

CO-OP

CO-OP15GN107 - Candidate Performance Guide

Demonstrate Selecting the Correct Fasteners and Locking Application for Maintenance and Repair of Heavy Equipment

Skill Number CO-OP15GN107

Full Name: Bahril Kurniawan

No ID: _____

Validation Date: 24 / 12 / 24

School: SMKN 1 Singosari

PERFORMANCE TASK:

Given several fasteners and the necessary tools, as listed:

- Castlabeled nut
- Cridlips
- Clevis Pin
- Flat Washer
- Spring Washer
- Star Washers
- Self-tapping screw
- Stud
- Wing nut
- Woodruff key
- Lockwire
- Bolt
- Nut
- Thread Lubricant and other Adhesives

The student must identify and explain their function. Student will be required to answer questions on their findings. The student will also be required to complete relevant workplace documentation and is to always observe the correct safety procedures.

Students are required to fill out this form. In the appropriate place, indicating that an inspection of components has occurred and their decision, after inspection is recorded

The student must be able to perform the following task:

- Demonstrate identify and explain the function of provided fasteners and necessary tools
- Perform communication & etiquette manner

Safety and Contamination Control must be always applied to this process. Literature and measuring tools will be made available but will not be provided directly to the student

Prerequisite	Yes	No	N/A	Hints
The student must complete the knowledge assessment. Minimum passing grade 80%.	✓			



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Tasks	Completed			Observation / Hints
	Yes	No	N/A	
Preparation				
Prepare related literature	✓			
Prepare required equipment	✓			
Prepare related tools	✓			
Prepare Safety & Contamination Control equipment	✓			

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
Perform etiquette/manner when starting the job				
Meet the customer / assessor	✓			
Perform etiquette/manner when operating the interaction.	✓			
Explain the purpose of Student's activity.	✓			
Ask permission to perform the job.	✓			



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Tasks	Check			Observation / Hints
	Yes	No	N/A	
1. Accessing Information	✓			
2. Castlabeled Nut	✓			
3. Circlip	✓			
4. Clevis Pin	✓			
5. Flat washer	✓			
6. Spring washer	✓			
7. Star washer	✓			
8. Self-tapping screw	✓			
9. Stud	✓			
10. Wing nut	✓			
11. Woodruff key	✓			
12. Lockwire	✓			
13. Thread Lubricant & other Adhesives	✓			

Tasks	Complete			Observation / Hints
	Yes	No	N/A	
Thread Identification				
UNC	✓			
UNF	✓			
Whitworth	✓			
Metric	✓			
AF	✓			
BSW	✓			

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
Perform close the job by ensuring all systems or conditions is in the standard condition				
Ensure all systems or conditions are in standard condition.	✓			

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Tasks	Completed			Observation / Hints
	Yes	No	N/A	
Reporting				
All relevant documentation completed correctly and approved by customer (if required).	✓			

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
Safety				
Using PPE related to the job	✓			
Follows relevant Workplace Safety Guidelines (LOTO, Safety Equipment)	✓			
State and follow Safety Precautions	✓			
Service man completes job without accident due to incorrect procedure using hand tools	✓			
Tasks completed without damage equipment and tools	✓			

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
Contamination Control				
Environmental Practices & Housekeeping	✓			

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
Perform etiquette/manner after completing the job				
Perform etiquette/manner when closing the communication.	✓			



CO-OP

General Comments

CO-OP1SGN107 - Candidate Performance Guide

RESULT: **COMPETENT** **NOT YET COMPETENT** (please check (N))

Student: **Bahri Kurniawan** 24 / 12 / 15

[Signature]
Signature

Assessor: **Sriawan IB** 24 / 12 / 15

[Signature]
Signature

Supervisor: _____
Name Date Signature

Data Recorded: _____
Name Date Signature





Demonstrate Selecting the Correct Fasteners and Locking Application for Maintenance and Repair of Heavy Equipment

Skill Number CO-OP15GN107

Full Name: Bahri Nurriswani

No ID: _____

Validation Date: 24/12/2025

School: SMKN 1 Singosari

PERFORMANCE TASK:

Given several fasteners and the necessary tools, as listed:

- Castlalled nut
- Circlips
- Clevis Pin
- Flat Washer
- Spring Washer
- Star Washers
- Self-lapping screw
- Stud
- Wing nut
- Woodruff key
- Lockwire
- Bolt
- Nut
- Thread Lubricant and other Adhesives

The student must identify and explain their function. Student will be required to answer questions on their findings. The student will also be required to complete relevant workplace documentation and is to always observe the correct safety procedures.

Students are required to fill out this form, in the appropriate place, indicating that an inspection of components has occurred and their decision, after inspection is recorded

The student must be able to perform the following task:

- Demonstrate identify and explain the function of provided fasteners and necessary tools.
- Perform communication & etiquette manner

Safety and Contamination Control must be always applied to this process. Literature and measuring tools will be made available but will not be provided directly to the student.

Prerequisite	Yes	No	N/A	Hints
The student must complete the knowledge assessment. Minimum passing grade 80%.	✓			Score fastener course or subject.

Tasks	Completed			Observation
	Yes	No	N/A	
Preparation				
Prepare related literature	✓			Observe if the car preparing Manufra literature related to
Prepare required equipment	✓			
Prepare related tools	✓			Observe if the car preparing related Thread Identical
Prepare Safety & Contamination Control equipment	✓			Observe if the car preparing related Equipment (e.g.: F Towel, Plastic Wire

Tasks	Completed			Observation
	Yes	No	N/A	
Perform etiquette/manner when starting the job	✓			
Meet the customer / assessor	✓			
Perform etiquette/manner when opening the interaction.	✓			• Perform smile & interaction.
Explain the purpose of Student's activity.	✓			• Introduce Student
Ask permission to perform the job.	✓			



Tasks	Check			Observation / Hints
	Yes	No	N/A	
1. Accessing Information	✓			Observe if the candidate is accessing information relating task from manufacturer's literature
2. Castellated Nut	✓			Identify Name, Application and Part Number
3. Circlip	✓			Identify Name, Application and Part Number
4. Clevis Pin	✓			Identify Name, Application and Part Number
5. Flat washer	✓			Identify Name, Application and Part Number
6. Spring washer	✓			Identify Name, Application and Part Number
7. Star washer	✓			Identify Name, Application and Part Number
8. Self-lapping screw	✓			Identify Name, Application and Part Number
9. Stud	✓			Identify Name, Application and Part Number
10. Wing nut	✓			Identify Name, Application and Part Number
11. Woodruff key	✓			Identify Name, Application and Part Number
12. Lockwire	✓			Identify Name, Application and Part Number
13. Thread Lubricant & other Adhesives	✓			Explain the function, when and where it used.

Tasks	Complete			Observation / Hints
	Yes	No	N/A	
Thread Identification				
UNC	✓			Determine thread s
UNF	✓			Determine thread s
Whitworth	✓			Determine thread s
Metric	✓			Determine thread s
AF	✓			Determine thread s
BSW	✓			Determine thread s
Tasks	Yes	No	N/A	Observation / Hints
Perform: close the job by ensuring all systems or conditions is in the standard condition	✓			Find the improper condition. Communicate the finding to the customer/assessor.
Tasks	Yes	No	N/A	Observation / Hints
All relevant documentation completed correctly and approved by customer (if required).	✓			<ul style="list-style-type: none"> Completing the Task List Completing Measurement Form Check Sheet, if required Create Service Report (SIMS) required Create SPR, if required Documenting the failed or data parts, if required Provide Technical Analysis Report/Failure Analysis Report required.



Tasks	Completed		Observation / Hints
	Yes	No	
Using PPE related to the job	<input checked="" type="checkbox"/>		
Follows relevant Workplace Safety Guidelines (LOTO, Safety Equipment)	<input checked="" type="checkbox"/>		<ul style="list-style-type: none"> Comply with safety regulation that applied on the workplace
State and follow Safety Precautions	<input checked="" type="checkbox"/>		<ul style="list-style-type: none"> Create Job Safety Analysis Student must follow safety procedure refer to service manual or SIS related to job
Serviceman completes job without accident due to incorrect procedure using hand tools.	<input checked="" type="checkbox"/>		<ul style="list-style-type: none"> Correct working position Correct hand tool related to the job
Tasks completed without damage equipment and tools	<input checked="" type="checkbox"/>		

Tasks	Completed		Observation / Hints
	Yes	No	
Contamination Control	<input checked="" type="checkbox"/>		
Environmental Practices & Housekeeping	<input checked="" type="checkbox"/>		<ol style="list-style-type: none"> Waste is minimized, waste material, including sludge, solids and other wastes are sorted and stored in bins for recycling or disposal Packaging of goods received is sorted and reused or disposed of by recycling Materials that can be reused are cleaned and stored Waste and scrap is removed following workplace procedures All fluids are disposed of in accordance with enterprise policies and procedures

Tasks	Completed		Observation / Hints
	Yes	No	
Perform etiquette/manner after completing the job	<input checked="" type="checkbox"/>		
Perform etiquette/manner when closing the communication.	<input checked="" type="checkbox"/>		<ul style="list-style-type: none"> Perform smile & greetings. Ask permission to leave or end the interaction.

General Comments

RESULT: **COMPETENT** **NOT YET COMPETENT** (please

Student: Daniel Morisawon 24/12/25

Assessor: [Signature] 24/12/25

Supervisor: Name _____ Date _____ Signature _____

Data Recorded: Name _____ Date _____ Signature _____

*Hex Head Bolts Inch

- Thread Size : 3/8 - 16
- Bolt Length : 2 3/4 in
- HH : 0.29 in
- HW : 0.56 in
- GL : 1.75 in

SN : OT-0573

*Hex Head Bolts Metric

- TS : M16 x 2.00
- BL : 70 mm
- HH : 10 mm
- HW : 24 mm
- GL : 32 mm

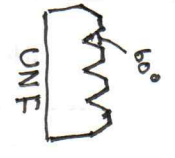
~~SN~~
GT-0857

L F J.

*Snap Ring

- Free Diameter : 3.05 in
- Thickness : 0.093 in

6K-2531



AGENDA KEGIATAN HARIAN

Hari, Tanggal : Rabu, 30 Juli 2025
 Nama Siswa / Kelas : Ghoza Algitari Arif / XII TAB 2
 Lokasi / Bengkel : CV. ABIMANYU LINTANG MAKMUR

URAIAN KEGIATAN:

A. Bidang Pekerjaan : Helper

1. Materi Pekerjaan : menolong operator
2. Jenis Pekerjaan : helper (pembantu)
3. Persiapan : tenaga dan mental pikiran
4. Langkah Kerja : pasang telinga
menolong operator
bawa solar
ngisi solar
operator senang
5. Hasil

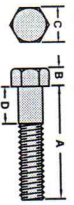
B. GAMBAR/ FOTO:

TIDAK ADA GAMBAR/ FOTO DILAMPIRKAN DALAM LAPORAN JURNAL INI.

Tandatangan:	Tanggal:	Nama Pembimbing Sekolah:
Tandatangan:	Tanggal:	Nama Pembimbing Industri:

Bolts

Hex Head Bolts/Inch/UNC/Phosphate & Oil Coated



Thread Size (in - TPI)	Thread Size (in - TPI) 1/4 - 20				Part Number
	A Bolt Length	B Head Height	C Head Width	D Grip Length	
1/4 - 20	3/8 in	0.19 in	0.44 in	0.06 in	05-1613
1/4 - 20	1/2 in	0.19 in	0.44 in	0.06 in	05-1614
1/4 - 20	5/8 in	0.19 in	0.44 in	0.13 in	2A-0762
1/4 - 20	3/4 in	0.19 in	0.44 in	0.13 in	05-1615
1/4 - 20	7/8 in	0.19 in	0.44 in	0.13 in	4F-7957
1/4 - 20	1 in	0.19 in	0.44 in	0.13 in	05-1616
1/4 - 20	1 1/8 in	0.19 in	0.44 in	0.37 in	9F-6580
1/4 - 20	1 1/4 in	0.19 in	0.44 in	0.13 in	7B-2742
1/4 - 20	1 3/8 in	0.19 in	0.44 in	0.63 in	2A-5546
1/4 - 20	1 1/2 in	0.19 in	0.44 in	0.25 in	9F-7022
1/4 - 20	1 5/8 in	0.19 in	0.44 in	0.87 in	7B-8167
1/4 - 20	1 3/4 in	0.19 in	0.44 in	1.00 in	1B-2713
1/4 - 20	2 in	0.19 in	0.44 in	1.13 in	8B-2377
1/4 - 20	2 1/4 in	0.19 in	0.44 in	1.37 in	1D-4533
1/4 - 20	2 1/2 in	0.19 in	0.44 in	1.75 in	1B-2714
1/4 - 20	2 3/4 in	0.19 in	0.44 in	2.00 in	2A-4781
1/4 - 20	3 in	0.19 in	0.44 in	2.50 in	4B-9565
1/4 - 20	3 1/4 in	0.19 in	0.44 in	2.50 in	8F-8178
1/4 - 20	4 in	0.19 in	0.44 in	3.25 in	8S-4710
1/4 - 20	4 1/2 in	0.19 in	0.44 in	3.75 in	8S-4711
1/4 - 20	4 3/4 in	0.19 in	0.44 in	4.00 in	4L-3776
1/4 - 20	6 in	0.19 in	0.44 in	5.25 in	1B-2718
1/4 - 20	6 1/2 in	0.19 in	0.44 in	5.50 in	4A-1781
1/4 - 20	Nut	-	-	-	9S-8750
1/4	Washer	-	-	-	5F-0357

Thread Size (in - TPI)	Thread Size (in - TPI) 3/8 - 16				Part Number
	A Bolt Length	B Head Height	C Head Width	D Grip Length	
5/16 - 18	3/8 in	0.24 in	0.50 in	1.87 in	1D-4540
5/16 - 18	3/4 in	0.24 in	0.50 in	2.35 in	1F-9542
5/16 - 18	1 1/2 in	0.24 in	0.50 in	2.63 in	1F-4111
5/16 - 18	3/4 in	0.24 in	0.50 in	2.75 in	4B-0831
5/16 - 18	4 in	0.24 in	0.50 in	3.00 in	4B-3903
5/16 - 18	4 1/4 in	0.24 in	0.50 in	3.37 in	8H-9789
5/16 - 18	4 1/2 in	0.24 in	0.50 in	3.63 in	3H-5932
5/16 - 18	4 3/4 in	0.24 in	0.50 in	3.87 in	3H-3243
5/16 - 18	5 1/2 in	0.24 in	0.50 in	4.63 in	5L-1761
5/16 - 18	5 3/4 in	0.24 in	0.50 in	4.87 in	8M-1885
5/16 - 18	6 1/2 in	0.24 in	0.50 in	5.37 in	4F-3508
5/16 - 18	Nut	-	-	-	5S-0003
5/16	Washer	-	-	-	9M-1974

Thread Size (in - TPI)	Thread Size (in - TPI) 3/8 - 16				Part Number
	A Bolt Length	B Head Height	C Head Width	D Grip Length	
3/8 - 16	1/2 in	0.29 in	0.56 in	0.99 in	4F-4879
3/8 - 16	5/8 in	0.29 in	0.56 in	0.99 in	0T-0102
3/8 - 16	3/4 in	0.29 in	0.56 in	0.13 in	0S-0509
3/8 - 16	7/8 in	0.29 in	0.56 in	0.13 in	0L-1361
3/8 - 16	1 in	0.29 in	0.56 in	0.13 in	0S-1554
3/8 - 16	1 1/8 in	0.29 in	0.56 in	0.31 in	1A-2029
3/8 - 16	1 1/4 in	0.29 in	0.56 in	0.25 in	0S-1588
3/8 - 16	1 3/8 in	0.29 in	0.56 in	0.37 in	3B-1915
3/8 - 16	1 5/8 in	0.29 in	0.56 in	0.87 in	2A-4639
3/8 - 16	1 7/8 in	0.29 in	0.56 in	1.06 in	1C-2251
3/8 - 16	2 in	0.29 in	0.56 in	1.00 in	0S-1590
3/8 - 16	2 1/4 in	0.29 in	0.56 in	1.25 in	0L-2070
3/8 - 16	2 1/2 in	0.29 in	0.56 in	1.50 in	0L-1143
3/8 - 16	2 3/4 in	0.29 in	0.56 in	1.75 in	0T-0573
3/8 - 16	3 in	0.29 in	0.56 in	2.00 in	0S-1619
3/8 - 16	3 1/4 in	0.29 in	0.56 in	2.25 in	0L-1352
3/8 - 16	3 1/2 in	0.29 in	0.56 in	2.50 in	0T-0065
3/8 - 16	3 3/4 in	0.29 in	0.56 in	2.50 in	0S-1608
3/8 - 16	4 in	0.29 in	0.56 in	3.00 in	8S-9191
3/8 - 16	4 1/4 in	0.29 in	0.56 in	3.25 in	0T-0055
3/8 - 16	4 1/2 in	0.29 in	0.56 in	3.25 in	1A-5864
3/8 - 16	4 3/4 in	0.29 in	0.56 in	3.75 in	1A-5183
3/8 - 16	5 in	0.29 in	0.56 in	4.00 in	5B-9803
3/8 - 16	5 1/4 in	0.29 in	0.56 in	4.25 in	5B-2338
3/8 - 16	5 1/2 in	0.29 in	0.56 in	4.50 in	5F-4899
3/8 - 16	5 3/4 in	0.29 in	0.56 in	4.75 in	7F-3425

Bolts

Hex Head Bolts/Metric/Coarse Thread/Phosphate & Oil Coated (Cont'd.)

Thread Size (dia x pitch)	Thread Size (dia x pitch) M8 x 1.25				Part Number
	A Bolt Length	B Head Height	C Head Width	D Grip Length	
M6 x 1.25	12 mm	6 mm	13 mm	3 mm	6V-2316
M6 x 1.25	16 mm	6 mm	13 mm	3 mm	6V-5215
M6 x 1.25	20 mm	6 mm	13 mm	3 mm	6V-5217
M6 x 1.25	25 mm	6 mm	13 mm	3 mm	6V-5940
M6 x 1.25	30 mm	6 mm	13 mm	8 mm	6V-2317
M6 x 1.25	35 mm	6 mm	13 mm	13 mm	6V-5218
M6 x 1.25	40 mm	6 mm	13 mm	18 mm	6V-5219
M6 x 1.25	45 mm	6 mm	13 mm	23 mm	6V-0276
M6 x 1.25	50 mm	6 mm	13 mm	28 mm	6V-3918
M6 x 1.25	60 mm	6 mm	13 mm	38 mm	6V-0100
M6 x 1.25	70 mm	6 mm	13 mm	48 mm	5P-8347
M6 x 1.25	80 mm	6 mm	13 mm	58 mm	6V-5221
M6 x 1.25	90 mm	6 mm	13 mm	68 mm	6V-0282
M6 x 1.25	100 mm	6 mm	13 mm	78 mm	6V-5223
M6 x 1.25	110 mm	6 mm	13 mm	88 mm	6V-9807
M6 x 1.25	120 mm	6 mm	13 mm	98 mm	7X-0457
M6 x 1.25	130 mm	6 mm	13 mm	108 mm	7X-0870
M6 x 1.25	140 mm	6 mm	13 mm	112 mm	8C-4894
M6 x 1.25	150 mm	6 mm	13 mm	122 mm	5P-7970
M6	Washer	-	-	-	9M-1974

Thread Size (dia x pitch)	Thread Size (dia x pitch) M10 x 1.50				Part Number
	A Bolt Length	B Head Height	C Head Width	D Grip Length	
M10 x 1.50	12 mm	7 mm	16 mm	5 mm	6V-8084
M10 x 1.50	16 mm	7 mm	16 mm	3 mm	6V-8212
M10 x 1.50	20 mm	7 mm	16 mm	5 mm	6V-6317
M10 x 1.50	25 mm	7 mm	16 mm	5 mm	6V-4248
M10 x 1.50	30 mm	7 mm	16 mm	5 mm	6V-1820
M10 x 1.50	35 mm	7 mm	16 mm	5 mm	6V-9822
M10 x 1.50	40 mm	7 mm	16 mm	14 mm	6V-5842
M10 x 1.50	45 mm	7 mm	16 mm	19 mm	6V-5843
M10 x 1.50	50 mm	7 mm	16 mm	24 mm	6V-4249
M10 x 1.50	60 mm	7 mm	16 mm	34 mm	6V-5230
M10 x 1.50	70 mm	7 mm	16 mm	44 mm	6V-7981
M10 x 1.50	80 mm	7 mm	16 mm	54 mm	6V-0643
M10 x 1.50	90 mm	7 mm	16 mm	64 mm	6V-0644
M10 x 1.50	100 mm	7 mm	16 mm	74 mm	6V-1819
M10 x 1.50	100 mm	7 mm	16 mm	78 mm	6V-0355
M10 x 1.50	110 mm	7 mm	16 mm	84 mm	6V-5030
M10 x 1.50	120 mm	7 mm	16 mm	94 mm	210-4460
M10 x 1.50	130 mm	7 mm	16 mm	98 mm	8C-2926
M10 x 1.50	140 mm	7 mm	16 mm	108 mm	6V-0645
M10 x 1.50	150 mm	7 mm	16 mm	118 mm	6V-0356
M10 x 1.50	160 mm	7 mm	16 mm	128 mm	6V-0357
M10 x 1.50	180 mm	7 mm	16 mm	148 mm	6V-7950
M10 x 1.50	200 mm	7 mm	16 mm	168 mm	6V-8854
M10 x 1.50	Nut	-	-	-	2Y-5829
M10	Washer	-	-	-	6V-5839

Thread Size (dia x pitch)	Thread Size (dia x pitch) M12 x 1.75				Part Number
	A Bolt Length	B Head Height	C Head Width	D Grip Length	
M12 x 1.75	16 mm	8 mm	18 mm	5 mm	
M12 x 1.75	20 mm	8 mm	18 mm	5 mm	
M12 x 1.75	25 mm	8 mm	18 mm	5 mm	
M12 x 1.75	30 mm	8 mm	18 mm	5 mm	
M12 x 1.75	35 mm	8 mm	18 mm	5 mm	
M12 x 1.75	40 mm	8 mm	18 mm	5 mm	
M12 x 1.75	45 mm	8 mm	18 mm	15 mm	
M12 x 1.75	50 mm	8 mm	18 mm	20 mm	
M12 x 1.75	60 mm	8 mm	18 mm	30 mm	
M12 x 1.75	70 mm	8 mm	18 mm	40 mm	
M12 x 1.75	80 mm	8 mm	18 mm	50 mm	
M12 x 1.75	90 mm	8 mm	18 mm	60 mm	
M12 x 1.75	100 mm	8 mm	18 mm	70 mm	
M12 x 1.75	110 mm	8 mm	18 mm	80 mm	
M12 x 1.75	120 mm	8 mm	18 mm	90 mm	
M12 x 1.75	125 mm	8 mm	18 mm	95 mm	
M12 x 1.75	140 mm	8 mm	18 mm	104 mm	
M12 x 1.75	150 mm	8 mm	18 mm	124 mm	
M12 x 1.75	160 mm	8 mm	18 mm	144 mm	
M12 x 1.75	200 mm	8 mm	18 mm	147 mm	
M12	Nut	-	-	-	
M12	Washer	-	-	-	

Thread Size (dia x pitch)	Thread Size (dia x pitch) M16 x 2.00				Part Number
	A Bolt Length	B Head Height	C Head Width	D Grip Length	
M16 x 2.00	25 mm	10 mm	24 mm	4 ft	
M16 x 2.00	30 mm	10 mm	24 mm	3 ft	
M16 x 2.00	35 mm	10 mm	24 mm	4 ft	
M16 x 2.00	40 mm	10 mm	24 mm	5 ft	
M16 x 2.00	45 mm	10 mm	24 mm	5 ft	
M16 x 2.00	50 mm	10 mm	24 mm	12	
M16 x 2.00	60 mm	10 mm	24 mm	22	
M16 x 2.00	70 mm	10 mm	24 mm	32	
M16 x 2.00	80 mm	10 mm	24 mm	42	
M16 x 2.00	90 mm	10 mm	24 mm	52	
M16 x 2.00	100 mm	10 mm	24 mm	62	
M16 x 2.00	110 mm	10 mm	24 mm	72	
M16 x 2.00	120 mm	10 mm	24 mm	82	

Illustration 8

g03865553

- 9. Position the pinion housing onto suitable cribbing.
- 10. Remove bolts (6) and retainer (7).

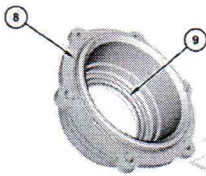


Illustration 9

g03865904

- 11. Remove O-ring seal (8) and lip seal (9).

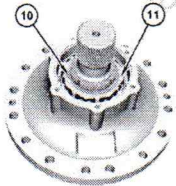


Illustration 10

g03865905

- 12. Remove retaining ring (10) and locking washer (11).

g03865906

Illustration 11 g03865906

- 13. Use Tooling (H) (not shown) to remove locknut (12). Remove locknut (12) and notched washer (13).

- 16. Use a suitable press and Tooling (J) (not shown) to remove bearing cup (16).

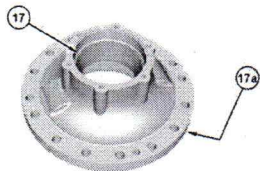


Illustration 15

g03865975

- 17. Remove bearing cup (17) and bearing cup (17a).

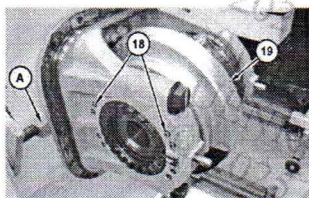


Illustration 16

g03865976

- 18. Rotate the carrier and differential assembly by 90 degrees on Tooling (A).
- 19. Remove four bolts (18) and guard (19).

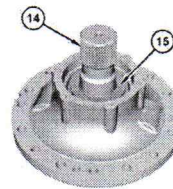
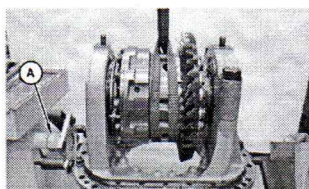


Illustration 12

g03865972

- 14. Use a suitable press to remove pinion shaft (14) from bearing cone (15).

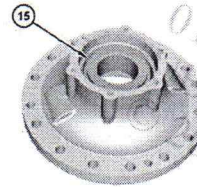


Illustration 13

g03865973

- 15. Remove bearing cone (15).



Illustration 14

g03865974

Typical Example

Illustration 17

g03865999

- 20. Use a suitable lifting device to position the carrier and differential assembly on Tooling (A). The weight of the carrier and differential assembly is approximately 234 kg (516 lb).
- 21. Rotate the carrier and differential assembly an additional 90 degrees on Tooling (A).

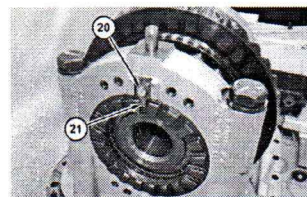


Illustration 18

g03866003

- 22. Remove bolt (20) and lock (21). Repeat for the opposite side.

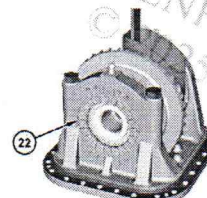


Illustration 19

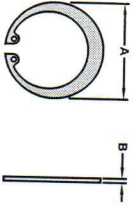
g03866009

Do not remove suitable lifting device from the carrier and differential assembly.

- 23. Remove adjusting ring (22). Repeat for the opposite side.

Snap Rings

Snap Rings/Internal/Inch



• Made of tempered carbon steel.

Bore Diameter	Tempered Basic		Part Number	Bore Diameter	A		Part Number	Bore Diameter	B		Part Number		
	Free Diameter	Thickness			Free Diameter	Thickness			Free Diameter	Thickness			
0.44 in	0.48 in	0.025 in	3D-3538	4.92 in	5.20 in	0.157 in	3E-4334	6.25 in	6.52 in	0.033 in	6V-0336		
0.50 in	0.55 in	0.035 in	1S-1538	5.00 in	5.49 in	0.109 in	2L-0404	6.25 in	7.25 in	0.156 in	5P-7151		
0.56 in	0.62 in	0.035 in	ZR-1256	5.17 in	5.39 in	0.109 in	8V-1904	6.30 in	6.57 in	0.033 in	7X-7608		
0.59 in	0.76 in	0.035 in	1H-4142	5.90 in	6.07 in	0.125 in	8D-2258	6.48 in	6.83 in	0.125 in	28B-2541		
0.75 in	0.83 in	0.035 in	2M-4191	5.91 in	6.22 in	0.157 in	109-0119	6.50 in	6.83 in	0.156 in	8T-1742		
0.81 in	0.90 in	0.042 in	5S-4455	6.00 in	6.62 in	0.125 in	5L-4756	6.50 in	6.83 in	0.156 in	8C-4400		
0.88 in	0.97 in	0.042 in	2L-6726	6.25 in	6.89 in	0.156 in	8L-8905	6.51 in	6.84 in	0.093 in	9V-3136		
0.90 in	1.00 in	0.042 in	4L-1466	7.00 in	7.22 in	0.156 in	1L-7388	7.03 in	7.38 in	0.187 in	3E-3212		
1.00 in	1.11 in	0.042 in	4D-1322	7.25 in	7.99 in	0.187 in	1U-4022	7.48 in	7.89 in	0.187 in	1D-3332		
1.12 in	1.25 in	0.050 in	5S-1522	8.00 in	8.82 in	0.187 in	8V-5380	7.50 in	7.89 in	0.086 in	18S-2888		
1.25 in	1.39 in	0.050 in	2D-6388	8.25 in	9.09 in	0.187 in	9X-1802	7.64 in	7.97 in	0.172 in	6V-2833		
1.38 in	1.53 in	0.050 in	1L-3788	8.27 in	8.74 in	0.197 in	3E-9400	7.75 in	8.24 in	0.125 in	6V-1586		
1.44 in	1.60 in	0.050 in	2H-1142	10.24 in	10.82 in	0.197 in	101-2860	7.90 in	8.27 in	0.120 in	313-4918		
1.50 in	1.66 in	0.062 in	8V-7294	9.06 in	9.53 in	0.197 in	3E-9401	8.00 in	8.51 in	0.125 in	188-0751		
1.56 in	1.73 in	0.062 in	3K-9879	11.02 in	11.61 in	0.197 in	192-7145	8.50 in	8.51 in	0.187 in	3E-6799		
1.66 in	1.83 in	0.062 in	ZH-1230	11.42 in	12.01 in	0.197 in	103-8096	9.06 in	9.62 in	0.187 in	117-8806		
1.81 in	1.95 in	0.069 in	7X-2908	13.39 in	14.06 in	0.236 in	117-9750	10.00 in	10.55 in	0.075 in	251-3121		
1.81 in	2.01 in	0.062 in	2D-5826	—	—	—	—	10.00 in	10.46 in	0.187 in	5P-8194		
1.85 in	2.05 in	0.078 in	1L-8480	—	—	—	—	10.00 in	10.46 in	0.075 in	5P-8194		
2.05 in	2.28 in	0.078 in	6L-7855	—	—	—	—	12.60 in	12.92 in	0.157 in	241-0153		
2.31 in	2.54 in	0.078 in	2D-6648	—	—	—	—	16.75 in	17.09 in	0.078 in	183-6233		
2.44 in	2.61 in	0.078 in	8T-9588	—	—	—	—	17.72 in	20.08 in	0.210 in	7G-5831		
2.44 in	2.70 in	0.078 in	6L-8797	—	—	—	—	27.08 in	31.65 in	0.210 in	5P-7989		
2.50 in	2.77 in	0.078 in	4D-1736	—	—	—	—	31.48 in	36.00 in	0.210 in	5T-4024		
2.75 in	3.05 in	0.093 in	6K-3531	0.69 in	0.73 in	0.035 in	3P-8465	35.12 in	39.57 in	0.210 in	8X-0559		
2.83 in	3.01 in	0.093 in	095-0942	2.17 in	2.38 in	0.125 in	6V-2832	40.55 in	49.21 in	0.210 in	139-7645		
3.00 in	3.12 in	0.093 in	2H-5549	2.31 in	2.48 in	0.078 in	7X-2485	—	1.34 in	0.197 in	6V-2875		
3.15 in	3.37 in	0.093 in	2W-1145	3.08 in	3.41 in	0.124 in	290-9849	—	1.71 in	0.252 in	8V-2115		
3.16 in	3.52 in	0.109 in	8L-6985	3.54 in	3.91 in	0.109 in	8C-3229	—	2.29 in	0.078 in	8V-6759		
3.25 in	3.62 in	0.109 in	8L-7936	3.75 in	3.99 in	0.062 in	6V-0885	—	2.39 in	0.078 in	4M-8010		
3.35 in	3.56 in	0.118 in	6V-5590	3.75 in	3.93 in	0.125 in	6V-5857	—	2.50 in	0.125 in	1T-0885		
3.50 in	3.89 in	0.109 in	3D-8341	4.00 in	4.30 in	0.109 in	6V-6788	—	3.00 in	0.128 in	234-0743		
3.54 in	3.76 in	0.118 in	8T-4707	4.25 in	4.56 in	0.109 in	121-1257	—	3.56 in	0.095 in	8F-1145		
3.88 in	4.23 in	0.109 in	1L-8472	4.83 in	4.94 in	0.109 in	4L-4888	—	3.75 in	0.125 in	5H-0783		
3.88 in	4.29 in	0.109 in	1S-3311	4.72 in	4.94 in	0.125 in	121-1258	—	4.19 in	0.127 in	1H-3106		
3.98 in	4.29 in	0.109 in	9M-9935	4.72 in	4.94 in	0.125 in	5P-6414	—	4.31 in	0.188 in	1P-9646		
3.94 in	4.36 in	0.109 in	5L-3964	4.82 in	5.08 in	0.125 in	5P-7074	—	4.81 in	0.138 in	7V-6672		
4.00 in	4.42 in	0.109 in	7M-2275	5.00 in	5.19 in	0.078 in	132-1183	—	4.83 in	0.093 in	5T-8687		
4.13 in	4.41 in	0.157 in	8T-7567	5.12 in	5.36 in	0.156 in	3P-7313	—	5.37 in	0.128 in	7J-3286		
4.33 in	4.76 in	0.109 in	5L-4751	5.32 in	5.44 in	0.093 in	8T-2151	—	5.80 in	0.138 in	087-5393		
4.53 in	4.80 in	0.157 in	9T-2584	5.50 in	5.69 in	0.210 in	8V-3074	—	5.91 in	0.233 in	6T-0364		
4.72 in	5.21 in	0.109 in	067-3161	5.51 in	5.75 in	0.156 in	5P-9957	—	6.13 in	0.120 in	3P-8218		
											7.07 in	0.125 in	1T-1232

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
Demonstrate using SIS to find required information				
Connect the computer to the network or Internet				Setting to the network or Internet
Open SIS and find information required for service/repair.				<ul style="list-style-type: none"> • Access SIS menu • Input specified serial number. • Find below information refer to specified serial number: - Specified system operation. - Specified testing & adjusting. - Specified remove/install. - Specified Assemble/Disassemble - Specified specification. - Specified part number/group number. - Maintenance interval schedule.
Documentation:				
Take picture if needed				

Tasks	Completed			Observation / Hints
	Yes	No	N/A	
Perform etiquette/manner when starting the job				
Meet the customer / assessor				
Perform etiquette/manner when opening the interaction.				<ul style="list-style-type: none"> • Perform smile & greetings. • Introduce Student's identity
Explain the purpose of Student's activity.				
Ask permission to perform the job.				