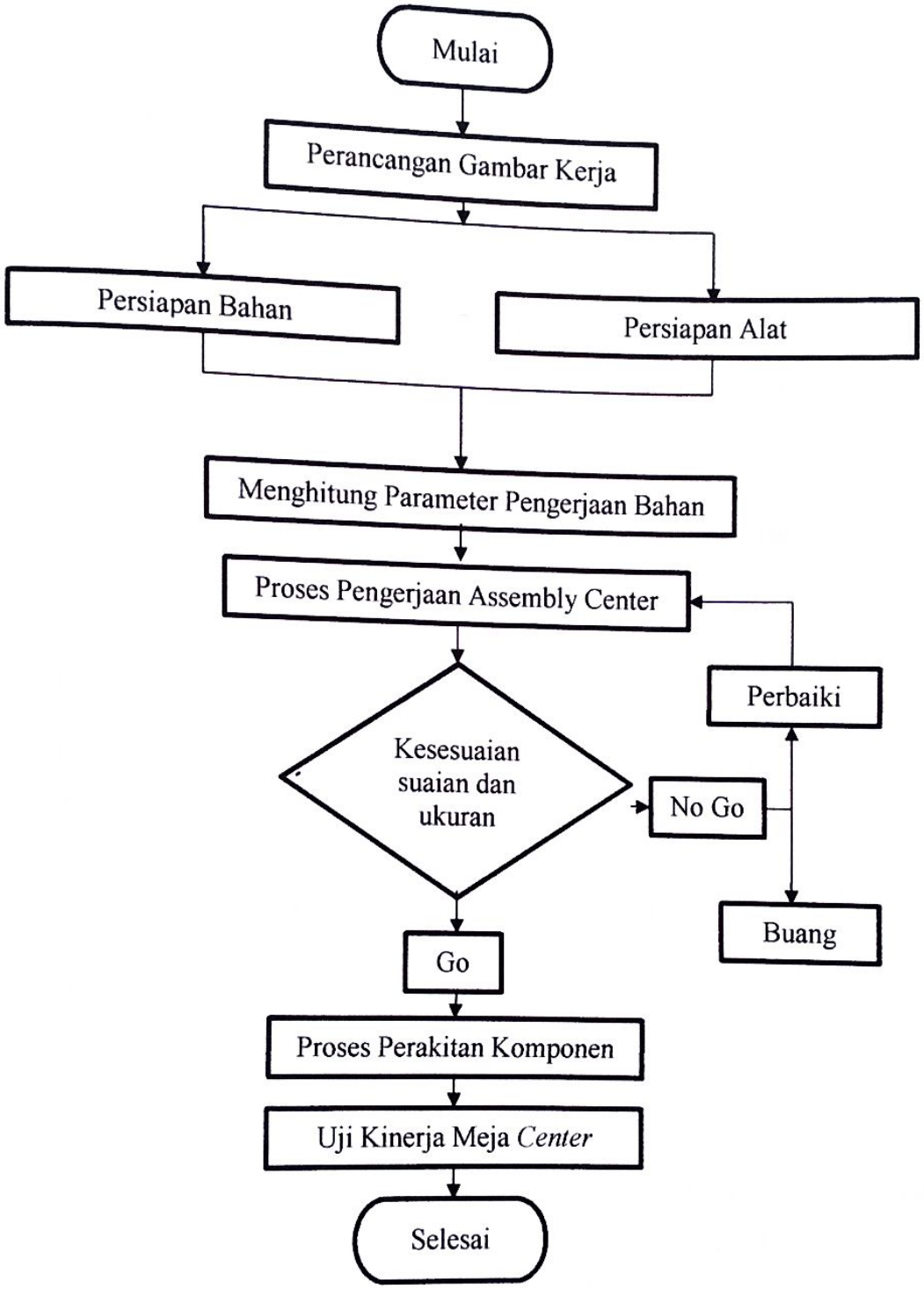
# BAB II
# PROSES PEMBUATAN

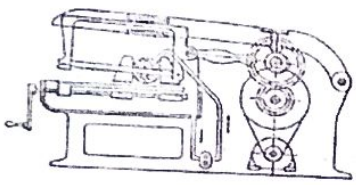
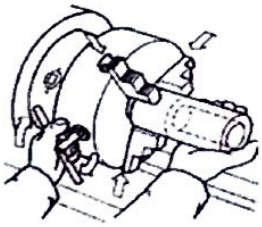
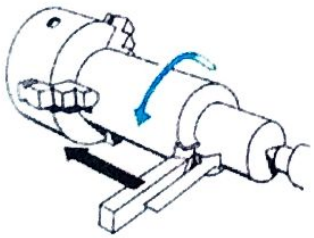
## A. Diagram Alir Pembuatan




**Gambar 2.** Diagram Alir proses pembuatan *Assembly Center*

## B. Proses Pembuatan *Assembly Center*

**Tabel 3.** Proses Pembuatan *Assembly center* pada *Meja Center*

| No. | Gambar Proses Pengerjaan *Assembly Center* | Alat / Mesin yang di gunakan | Langkah kerja | Keterangan |
|---|---|---|---|---|
| | ***Assembly Center*** | | | |
| 1. | Persiapan Benda Kerja  | ➢ Mistar Baja<br>➢ Jangka sorong<br>➢ Palu<br>➢ Ragum<br>➢ Mesin Potong *Hacksaw* | a) Ukur benda kerja<br>b) Jepit benda kerja pada ragum<br>c) Potong benda kerja sesuai ukuran pada *job sheet* | $waktu\ (tm) = \frac{L}{F} = \frac{5250}{200} = 26\ menit$ |
| 2. | **Proses Permesinan Bubut** | | | |
| | a. Proses Pembuatan *Center*  | ➢ Mesin Bubut<br>➢ Jangka Sorong<br>➢ Palu | a) Cekam Benda Kerja pada mesin<br>b) Setting pahat untuk bubut rata<br>c) Pastikan semuanya sudah kencang | Kecepatan = 90 m/menit<br>Waktu (tm)<br>$= \frac{L}{F} = \frac{645}{90} = 7\ menit$ |
| |  | ➢ Mesin Bubut<br>➢ Jangka Sorong<br>➢ Pahat bubut<br>➢ Palu | a) Nyalakan *power on*<br>b) Mulailah bubut rata hingga mencapai Ø15 mm | Kecepatan = 90 m/menit<br>Waktu (tm)<br>$= \frac{L}{F} = \frac{645}{90} = 7\ menit$ |

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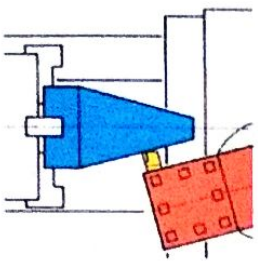
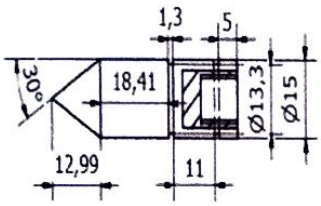
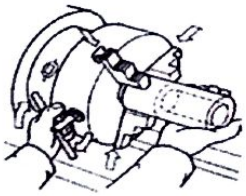
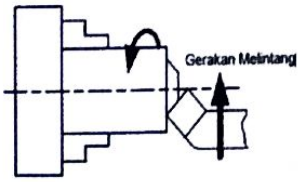
| |  | ➢ Mesin Bubut<br>➢ Jangka Sorong<br>➢ Palu | a) Bubut tirus sampai membentuk *center* sampai ukuran Ø15x 42.5 mm atau menyudut 30° | Waktu (tm)<br>$= \frac{L}{F} = \frac{190}{90}$<br>$= 2\ menit$ |
| |  | ➢ Mesin Bubut<br>➢ Jangka Sorong<br>➢ Palu | a) Bubut alur sedalam 1.7 mm 2 kali<br>b) Balik benda kerja untuk dicekam dan dibor *center* sedalam 10 mm dengan Ø6 mm<br>c) Kemudian ditap dengan ukuran M6x1 pada bagian yang sudah dibor | Waktu (tm)<br>$= \frac{L}{F} = \frac{100}{90}$<br>$= 1\ menit$ |
| | b. Proses Pembuatan *Adapter Center*<br>  | ➢ Mesin Bubut<br>➢ Jangka Sorong<br>➢ Palu | a) Cekam Benda Kerja pada mesin<br>b) Setting pahat untuk bubut *facing*<br>c) Pastikan semuanya sudah kencang | Kecepatan = 90 m/menit<br>Waktu (tm)<br>$= \frac{L}{F} = \frac{645}{90}$<br>$= 7\ menit$ |
| |  | ➢ Mesin Bubut<br>➢ Jangka Sorong<br>➢ Pahat bubut<br>➢ Palu | a) Nyalakan *power on* mesin<br>b) Bubut *facing* sampai ukuran yang diingikan | Waktu (tm)<br>$= \frac{L}{F} = \frac{708}{200}$<br>$= 3.5\ menit$ |

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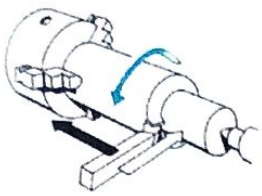
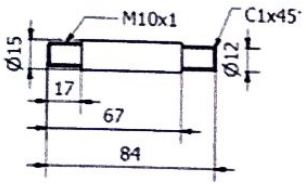
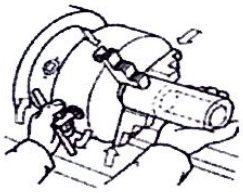
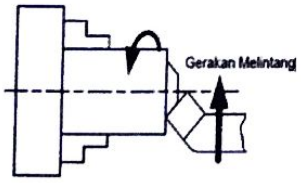
|---|---|---|---|---|
| |  | ➢ Mesin Bubut<br>➢ Jangka Sorong Pahat bubut<br>➢ Palu | a) Bubut rata hingga mencapai ukuran Ø14.5 mm<br>b) Bubut bertingkat dengan Ø12 x 16 mm<br>c) Balik benda kerja dan bubut bertingkat Ø10 x 6 mm | $waktu\ (tm)$<br>$= \frac{L}{F} = \frac{708}{100}$<br>$= 7\ menit$ |
| |  | ➢ Mesin Bubut<br>➢ Jangka Sorong<br>➢ Palu | a) Finishing dan jadilah *adapter center* sesuai ukuran *job sheet* | $waktu\ (tm)$<br>$= \frac{L}{F} = \frac{708}{200}$<br>$= 3.5\ menit$ |
| | c. Proses Pembuatan Eretan<br>  | ➢ Mesin Bubut<br>➢ Jangka Sorong<br>➢ Palu | a) Cekam Benda Kerja pada mesin<br>b) Setting pahat untuk bubut *facing*<br>c) Pastikan semuanya sudah kencang | Kecepatan = 90 m/menit<br>Waktu (tm)<br>$= \frac{L}{F} = \frac{645}{90}$<br>$= 7\ menit$ |
| |  | ➢ Mesin Bubut<br>➢ Jangka Sorong<br>➢ Palu | a) Nyalakan *power on* mesin<br>b) Bubut *facing* sampai ukuran yang diingikan | $waktu\ (tm)$<br>$= \frac{L}{F} = \frac{528}{200}$<br>$= 3\ menit$ |

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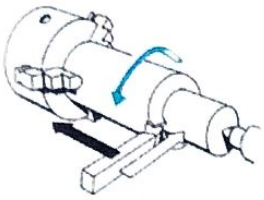
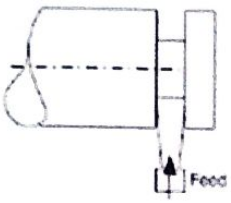
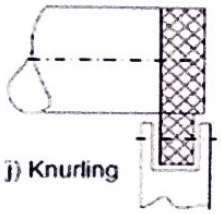
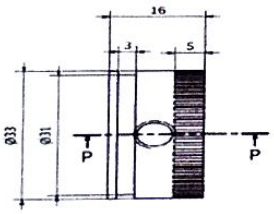
|---|---|---|---|---|
| |  | ➢ Mesin Bubut<br>➢ Jangka Sorong<br>➢ Palu | a) Bubut rata hingga mencapai ukuran Ø33 mm | $waktu\ (tm)$<br>$= \frac{L}{F} = \frac{528}{100}$<br>$= 5.5\ menit$ |
| |  | ➢ Mesin Bubut<br>➢ Jangka Sorong<br>➢ Palu | a) Bubut alur sedalam 2 mm dan lebar 3 mm | $waktu\ (tm)$<br>$= \frac{L}{F} = \frac{528}{200}$<br>$= 3\ menit$ |
| |  | ➢ Mesin Bubut<br>➢ Jangka Sorong<br>➢ Palu<br>➢ Kartel | a) Kartel dengan panjang 5 mm pada ujung permukaan benda | $waktu\ (tm)$<br>$= \frac{L}{F} = \frac{165}{60}$<br>$= 3\ menit$ |
| |  | ➢ Mesin Bubut<br>➢ Jangka Sorong<br>➢ Palu | a) Eretan dibor sedalam 12.5 mm dari ujung sejauh 9 mm<br>b) Tap M6x1 mm pada lobang bor tadi<br>c) Jadilah Eretan yang sesuai ukuran pada *job sheet* | $waktu\ (tm)$<br>$= \frac{L}{F} = \frac{528}{90}$<br>$= 5\ menit$ |

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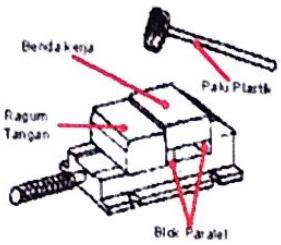
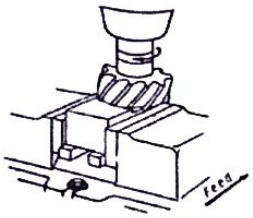
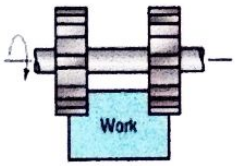
| **3.** | **Proses Permesinan Frais** | | | |
| | a. Proses Permbuatan *Center Home*   | ➢ Mesin Frais<br>➢ Jangka Sorong<br>➢ Palu | a) Cekam Benda kerja pada ragum mrja frais<br>b) Pastikan sudah rata dan kencang | F = 90 m/menit<br>$waktu\ (tm) = \frac{L}{F} = \frac{3150}{200} = 16\ menit$ |
| |   | ➢ Mesin Frais<br>➢ Jangka Sorong<br>➢ *Endmill*<br>➢ Palu | a) Kalibrasi titik nol pengukuran benda kerja dan *endmill* yang akan dipotong<br>b) Nyalakan mesin dan frais rata seluruh permukaan benda kerja | $waktu\ (tm) = \frac{L}{F} = \frac{3150}{200} = 16\ menit$ |
| |   | ➢ Mesin Frais<br>➢ Jangka Sorong<br>➢ *Endmill* rata<br>➢ Palu | a) Frais dengan dua buah endmill rata untuk meratakan sisi kanan-kiri benda dan menyisakan bagian tengah benda kerja<br>b) Sehingga mulai membentuk konstruksi *center home* | $waktu\ (tm) = \frac{L}{F} = \frac{3150}{200} = 16\ menit$ |

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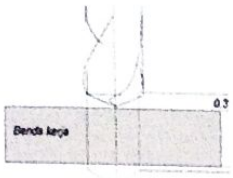
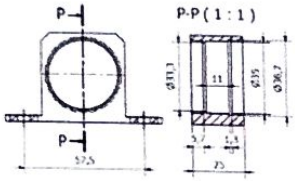
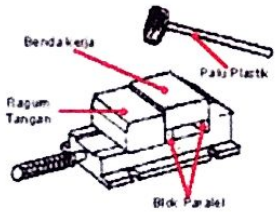
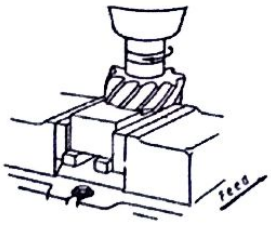
|---|---|---|---|---|
| |  | ➢ Mesin Frais<br>➢ Jangka Sorong<br>➢ *Endmill*<br>➢ Palu | a) Bor tengah benda dengan Ø36.7 mm<br>b) Bor pada kuping kanan dan kiri benda dengan Ø6 mm | $waktu\ (tm) = \frac{L}{F} = \frac{3150}{200} = 16\ menit$ |
| |  | ➢ Mesin Frais<br>➢ Jangka Sorong<br>➢ Palu | a) *Chamfer Center Home* sampai membentuk *fillet* r8 pada bagian yang diinginkan *job sheet*<br>b) Jadilah *center home* | $waktu\ (tm) = \frac{L}{F} = \frac{3150}{200} = 16\ menit$ |
| | b. Proses Pembuatan *Center Base*<br>  | ➢ Mesin Frais<br>➢ Jangka Sorong<br>➢ Palu | a) Cekam Benda kerja pada ragum mrja frais<br>b) Pastikan sudah rata dan kencang | $waktu\ (tm) = \frac{L}{F} = \frac{3150}{200} = 15\ menit$ |
| |  | ➢ Mesin Frais<br>➢ Jangka Sorong<br>➢ Palu | a) Kalibrasi titik nol pengukuran benda kerja dan *endmill* yang akan dipotong<br>b) Nyalakan mesin dan frais rata seluruh permukaan benda kerja | $waktu\ (tm) = \frac{L}{F} = \frac{3600}{200} = 18\ menit$ |

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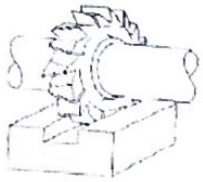
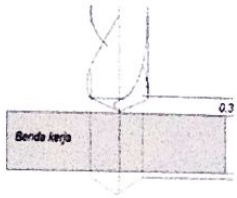
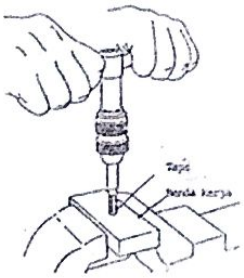
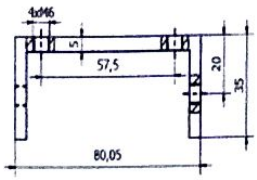
| |  | ➢ Mesin Frais<br>➢ Jangka Sorong<br>➢ Palu | a) Frais dengan endmill rata untuk meratakan sisi tengah benda sedalam 30 mm dan lebar 70.05 mm dan menyisakan bagian kanan-kirinya 10 mm<br>b) Sehingga mulai membentuk konstruksi *center base* | $waktu\ (tm) = \frac{L}{F} = \frac{3150}{200} = 16\ menit$ |
| |  | ➢ Mesin Frais<br>➢ Jangka Sorong<br>➢ *Endmill* Ø8.5 mm<br>➢ *Endmill* Ø6 mm<br>➢ Palu | a) Bor dengan Ø6 mm sebanyak 2 buah di bagian atas<br>b) Bor dengan Ø8.5 x 5 mm dan bor Ø6 x 5 mm pada bagian samping kanan dan kiri dari *center base* | $waktu\ (tm) = \frac{L}{F} = \frac{3150}{200} = 16\ menit$ |
| |  | ➢ Mesin Frais<br>➢ Jangka Sorong<br>➢ Palu | a) Keempat lobang yang sudah dibor dengan *endmill* itu ditap dengan tukuran M6x1 mm | $waktu\ (tm) = \frac{L}{F} = \frac{3150}{200} = 16\ menit$ |
| |  | ➢ Mesin Frais<br>➢ Jangka Sorong<br>➢ Palu | a) *Center Base* jadi sesuai gambar kerja | $waktu\ (tm) = \frac{L}{F} = \frac{3150}{200} = 16\ menit$ |

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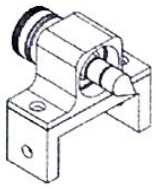
| **4.** | **Proses Finishing** | | | |
| | a. Finishing  | ➢ Palu<br>➢ Kunci L satu set | a) Pasangkan ke-5 bagian sesuai urutan gambar gambar kerja sehingga menjadi satu kesatuan *assembly center* | $waktu\ (tm)$ $= \frac{L}{F} = \frac{5250}{200}$ $= 26\ menit$ |