRC4119, J=0.833, Without Hub, Devised Wake) on 0.9R Back

Fig.2.3.1(f) CP for Case D (DTRC4119, J=0.833, Without Hub, Devised Wake) on 0.9R Face
Fig. 2.4.1(a) CP for Case E (DTRC4119, J=0.833, With Hub, Devised Wake) on 0.3R Back

Fig. 2.4.1(d) CP for Case E (DTRC4119, J=0.833, With Hub, Devised Wake) on 0.3R Face
Fig. 2.4.1(b) CP for Case E (DTRC4119, J=0.833, With Hub, Devised Wake) on 0.7R Back

Fig. 2.4.1(e) CP for Case E (DTRC4119, J=0.833, With Hub, Devised Wake) on 0.7R Face
Fig.2.4.1(c) CP for Case E (DTRC4119, J=0.833, With Hub, Devised Wake) on 0.9R Back

Fig.2.4.1(f) CP for Case E (DTRC4119, J=0.833, With Hub, Devised Wake) on 0.9R Face
Fig. 2.5.1(a) CP for Case F,G (DTRC4119, J=1.1, Without Hub) on 0.3R Back

Fig. 2.5.1(d) CP for Case F,G (DTRC4119, J=1.1, Without Hub) on 0.3R Face
Fig. 2.5.1(b) CP for Case F,G (DTRC4119, J=1.1, Without Hub) on 0.7R Back

Fig. 2.5.1(e) CP for Case F,G (DTRC4119, J=1.1, Without Hub) on 0.7R Face
Fig. 2.5.1(c) CP for Case F,G (DTRC4119, J=1.1, Without Hub) on 0.9R Back

Fig. 2.5.1(f) CP for Case F,G (DTRC4119, J=1.1, Without Hub) on 0.9R Face
Fig.2.6.1(a) CP for Case H (DTRC4842, J=0.905, With Hub, Devised Wake)

0.4R Back

Fig.2.6.1(d) CP for Case H, DTRC4842, J=0.905, With Hub, Devised Wake

0.4R Face
Fig. 2.6.1(b) CP for Case H (DTRC4842, J=0.905, With Hub, Devised Wake)
0.7R Back

Fig. 2.6.1(e) CP for Case H (DTRC4842, J=0.905, With Hub, Devised Wake)
0.7R Face
Fig.2.6.1(c) CP for Case H (DTRC4842, J=0.905, With Hub, Devised Wake) 0.9R Back

Fig.2.6.1(f) CP for Case H (DTRC4842, J=0.905, With Hub, Devised Wake) 0.9R Face
Fig. 2.7.1(a) CP for Case I (DTRC4842l, J=0.905, With Hub, Devised Wake) 0.4R Back

Fig. 2.7.1(d) CP for Case I (DTRC4842l, J=0.905, With Hub, Devised Wake) 0.4R Face
Fig. 2.7.1(b) Case I (DTRC48421, J=0.905, With Hub, Devised Wake)
0.7R Back

Fig. 2.7.1(e) CP for Case I (DTRC48421, J=0.905, With Hub, Devised Wake)
0.7R Face
Fig.2.7.1(c) CP for Case I ( DTRC4842I, J=0.905, With Hub, Devised Wake )
0.9R Back

Fig.2.7.1(f) CP for Case I ( DTRC4842I, J=0.905, With Hub, Devised Wake )
0.9R Face
Fig. 2.1.2(a) CP for Case E (DTRC4119, J=0.833, With Hub, Devised Wake) on 0.3R Back
Fig. 2.1.2(b) CP for Case E (DTRC4119, J=0.833, With Hub, Devised Wake) on 0.7R Back

Fig. 2.1.2(e) CP for Case E (DTRC4119, J=0.833, With Hub, Devised Wake) on 0.7R Face
Fig. 2.1.2(c) CP for Case E (DTRC4119, J=0.833, With Hub, Devised Wake) on 0.9R Back

Fig. 2.1.2(f) CP for Case E (DTRC4119, J=0.833, With Hub, Devised Wake) on 0.9R Face
Fig. 3(a) Panel Arrangement of Linear Wake for DTRC4119

Fig. 3(b) Panel Arrangement of Devised Wake for DTRC4119
Fig. 3(c) Panel Arrangement of Linear Wake for DTRC4842I

Fig. 3(d) Panel Arrangement of Devised Wake for DTRC4842I
APPENDIX A

Calculation Document
Comparative calculation of marine propellers by surface panel method and workshop for the discussion of the comparison have been planned in order to make clear the accuracy of the panel method for the analysis of marine propellers and to review the ability of the method. This can be done on the basis of rich numerical results by many panel methods. The purpose of the comparison is not the competition of each method.

As the accuracy of the results depends strongly on the numerical method, the numerical methods should be discussed to the full. Paneling for the geometry is one of the most important factor. Critical number of panels should be clarified for the required accuracy. Benefit of the higher order panel methods should be also found. Effect of the individual paneling method appears near the rapidly deformed surface such as leading edge or tip of the blade.

Using the Surface Panel Method we can get the information for the effect of the existence of the hub, on which we have few informations.

Another important factor is the treatment of the deformation of blade wake. There seems to be many problems to be solved for the treatment of the deformation of blade wake.

Final factor connecting the calculation results by surface panel method and the actual characteristics is the correction for viscous effects. The correction factor for viscous effects is important from the practical point of view.

As was described above there are a lot of factors to be made clear. But there is a limitation of calculation cases. So we would like to make three points. The first is the very simple case without viscous correction. This is useful for the validation of the numerical method.

The second is the completed case. This is useful for the evaluation for practical applications. The third is to abstract the important factor existing in the calculation and in the application.

So the priority of the calculation cases is decided as shown in Table 1.2.1. We hope you contribute with as many calculation cases as you can. Of course you can decide your calculation cases in your situation. In all cases both results with/without viscous correction are