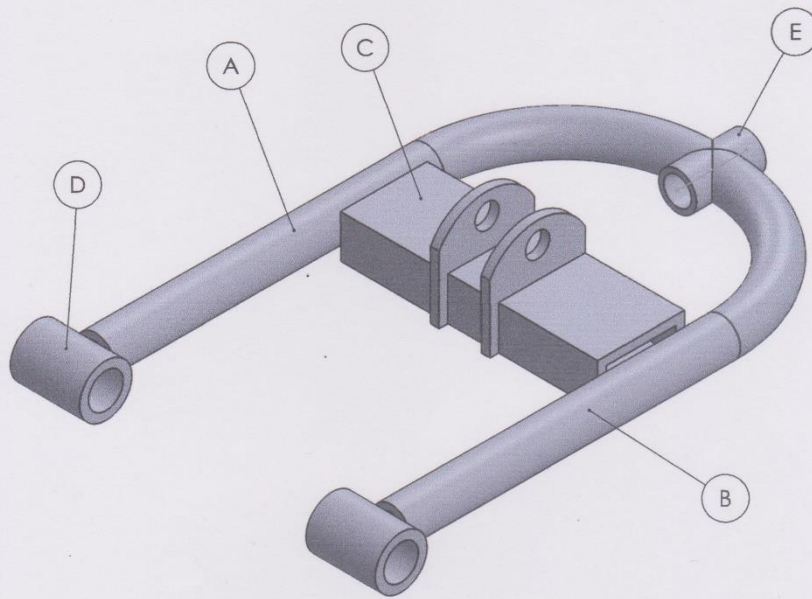


**LAMPIRAN 1**  
**GAMBAR TEKNIK**



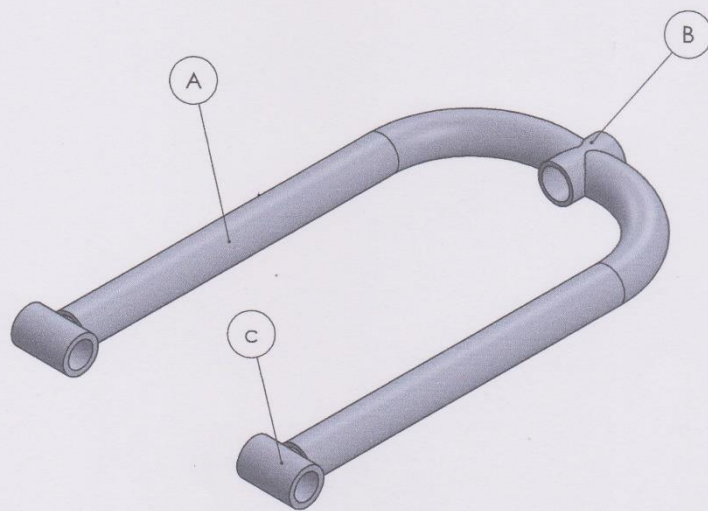


5	CONNECTOR	ST37	LIHAT DETAIL	-	E	-
4	BUSHING	ST37	LIHAT DETAIL	-	D	-
3	DUDUKAN SHOCK		LIHAT DETAIL	-	C	-
2	LOWER ARM KANAN	ST37	LIHAT DETAIL	-	B	-
1	LOWER ARM KIRI	ST37	LIHAT DETAIL	-	A	-

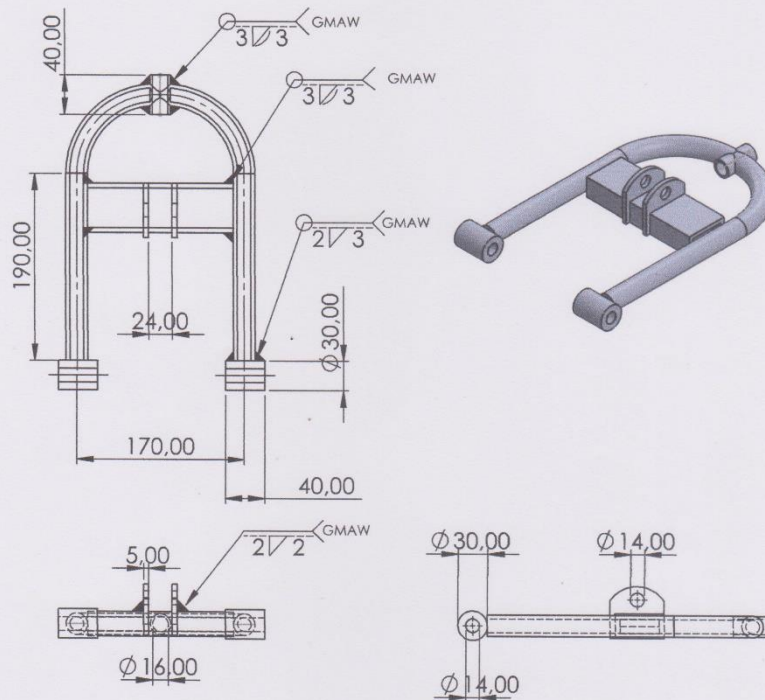
JML	NAMA BAGIAN						BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN
>	0	6	30	120	400	1000	Pengerjaan Lanjut		NO. ORDER	PROYEKSI	
<	6	30	120	400	1000	2000					
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2					



<h1>LOWER ARM</h1>	SKALA	DIGAMBAR	Yudha I
	1 : 2	DIPERIKSA	
		DISAHKAN	

<b>POLITEKNIK NEGERI CILACAP</b>	FORMAT <b>A4</b>	NO. GAMBAR
----------------------------------	---------------------	------------

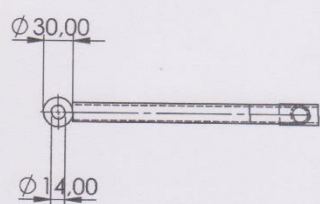
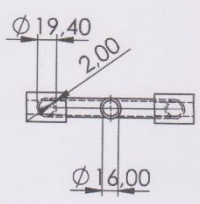
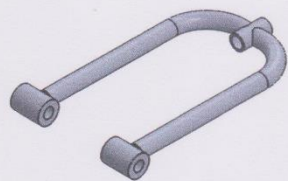
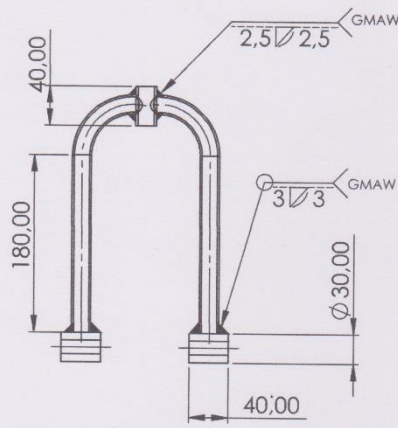


3	BUSHING	ST37	Lihat detail	-	C	-
2	PENGHUBUNG ARM	ST37	Lihat detail	-	B	-
1	UPPER ARM KIRI	ST37	Lihat detail	-	A	-
JML	NAMA BAGIAN	BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN
>	0 6 30 120 400 1000					PROYEKSI 
<	6 30 120 400 1000 2000					
TOL	±0.1 ±0.2 ±0.3 ±0.5 ±0.8 ±1.2					
<b>UPPER ARM</b>				SKALA	DIGAMBAR	Yudha I
				1 : 2	DIPERIKSA	
	DISAHKAN					
<b>POLITEKNIK NEGERI CILACAP</b>				FORMAT	NO. GAMBAR	
				<b>A4</b>		

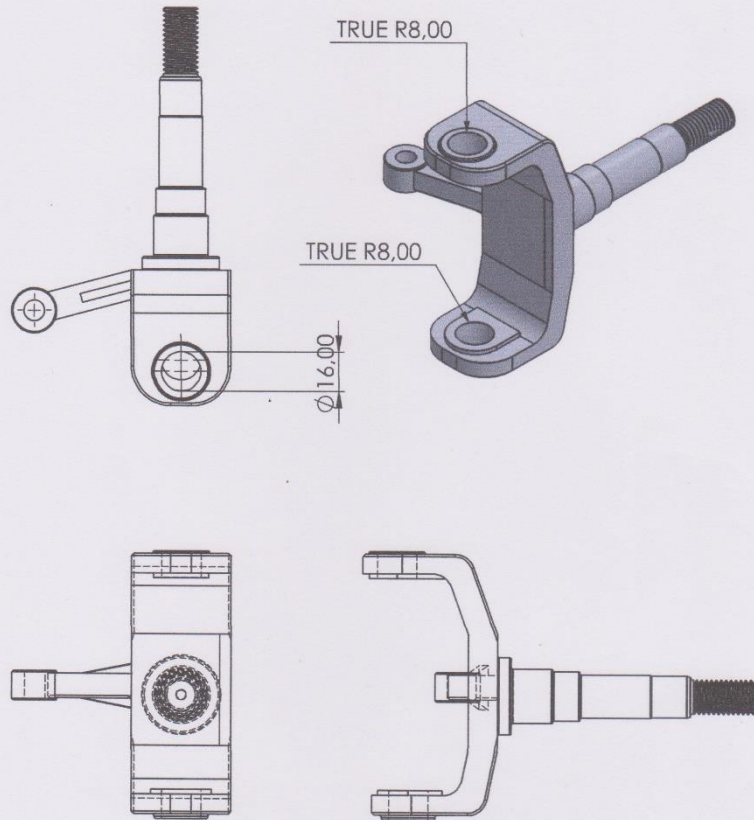


JML	NAMA BAGIAN						BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN
>	0	6	30	120	400	1000	PENGERJAAN LANJUT		NO. ORDER	 PROYEKSI	
<	6	30	120	400	1000	2000					
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2					
<b>LOWER ARM</b>									SKALA	DIGAMBAR	Yudha I
									1 : 5	DIPERIKSA	
										DISAHKAN	
 <b>POLITEKNIK NEGERI CILACAP</b>									FORMAT	NO. GAMBAR	
									<b>A4</b>		

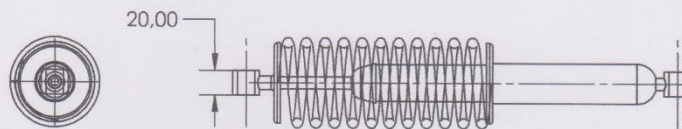
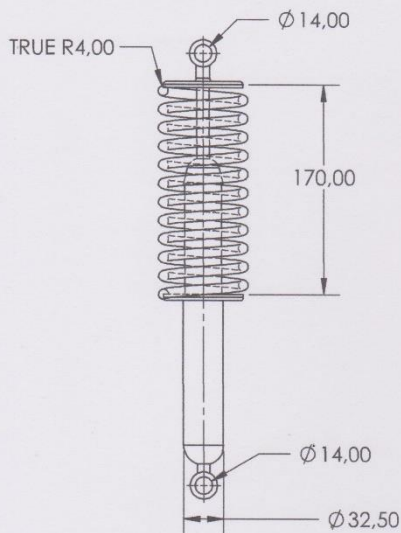




JML	NAMA BAGIAN					BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN
>	0	6	30	120	400	1000	PENERJAAN LANJUT	NO. ORDER		PROYEKSI 
<	6	30	120	400	1000	2000				
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2				
<b>UPPER ARM</b>								SKALA	DIGAMBAR	Yudha I
								1 : 5	DIPERIKSA	
									DISAHKAN	
<b>POLITEKNIK NEGERI CILACAP</b>								FORMAT	NO. GAMBAR	
								<b>A4</b>		

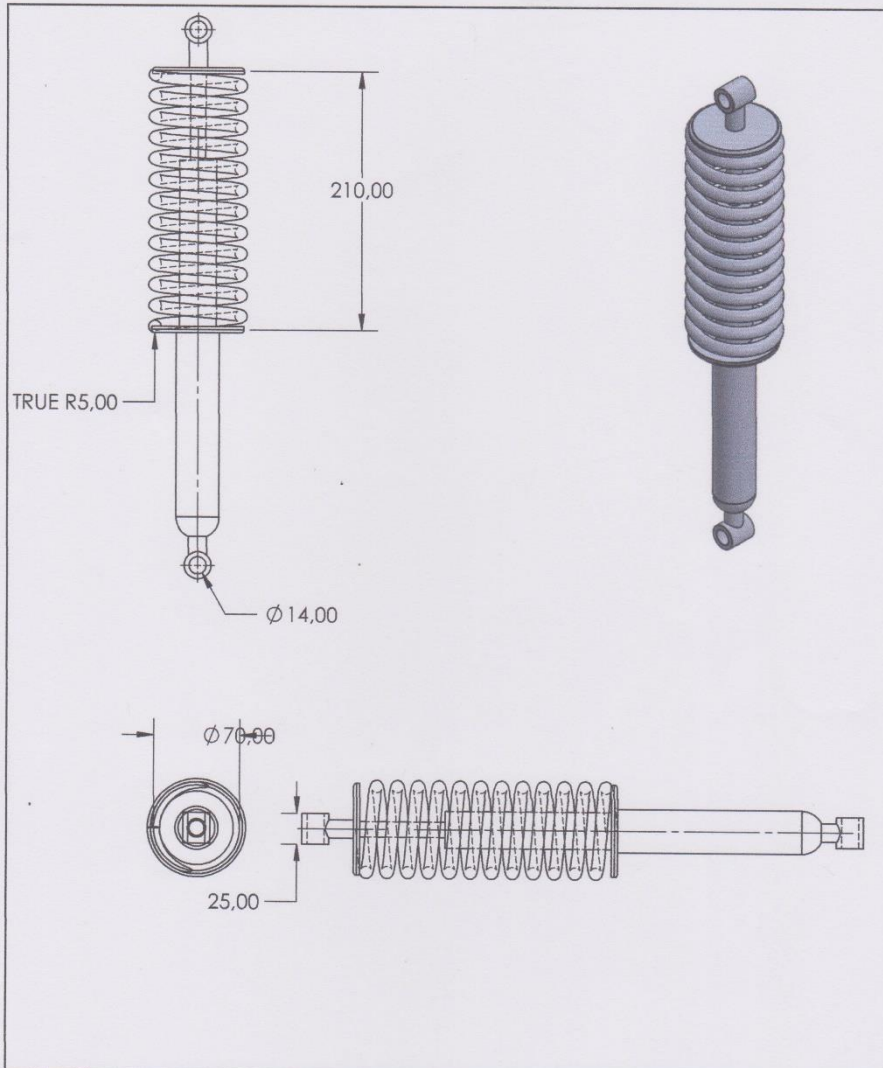


JML	NAMA BAGIAN						BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN
>	0	6	30	120	400	1000	PENERJAAN LANJUT		NO. ORDER	PROYEKSI	
<	6	30	120	400	1000	2000					
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2					
<b>KNUCKLE ARM</b>									SKALA	DIGAMBAR	
									1 : 2	DIPERIKSA	
										DISAHKAN	
<b>POLITEKNIK NEGERI CILACAP</b>									FORMAT	NO. GAMBAR	
									<b>A4</b>		

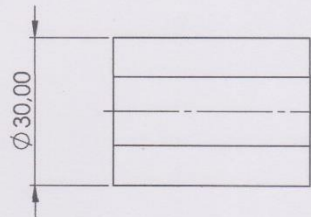
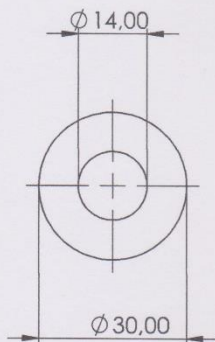
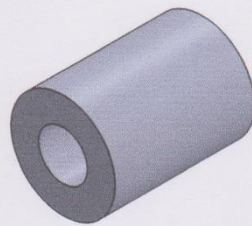
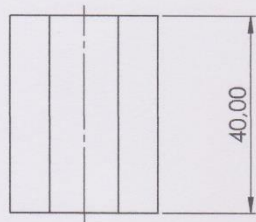


JML	NAMA BAGIAN						BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN
>	0	6	30	120	400	1000	Pengerjaan Lanjut	NO. ORDER		Yudha I	
<	6	30	120	400	1000	2000					
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2					
<b>SHOCK ABSORBER DEPAN</b>									SKALA	DIGAMBAR	
									1 : 4	DIPERIKSA	
										DISAHKAN	
<b>POLITEKNIK NEGERI CILACAP</b>									FORMAT	NO. GAMBAR	
									<b>A4</b>		

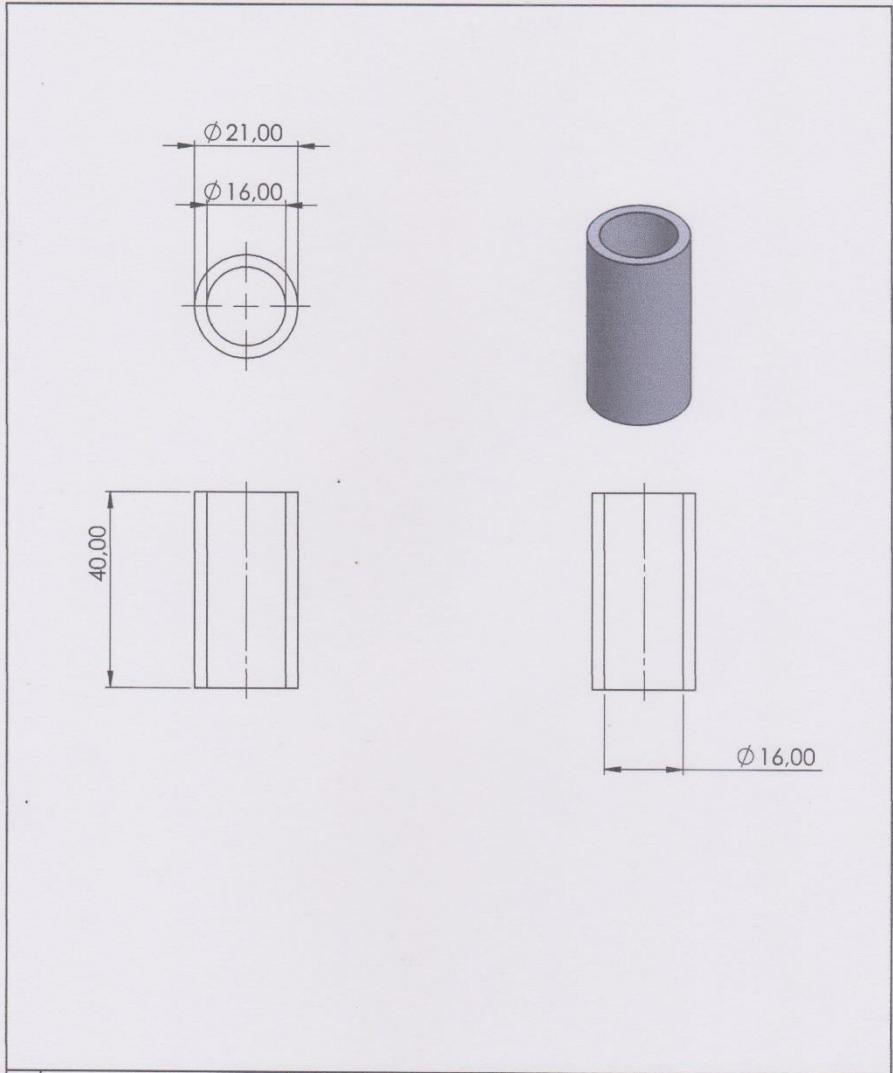




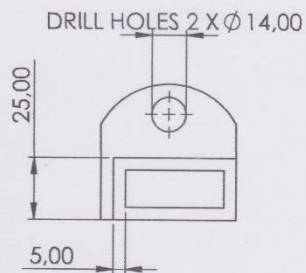
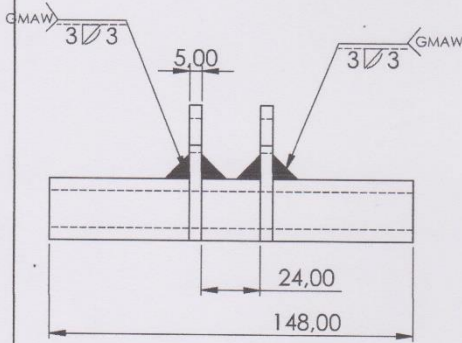
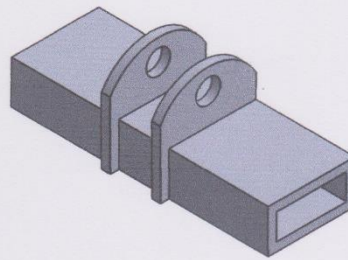
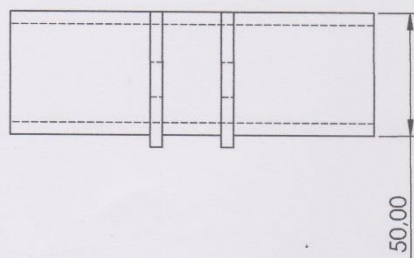
JML	NAMA BAGIAN					BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN
>	0	6	30	120	400	1000	PENERJAAN LANJUT	NO. ORDER		Yudha I
<	6	30	120	400	1000	2000				
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2				
<b>SHOCK ABSORBER BELAKANG</b>								SKALA	DIGAMBAR	
								1 : 4	DIPERIKSA	
									DISAHKAN	
<b>POLITEKNIK NEGERI CILACAP</b>								FORMAT	NO. GAMBAR	
								<b>A4</b>		



JML	NAMA BAGIAN						BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN
>	0	6	30	120	400	1000	Pengerjaan Lanjut		NO. ORDER	PROYEKSI	
<	6	30	120	400	1000	2000					
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2					
<b>BUSHING</b>									SKALA	DIGAMBAR	Yudha I
									1 : 1	DIPERIKSA	
										DISAHKAN	
<b>POLITEKNIK NEGERI CILACAP</b>									FORMAT	NO. GAMBAR	
									<b>A4</b>	D	

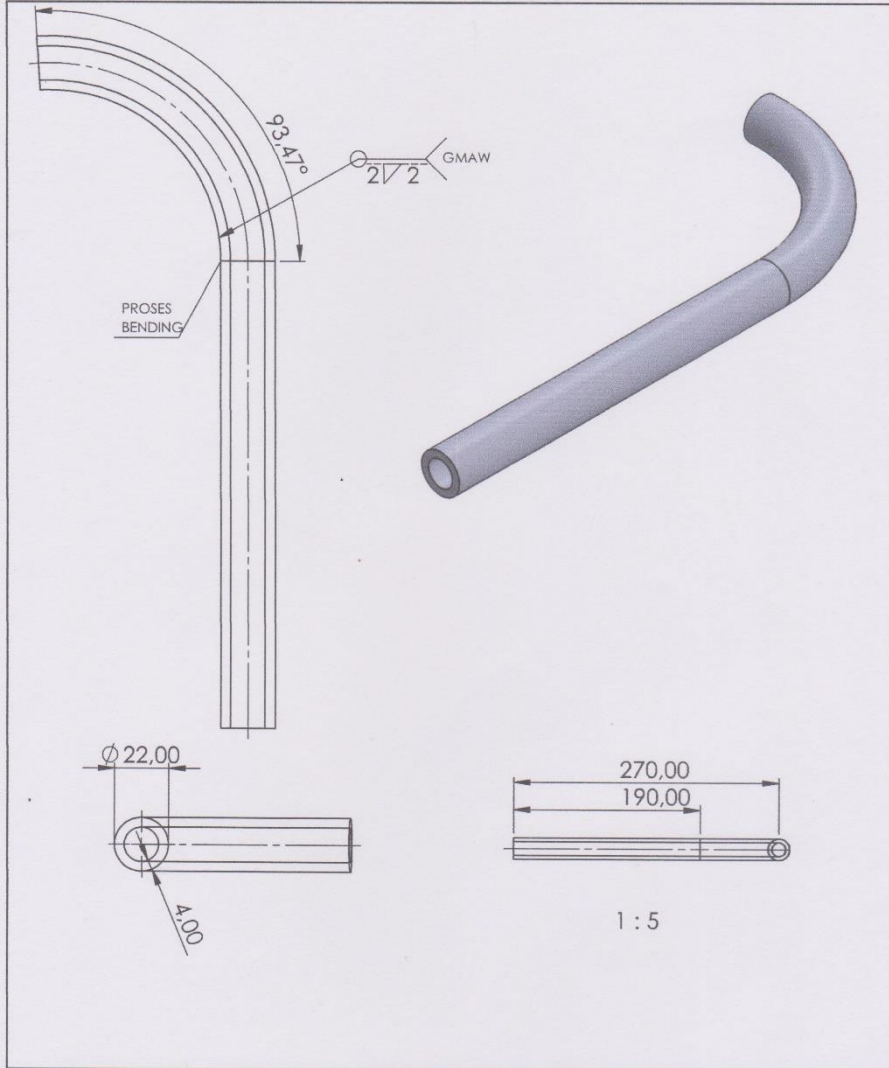


JML	NAMA BAGIAN						BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN
>	0	6	30	120	400	1000	Pengerjaan Lanjut		NO. ORDER	PROYEKSI 	
<	6	30	120	400	1000	2000					
TOL	$\pm 0,1$	$\pm 0,2$	$\pm 0,3$	$\pm 0,5$	$\pm 0,8$	$\pm 1,2$					
<b>CONNECTOR</b>									SKALA	DIGAMBAR	Yudha I
									1 : 1	DIPERIKSA	
										DISAHKAN	
<b>POLITEKNIK NEGERI CILACAP</b>									FORMAT	NO. GAMBAR	
									<b>A4</b>	<b>E</b>	



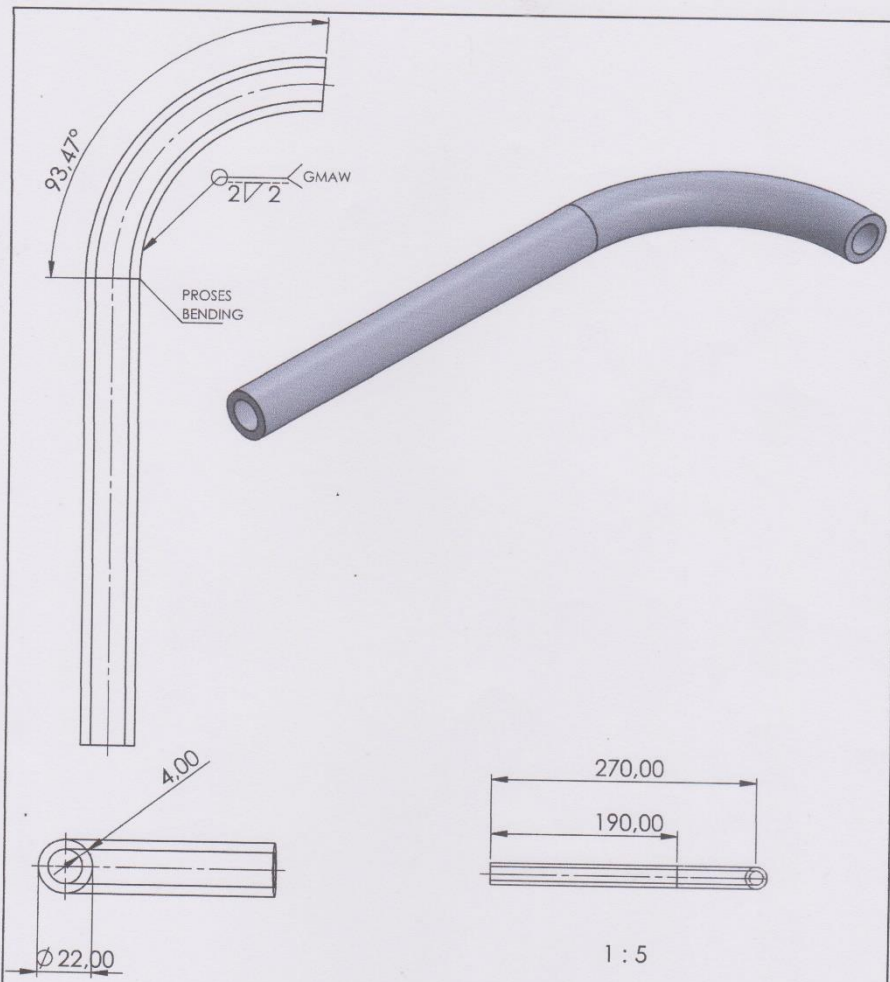
JML	NAMA BAGIAN						BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN
>	0	6	30	120	400	1000	Pengerjaan Lanjut		NO. ORDER	PROYEKSI	
<	6	30	120	400	1000	2000					
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2					
DUDUKAN SHOCK ABSORBER								SKALA	DIGAMBAR	Yudha I	
								1 : 2	DIPERIKSA		
									DISAHKAN		
POLITEKNIK NEGERI CILACAP								FORMAT	NO. GAMBAR		
								A4	C		





JML	NAMA BAGIAN						BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN
>	0	6	30	120	400	1000	Pengerjaan Lanjut		NO. ORDER		Yudha I
<	6	30	120	400	1000	2000					
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2					
<b>LOWER ARM KANAN</b>									SKALA	DIGAMBAR	
									1 : 2	DIPERIKSA	
										DISAHKAN	
<b>POLITEKNIK NEGERI CILACAP</b>									FORMAT	NO. GAMBAR	
									<b>A4</b>		

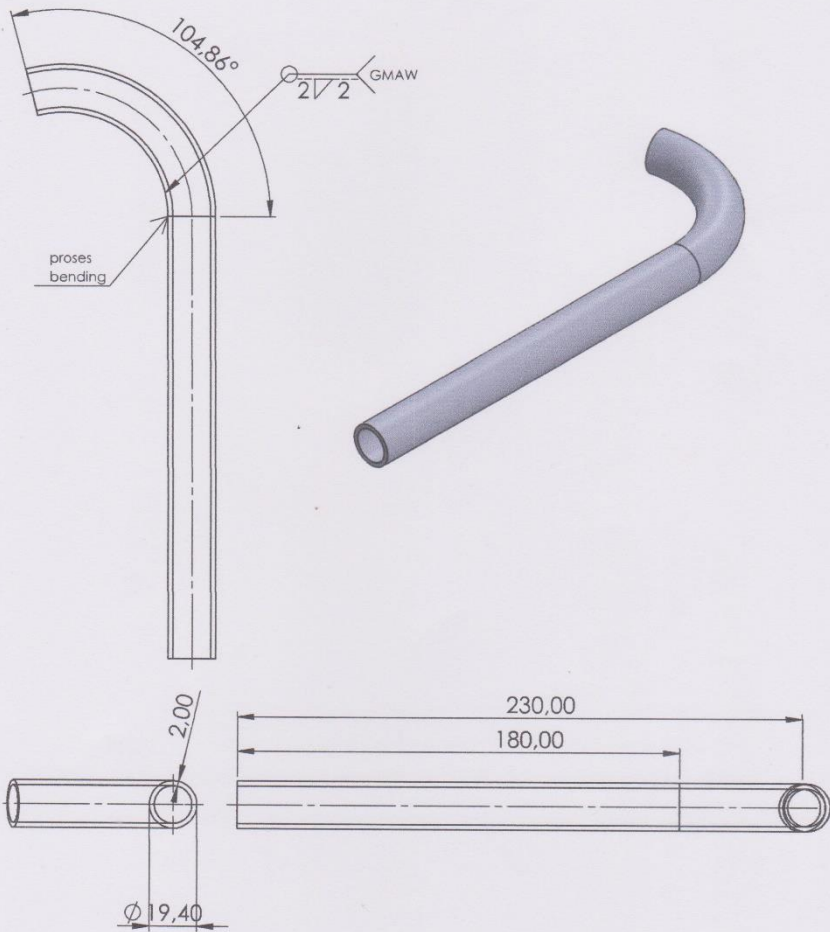




JML	NAMA BAGIAN						BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN
>	0	6	30	120	400	1000	Pengerjaan Lanjut	NO. ORDER	PROYEKSI		Yudha I
<	6	30	120	400	1000	2000					
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2					
<b>LOWER ARM KIRI</b>									SKALA	DIGAMBAR	
									1:2	DIPERIKSA	
										DISAHKAN	
									FORMAT	NO. GAMBAR	
									<b>A4</b>		

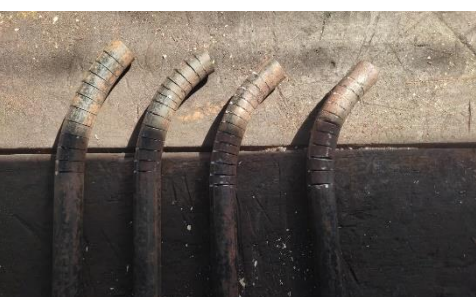
2√2

POLITEKNIK NEGERI CILACAP



JML	NAMA BAGIAN						BAHAN	UKURAN JADI	UKURAN KASAR	NO. ID	KETERANGAN
>	0	6	30	120	400	1000	PENGERJAAN LANJUT		NO. ORDER		Yudha I
<	6	30	120	400	1000	2000					
TOL	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2					
<b>UPPER ARM KANAN</b>									SKALA	DIGAMBAR	
									1 : 2	DIPERIKSA	
										DISAHKAN	
<b>POLITEKNIK NEGERI CILACAP</b>									FORMAT	NO. GAMBAR	
									<b>A4</b>		

**LAMPIRAN 2**  
**PROSES PRODUKSI DAN PROSES**  
**PENGUJIAN**













**LAMPIRAN 3**  
**TABEL LEAD TIME PRODUKSI DAN**  
**BILL OF MATERIAL**

**Tabel bill of material**

No	Nama komponen	Spesifikasi	Satuan	Panjang (mm)	Jumlah (buah)	Harga
1.	<i>Upper arm</i>	Pipa baja Ø19,4 mm, 2 mm	Meter	6000	1	Rp. 120.000
2.	<i>Lower arm</i>	Pipa baja Ø22 mm, 4 mm	Meter	6000	1	Rp. 150.000
3.	<i>Ball joint</i>	<i>Ball joint atv</i> cc 125	Buah	-	4	Rp. 160.000
4.	<i>Knuckle arm</i>	<i>Knuckle arm atv</i>	Buah	-	2	Rp. 800.000
5.	<i>Shockbreaker</i>	D = 55 mm d = 8 mm	Buah	-	2	Rp. 280.000
6.	<i>Shockbreaker</i>	D = 70 mm d = 10 mm	Buah	-	1	Rp. 180.000
<b>Total</b>						<b>Rp. 1.690.000</b>

**Tabel lead time produksi**

No	Nama barang	Waktu tunggu
1.	Pipa baja Ø19,4 mm, tebal 2 mm	4 jam
2.	Pipa baja Ø22 mm, 4 mm	4 jam
3.	<i>Ball joint</i>	72 jam
4.	<i>Knuckle arm</i>	24 jam
5.	<i>Shockbreaker</i>	24 jam
<b>Total</b>		<b>128 jam</b>

**LAMPIRAN 4**  
**TABEL DATA**







**Tabel Data material, kecepatan potong, sudut mata bor HSS, dan cairan pendingin proses gurdi (Widarto, 2018)**

MATERIAL	CUTTING SPEEDS <sup>1</sup>		POINT ANGLE	LIP CLEARANCE	COOLANTS
	(METERS/MINUTE)	(FEET/MINUTE)			
	MPM	FPM			
Aluminum And Alloys	61.00 - 91.50	200 - 300	90 - 130 deg	12 - 15 deg	Kerosene/Kerosene & Lard Oil/ Soluble Oil
Armor Plate	12.20 - 18.25	40 - 50	135 - 140 deg	6 - 9 deg	Light Machine Oil
Brass	61.00 - 91.50	200 - 300	118 - 118 deg	12 - 15 deg	Dry/ Soluble Oil/Kerosene/Lard Oil
Bronze	61.00 - 91.50	200 - 300	110 - 118 deg	12 - 15 deg	Dry/ Soluble Oil/Mineral Oil/Lard Oil
Bronze, High Tensile	21.35 - 45.75	70 - 150	100 - 110 deg	12 - 15 deg	Dry/ Soluble Oil/Mineral Oil/Lard Oil
Cast Iron, Soft	30.50 - 45.75	100 - 150	90 - 100 deg	12 - 15 deg	Air Jet Dry/ Soluble Oil
Cast Iron, Medium	21.35 - 30.50	70 - 100	100 - 110 deg	12 - 15 deg	Air Jet Dry/ Soluble Oil
Cast Iron, Hard	21.35 - 30.50	70 - 100	100 - 118 deg	8 - 12 deg	Air Jet Dry/ Soluble Oil
Cast Iron, Chilled	9.15 - 12.20	30 - 40	118 - 135 deg	5 - 9 deg	Air Jet Dry/ Soluble Oil
Copper	61.00 - 91.50	200 - 300	100 - 118 deg	12 - 15 deg	Air Jet Dry/ Soluble Oil
Copper Graphite Alloy (Carbon Drills)	18.30 - 21.35	60 - 70	**_**	**_**	Soluble Oil/Dry/Mineral Oil/Kerosene
Glass (Carbon Drills)	6.10 - 9.15	20 - 30	**_**	**_**	Soluble Oil/Dry/Mineral Oil/Kerosene
Iron, Malleable	15.25 - 27.45	50 - 90	90 - 100 deg	12 - 15 deg	Light Machine Oil
Magnesium And Alloys	76.25 - 122.0	250 - 400	70 - 118 deg	12 - 15 deg	Soluble Oil
Monel Nickel	4.15 - 15.28	30 - 50	118 - 125 deg	10 - 12 deg	Compressed Air/Mineral Oil
Nickel Alloys	12.20 - 18.30	40 - 60	135 - 140 deg	5 - 7 deg	Lard Oil/Soluble Oil
Plastic, Hot Set	30.50 - 91.50	100 - 300	60 - 90 deg	10 - 12 deg	Lard Oil/Soluble Oil
Plastic, Cold Set	30.50 - 91.50	100 - 300	118 - 135 deg	12 - 20 deg	Soap Solution
Steel, Low Carbon, 0.2-0.3c	24.40 - 33.55	80 - 110	110 - 118 deg	7 - 9 deg	Soap Solution
Steel, Medium Carbon 0.4-0.5c	21.35 - 24.40	70 - 80	118 - 125 deg	7 - 9 deg	Soluble Oil/Mineral Oil/Sulfur Oil/Lard Oil
Steel (High Carbon 1.2c)	15.25 - 18.30	50 - 60	118 - 145 deg	7 - 9 deg	Soluble Oil/Mineral Oil/Sulfur Oil/Lard Oil
Steel, Forged	15.25 - 18.30	50 - 60	118 - 145 deg	7 - 12 deg	Soluble Oil/Mineral Oil/Sulfur Oil/Lard Oil
Steel, Alloy	15.25 - 21.35	50 - 70	118 - 125 deg	10 - 12 deg	Mineral Lard Oil
Steel, Alloy 300 To 400 Brinell	6.10 - 9.15	20 - 30	130 - 140 deg	7 - 10 deg	Soluble Oil
Steel, Stainless, Free Machining	9.15 - 24.40	30 - 80	110 - 118 deg	8 - 12 deg	Soluble Oil
Steel, Stainless, Hard	4.57 - 15.25	15 - 50	118 - 135 deg	6 - 8 deg	Soluble Oil
Steel, Manganese	3.66 - 4.57	12 - 15	140 - 150 deg	7 - 10 deg	Soluble Oil
Stone (Carbide Drills)	7.63 - 9.15	25 - 30	**_**	**_**	Water Solution
Wood	91.50 - 122.2	300 - 400	60 - 70 deg	10 - 15 deg	Dry

**LAMPIRAN 4**  
**TABEL SPESIFIKASI PEGAS**

**Tabel spesifikasi komponen**

No	Nama komponen	Spesifikasi
1	<p><i>Shockbreaker</i> ATV depan</p> 	<p>Panjang total 295 mm                      Warna putih                      ATV 110 cc -125 cc , mini jeep,                      UTV, Universal                      Diameter kawat 8 mm                      Diameter rata-rata 55 mm                      Berat 1950 g</p>
2	<p><i>Shockbreaker</i> ATV belakang</p> 	<p>Panjang total 320 mm                      Warna putih                      ATV 110 cc -125 cc , mini jeep,                      UTV, Universal                      Diameter kawat 10 mm                      Diameter rata – rata 7 mm                      Berat 2400 g</p>
3	<p><i>Ball joint</i> ATV</p> 	<p>Bahan logam  <i>Tie rod ball joint</i>                      Panjang 81 mm                      Diameter benang 10 mm                      M10 x 28 mm                      M14 x 58 mm</p>
4	<p><i>Knuckle arm</i></p> 	<p>ATV 110 – 125                      Gokart, Buggy , Mini jeep,                      Universal                      Warna hitam</p>

**LAMPIRAN 5**  
**BIODATA PENULIS**



## BIODATA PENULIS



Nama : Yudha Irvana  
Tempat/Tanggal Lahir : Cilacap, 31 Mei 2002  
Alamat : Jl. Angsana Rt06/04 Kel.Tritih Kulon  
Kec.Cilacap Utara Kab.Cilacap  
E-mail : yudhairvan0@gmail.com  
Nomor Handphone : +62-858-4817-0260  
Hobi : Olahraga  
Motto : Dream big, work hard.

### **Riwayat Pendidikan :**

- SD Negeri Tritih Kulon 05 : Tahun 2008-2014
- SMP Negeri 06 Cilacap : Tahun 2014-2017
- SMK Negeri 2 Cilacap : Tahun 2017-2020
- Politeknik Negeri Cilacap : Tahun 2020-2023