

CARCO®

INSTALLATION AND PARTS MANUAL MODEL 70A WITH ELECTRONIC CONTROLS FOR KOMATSU D65-X15 TRACTORS

NOTE: This manual covers winch installation and parts, specific to the tractor or tractors listed above. For all other common winch parts, refer to Carco Winch Parts Manual LIT2115.

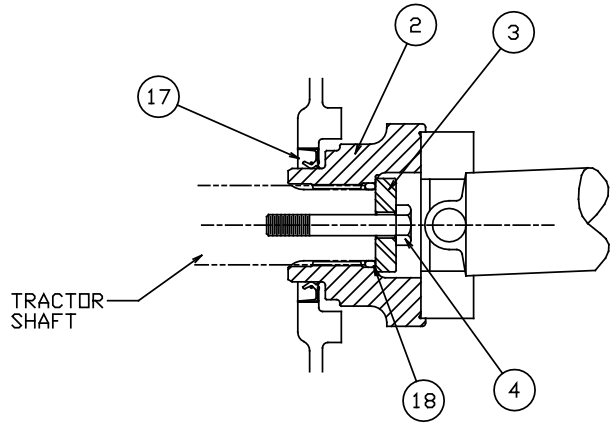
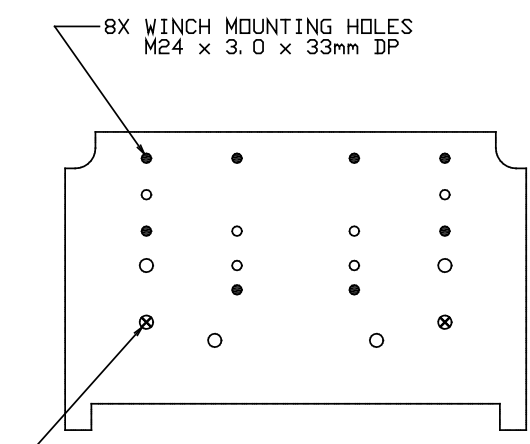
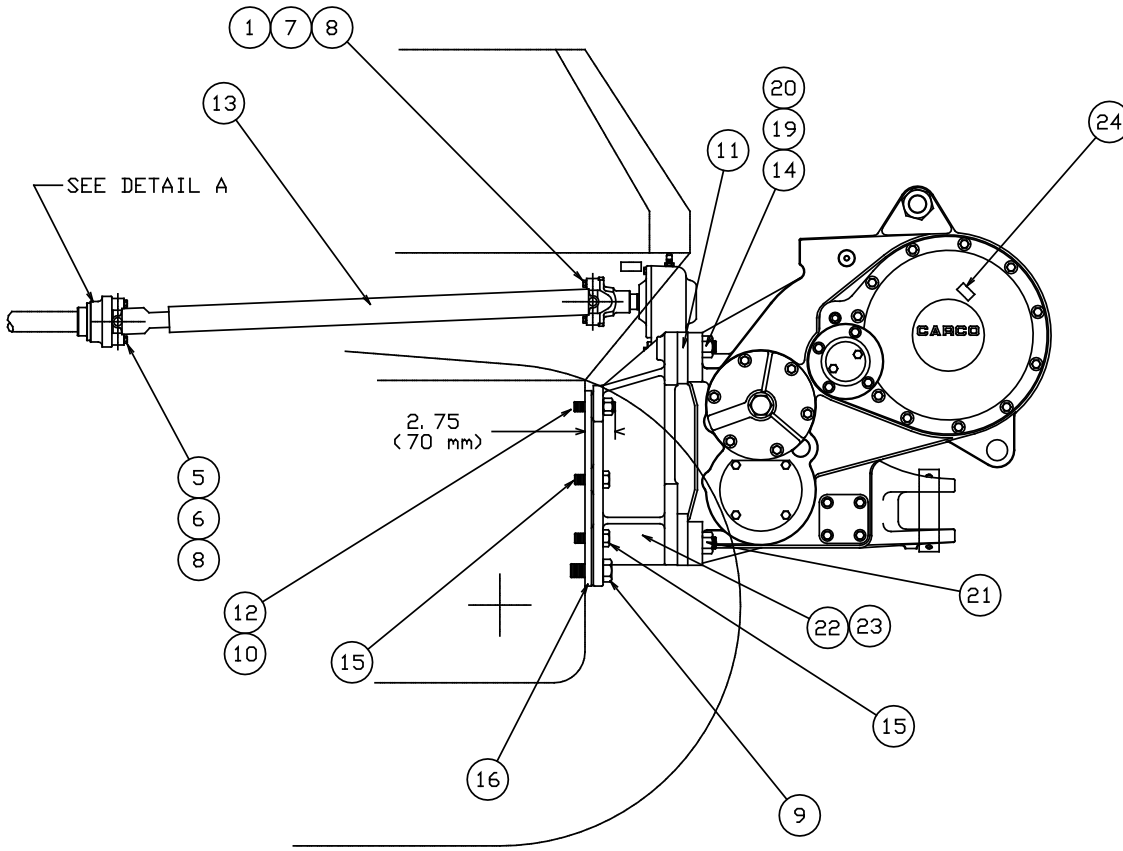
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MODEL NUMBER DESCRIPTION

70A	C	0	0	0	0	0	E
Basic Winch Model	Bevel Gear Ratio B-1.27:1 C-1.64:1 D-2.11:1 E-2.78:1	0-Overwind 1-Underwind	0-Standard Brake	0-Without Freespool 1-With Freespool	0-Four Shaft Winch	0-No Fairlead 3-3 Roller Fairlead 4-4 Roller Fairlead	E-Electronic Control

**MODEL 70A
MOUNTING GROUP
KOMATSU D65-E15**



DETAIL A

VIEW OF TRACTOR REAR MOUNTING FACE

MOUNTING INSTRUCTIONS

1. Remove all paint, dirt and oil from the mounting surfaces of the winch case, tractor, adapter brackets and spacers. The mounting surfaces must be clean and dry to provide a secure mount and resist movement while in use.
2. Remove the transmission cover from the rear of the tractor. The cover may be modified for clearance with the winch and reinstalled after the winch installation is completed.
3. If the tractor is equipped with a ripper circuit, remove the ripper supply tubes and cap the ports at the control valve. Remove the ripper joystick control valve from the console and cap the lines as directed in the tractor service manual.
4. Install the coupling, item 2, onto the tractor accessory drive shaft as directed in the tractor service manual. Refer to detail A.
5. Install the driveline assembly, item 13, onto the drive coupling, item 2. Be certain to remove all paint, oil or rust from the mating surfaces of the u-joint and yoke that may lead to loosening of the connection. Apply Loctite 242 to capscrews, item 5, and install with washers, item 6. Tighten the capscrews, item 5 to 44 lb•ft (60 N•m) torque.
6. Inspect the tapped holes in the rear face of the tractor. Make certain the threads are clean of rust and paint and that the thread depth will accommodate full engagement of the mounting fasteners.
7. Apply Loctite 271 to the clean, dry threads of studs, item 12. Install the studs into the tractor to a height of 2.75 in. (70 mm) as shown.
8. Apply Loctite 271 to the clean, dry threads of studs, item 14, and capscrews, item 21. Install the studs into the adapters, items 22 & 23, fully until the threads bottom out in the adapters.
9. Install spacers, item 11, between the adapters, items 22 & 23, and the winch. Tighten the nuts, item 20, and capscrews, item

21 only snug at this time. Some slight movement of the adapters may be necessary when installing the winch with adapters onto the tractor.

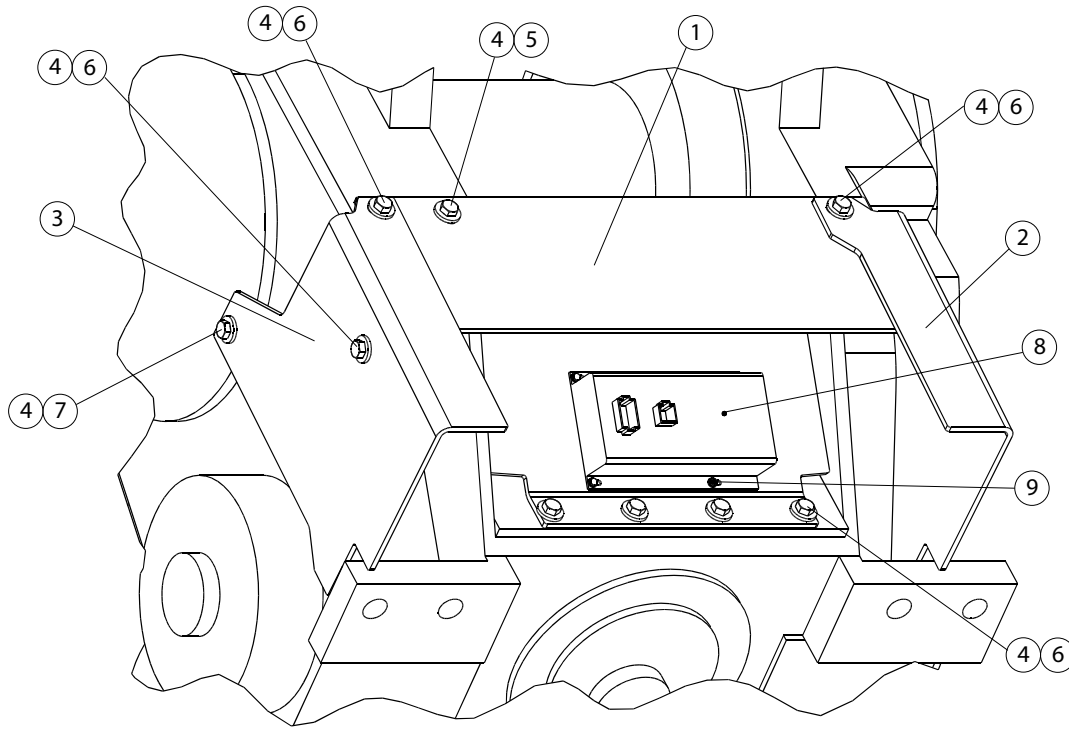
⚠ WARNING ⚠

Winch and mounting adapters weights approximately 2800 lb (1270 kg) without wire rope (cable) or oil. Make certain lifting equipment has adequate capacity. Attempting to lift the winch with inadequate equipment may result in personal injury or property damage.

10. Place one spacer bar, item 16, onto each stud on the rear face of the tractor. Install the winch onto the studs while guiding control cables into position under the right hand console. Apply Loctite 271 to the clean, dry threads of nuts, item 10, and capscrews, items 9 & 15. Tighten the 24 mm fasteners to 650 lb•ft (880 N•m); 33 mm fasteners to 1200 lb•ft (1630 N•m) torque.
11. Tighten nuts, item 20, to 980 lb•ft (1300 N•m) torque. Tighten capscrews, item 21, to 680 lb•ft (900 N•m) torque.
12. Install the driveline assembly onto the winch gearbox yoke. Align driveline ends to assure bearing crosses are in phase. Be certain to remove all paint, oil and rust from the mating surfaces of the u-joint and yoke that may lead to loosening of the connection. Apply Loctite 242 to capscrews, item 7, and install with washers, item 1. Tighten the capscrews, item 7, to 38 lb•ft (52 N•m) torque.
13. Check oil level in adapter gearbox and fill to level plug with SAE 90, GL5 gear oil. Oil capacity of gearbox is 1.8 qt. (1.7 l).
14. Fill winch to sight glass level plug with recommended oil. Oil capacity of winch case is 78 qt. (74 l).

ITEM	PART NO.	DESCRIPTION	QTY.
1	27152	LOCKWASHER (3/8)	4
2	29667	COUPLING	1
3	29671	HOLDER	1
4	29670	CAPSCREW, HEX METRIC-SPL.	1
5	69773	CAPSCREW, HEX (HM10-1.5 X 50 mm)	4
6	70953	WASHER, SPL.	4
7	32268	CAPSCREW, HEX (3/8-24 X 1¼)	4
8	102430	U-JOINT ASSEMBLY	2
9	31822	CAPSCREW, HEX METRIC-SPL.	2
10	70184	NUT, HEX (M24-3)	4
11	69053	SPACER	4
12	69788	STUD (M24-3)	4
13	29665	DRIVELINE ASSEMBLY	1
14	29912	STUD (1-1/8 - 7 X 5 G8)	4
15	70181	CAPSCREW (M24-3 X 80 mm)	4
16	29666	SPACER	4
17	29668	SEAL	1
18	29669	O-RING	1
19	27803	WASHER (1-1/8 HARDENED)	4
20	70768	NUT, HEX (1-1/8 - 7)	4
21	103580	CAPSCREW, HEX (1-8 X 3½ G8)	4
22	27772	ADAPTER, LH	1
23	27773	ADAPTER, RH	1
24	----	WIRE ROPE FERRULE - REFER TO WINCH OPERATORS MANUAL	

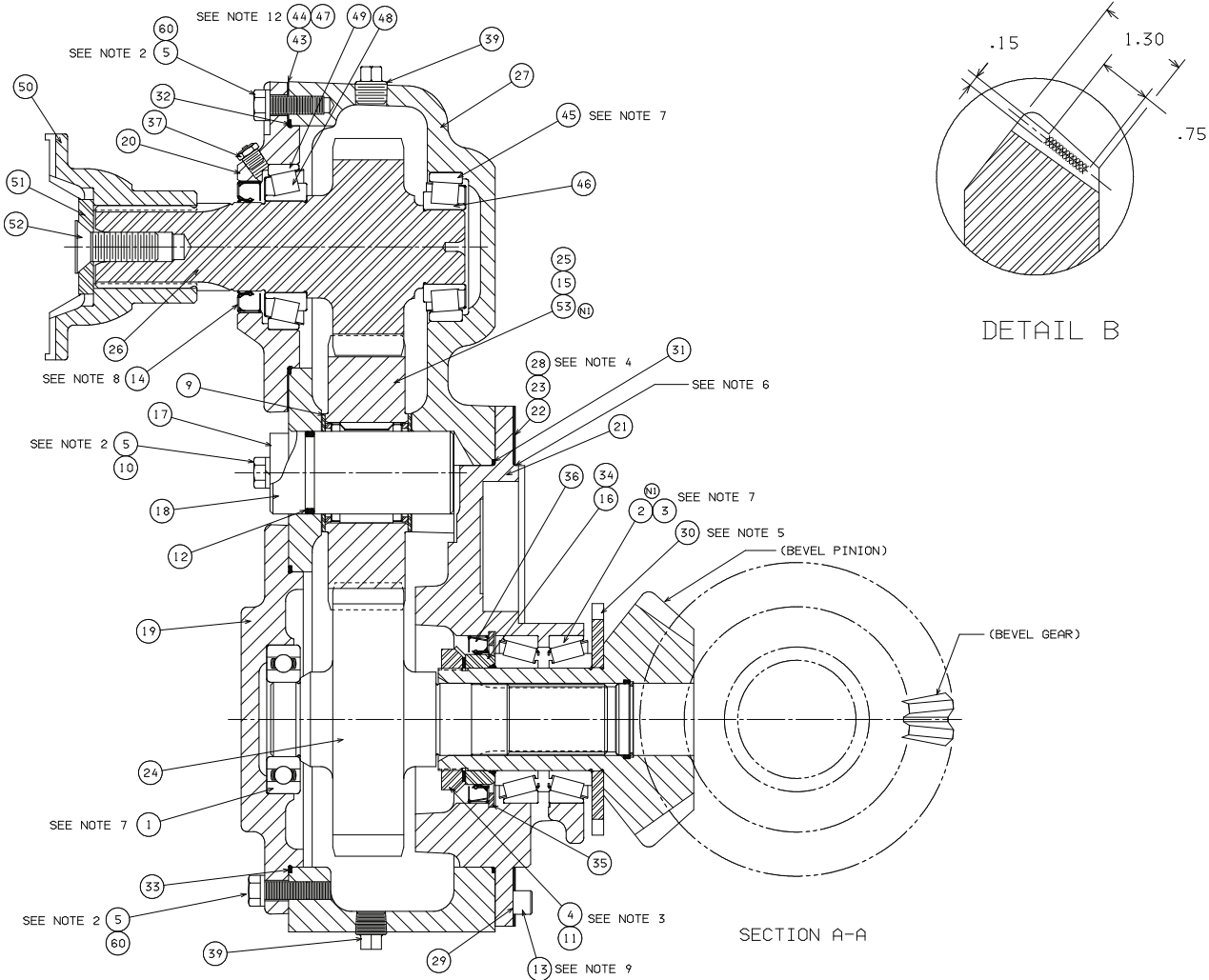
**MODEL 70A
GUARD GROUP
KOMATSU D65-E15**



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	104844	GUARD	1
2	104845	LH GUARD	1
3	104846	RH GUARD	1
4	102987	WASHER, HARD	10
5	104320	CAPSCREW (1/2 - 13 X 1 G8 Z)	1
6	104174	CAPSCREW (1/2 - 12 X 1-1/4 G8 Z)	8
7	104322	CAPSCREW (1/2 - 13 X 1-1/2 G8 Z)	1
8	102501	CONTROL MODULE	1
9	104847	SCREW, SELF-TAPPING	4

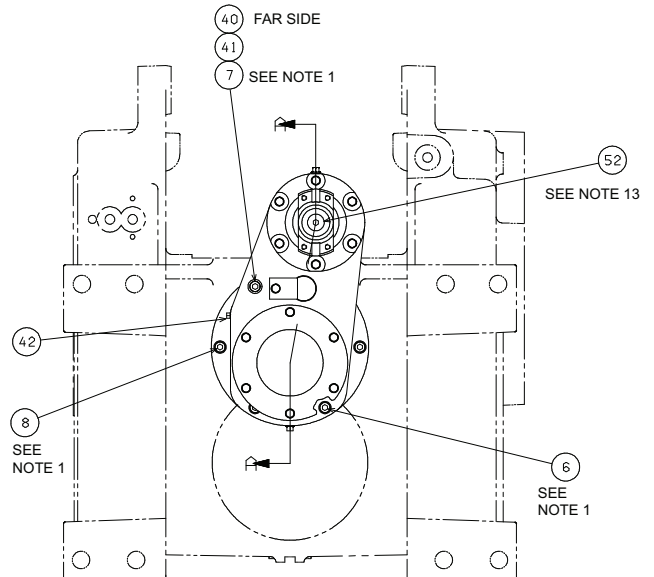
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**MODEL 70A
BEVEL GEAR GROUP
KOMATSU D65-E15**



NOTES:

1. APPLY "LOCTITE 242" TO CLEAN DRY THREADS AND TORQUE TO 60 FT•LBS.
2. APPLY "LOCTITE 242" TO CLEAN DRY THREADS AND TORQUE FASTENERS TO 25 FT•LBS.
3. TORQUE BEARING LOCKNUT, ITEM 4, TO 150 FT•LBS, PINION TO TURN SMOOTH BY HAND, 30 in/lbs MAX ON NEW ASSEMBLY.
4. SHIM AS REQUIRED FOR TOOTH CONTACT PATTERN PER DETAIL B WITH .004 TO .012 BACKLASH WITH BEVEL PINION HELD AXIALLY TOWARD CARRIER, ITEM 21, TO TAKE UP ALL AXIAL CLEARANCE IN BEARING ASSEMBLY, ITEM 2.
5. APPLY "LOCTITE 601" TO BORE OF PUMP PINION, ITEM 30, AND BEVEL PINION SHOULDER, PRESS PUMP PINION ONTO BEVEL PINION AND SEAT SECURELY AGAINST SHOULDER. ALLOW PROPER SET-UP TIME BEFORE USAGE.
6. APPLY APPROX. 3/16" BEAD OF SILASTIC SEALANT (RTV 732) TO PILOT.
7. APPLY THIN COATING OF MULTIPURPOSE CALCIUM OR LITHIUM BASED MEDIUM GREASE. DO NOT PACK SOLID.
8. INSTALL SEAL, ITEM 14, WITH CLOSED SIDE FLUSH WITH OUTBOARD FACE OF CAP, ITEM 20.
9. APPLY "LOCTITE 242" TO CLEAN, DRY DOWEL PIN, ITEM 13, AND INSERT IN CASE.
10. APPLY PIPE THREAD SEALANT TO FITTINGS, ITEMS 37, 38, 39 & 42.
11. ENGINEERING APPROVAL REQUIRED FOR SEALANT SUBSTITUTIONS.
12. USE SHIMS, ITEMS 43, 44 & 47, UNDER BEARING CAP, ITEM 20, AS REQUIRED TO PROVIDE .004-.006 (.102-.152 mm) BEARING END PLAY. INSTALL CAP WITHOUT SHIMS. APPLY FIRM HAND PRESSURE AGAINST CAP. DETERMINE GAP BETWEEN CAP AND GEARBOX BY AVERAGING 3 MEASUREMENTS APPROXIMATELY EQUALLY SPACED. INSTALL SHIMS TO EQUAL GAP PLUS .010 (.254 mm).
13. APPLY "LOCTITE 242" TO CLEAN DRY THREADS AND TORQUE TO 140 FT•LBS.



**MODEL 70A
BEVEL GEAR GROUP
KOMATSU D65-E15**

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	78337	BALL BEARING	1
2	70080	ROLLER BEARING CUP	2
3	70081	ROLLER BEARING CONE	2
4	24816	LOCKNUT, BEARING	1
5	27992	CAPSCREW, HEX HEAD (3/8 - 16 NC X 1 G5-SS)	13
6	73454	CAPSCREW, SOCKET HEAD (1/2 - 13 NC X 5 G8)	2
7	23445	CAPSCREW, SOCKET HEAD (1/2 - 13 NC X 5 1/2 G8)	1
8	103252	CAPSCREW, SOCKET HEAD (1/2 - 13 NC X 2 1/4 G8)	2
9	24581	THRUST WASHER	2
10	27152	LOCKWASHER (3/8)	1
11	11418	LOCKWASHER	1
12	13838	O-RING	1
13	22828	DOWEL PIN	1
14	22979	OIL SEAL	1
15	69582	BEARING SPACER	2
16	70382	SEAL SPACER	1
17	69583	PIN RETAINER	1
18	69584	IDLER PIN	1
19	27985	BEARING CAP, DRIVE PINION	1
20	29977	BEARING CAP	1
21	106864	CARRIER, BEVEL PINION	1
22	69826	SHIM, .020 in. (.51 mm)	2
23	69827	SHIM, .007 in. (.18 mm)	2
24	28820	PINION SHAFT	1
25	69938	IDLER PINION	1
26	29976	INPUT PINION	1
27	27976	GEAR BOX HOUSING	1
28	69945	SHIM, .005 in. (.13 mm)	2
29	69946	SHIM GASKET	1
30	69947	PUMP DRIVE PINION	1
31	27988	O-RING	1
32	70138	O-RING	1
33	27987	O-RING	1
34	74992	O-RING	1
35	70163	RETAINING RING	1
36	28732	OIL SEAL	1
37	10074	RELIEF VALVE	1
39	23377	PLUG (3/8 - 18 NPTF)	2
40	22454	O-RING	1
41	72144	SEALING WASHER	1
42	18009	PIPE PLUG (1/8 - 27 NPTF)	1
43	28916	SHIM, .005 in. (.13 mm)	3
44	28917	SHIM, .007 in. (.18 mm)	2
45	28923	BEARING CUP	1
46	28922	BEARING CONE	1
47	28918	SHIM, .020 in. (.51 mm)	1
48	29981	BEARING CONE	1
49	29980	BEARING CUP	1
50	29978	YOKE	1
51	29991	RETAINER WASHER	1
52	100703	CAPSCREW, SOCKET FLAT HEAD (5/8 - 11 X 1 1/4 GD8)	1
53	70648	ROLLER BEARING	1
60	72142	SEAL WASHER	12

SS = SELF SEALING